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SVAA

SHARED VIRTUAL ARRAY ADMINISTRATOR

REPORTING FOR VM

PRODUCT TYPE
SOFTWARE



Shared Virtual Array Administrator

Version 3.1

for VM

Reporting

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Fifth Edition (Rev E), March 2005 -- EC 132026

This edition applies to Shared Virtual Array Administrator (SVAA) for VM and to all subsequent modifications of that product until otherwise indicated in new editions or revision pages. If there are changes in the product or improvements in the information about the product, this document will be revised and reissued.

Comments concerning the contents of this document should be directed to:

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Louisville, CO 80028-2121

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About This Book

Shared Virtual Array Administrator (SVAA) helps you configure and administer the Shared Virtual Array (SVA) subsystem and produce reports about the SVA's performance. SVAA also can help you manage certain other DASD subsystems¹ by reporting on their efficiency and degree of utilization. This book describes how to use the Reporter component of SVAA.

Note: Throughout this document, “VM,” refers to **z/VM**, and “HCD” refers to either **HCD** or **IOCP**.

Who Should Read This Book

This book is for people responsible for DASD administration, capacity planning, and performance analysis. In particular, it is for those wanting to obtain reports about the performance of SVA and certain other DASD subsystems.

This book presumes that readers are familiar with the operation of the SVA subsystem and with measuring of the performance of DASD subsystems.

Organization of This Book

This book is organized as follows:

Chapter 1, Introduction	Introduces the concept of subsystem reporting as a part of SVAA.
Chapter 2, Overview of SVAA Subsystem Reporting	Introduces the three major functions of Reporter.
Chapter 3, VM Operating Environment for SVAA	Describes running Reporter on VM systems.
Chapter 4, Controlling Data Collection	Describes how to control data collection.
Chapter 5, Managing the Collected Data	Describes how to manage the collected data.
Chapter 6, Controlling the Reports	Describes how to control the output reports.
Chapter 7, Using the SVAA Panels	Describes how to use interactive Reporter panels to control data collection and reporting.
Chapter 8, SVAA Subcommands and Commands	Describes how to use Reporter subcommands to control collection and reporting, either from the command line or from a batch program. The chapter also describes how to specify the logging files and how to manage the collected data.

¹ Subsystems attached to controllers that are compatible with the IBM 3990.

Chapter 9, Understanding the SVAA Reports	Describes how to interpret the output reports.
Chapter 10, Format of Logging Records	Shows the format of Reporter records.
Appendix A, Exception Thresholds	Describes the exception thresholds and their defaults.
Appendix B, Variables for Bar Chart Reports	Describes the fields that can be requested for a bar chart report.
Appendix C, Information in Host Records	Describes the variables whose values can be requested for the different kinds of reports, and which reports the variables appear in.
Appendix D, Using Data Extraction	Provides suggestions for creating graphs of extracted data and lists the variables that can be specified in data extraction.

A glossary, a list of acronyms and abbreviations, and an index appear at the back of the book.

Conventions Used in This Book

This book uses the following conventions in describing the subcommands and panels:

- Commands and values that you enter are shown in bold type (for example, **SET ECAMDEV**).
- Uppercase letters in subcommand or parameter names indicate the required letters; the lowercase letters can be omitted. For example, **SASSubsystemFile** shows that **SASSFL** is the short form of the **SASSUBSYSTEMFILE** parameter.
- In the panel descriptions, field names and key names are shown in bold type (for example, the **Dates** field, the **Enter** key).

For more details of the conventions, see “Subcommand Descriptions” on page 8-9.

Notation Used in Syntax Diagrams

Throughout this library, diagrams are used to illustrate the programming syntax. The following list tells you how to interpret the syntax diagrams:

- Read the syntax diagrams from left to right, from top to bottom, following the path of the line.

The **▶▶** symbol indicates the beginning of a statement.

The **→** symbol indicates that the statement syntax continues on the next line.

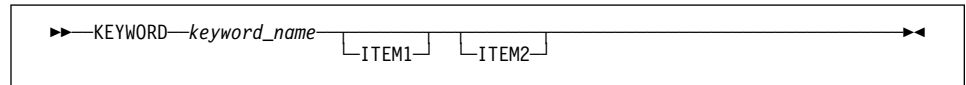
The **▶** symbol indicates that a statement is continued from the previous line.

The **→▶▶** symbol indicates the end of a statement.

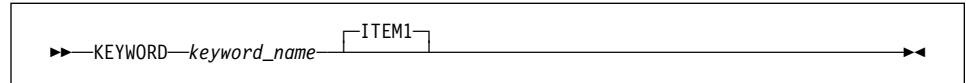
- Items shown on the main path of the statement are required.

▶▶—KEYWORD—*keyword_name*—**▶▶▶▶**

- Items shown on branches below the main path are optional.

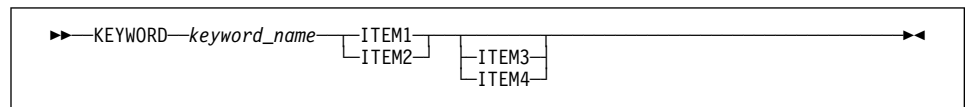


- Items shown on branches above the main path are default values.



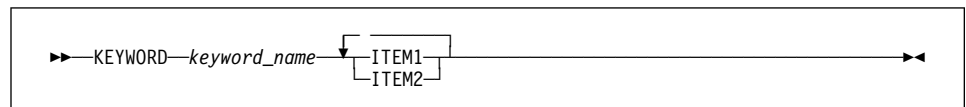
- Items appearing in a stack indicate that only one of the items can be specified. When one of the items in a stack appears on the main path, you must include one of the items.

For example, in the following diagram, you must include either ITEM1 or ITEM2. ITEM3 and ITEM4 both appear below the main path, so neither one is required.

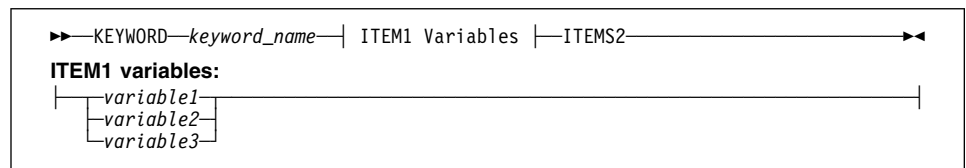


- A repeat arrow shown above an item or a stack of items indicates that you can specify the item multiple times or specify more than one of the items. A character (such as a comma or a blank) on the repeat arrow indicates that the items must be separated by that character.

For example, in the following syntax diagram, you can specify both ITEM1 and ITEM2, but you must use a blank to separate your choices in your programming syntax.



- In some cases, when an item has additional items associated with it, an additional syntax diagram is shown that represents the full syntax of that item. For example, in the following syntax diagram, additional information that can or must be specified for ITEM1 appears in the “ITEM1 Variables” syntax diagram.



Shared Virtual Array Documentation

This section lists both software documentation and hardware documentation for the Shared Virtual Array products.

How to Obtain Software Documentation

All of the Shared Virtual Array software publications are available:

- On the “SVA Software Publications” CD-ROM (part number 3134524nn). To order a copy, contact StorageTek Publication Sales and Service at 800-436-5554 or send a fax to 303-661-7367.
- Online (for viewing and printing), at the StorageTek Customer Resource Center (CRC) web site at: **www.support.storageitek.com**
Click on Software and go to the Shared Virtual Array Software list.

Note: Access to the CRC site requires a password. To obtain a password, call StorageTek Customer Support at 800-678-4430.

SVA Administrator Library:

SVA Administrator for VM

- *Shared Virtual Array Administrator for VM
Configuration and Administration*
3134629nn
- *Shared Virtual Array Administrator for VM
Installation, Customization, and Maintenance*
3134631nn
- *Shared Virtual Array Administrator for VM
Reporting*
3134630nn

SnapVantage (a feature of SVAA for VM)

- *SnapVantage
Installation, Customization, and Usage Guide*
3134940nn

SVA Administrator for OS/390

- *Shared Virtual Array Administrator for OS/390
Configuration and Administration*
3112905nn
- *Shared Virtual Array Administrator for OS/390
Installation, Customization, and Maintenance*
3112908nn
- *Shared Virtual Array Administrator for OS/390
Reporting*
3112906nn
- *Shared Virtual Array SnapShot for OS/390
Installation, Customization, and Maintenance*
3112913nn

SVA Administrator for OS/390 and VM

- *Shared Virtual Array Administrator for OS/390 and VM
Messages and Codes
3112907nn*

For any StorageTek Software:

- *Requesting Help from Software Support
1121240nn*

SVA Hardware Publications

Shared Virtual Array hardware publications are available:

- Online (for viewing and printing), at the StorageTek Customer Resource Center (CRC) web site at: **www.support.storagetek.com**
Click on Disk Subsystems.

Note: Access to the CRC site requires a password. To obtain a password, call StorageTek Customer Support at 800-678-4430.

V2Xf SVA Library:

- *V2Xf Shared Virtual Array
General Information
MO9216x*
- *V2Xf Shared Virtual Array
Introduction
MO9217x*
- *V2Xf Shared Virtual Array
Operation and Recovery
MO9219x*
- *V2Xf Shared Virtual Array
Planning
MO9218x*
- *V2Xf Shared Virtual Array
Reference
MO9220x*
- *V2Xf Shared Virtual Array
System Assurance
MO9221x*
- *V2Xf Shared Virtual Array
Peer-to-Peer Remote Copy Configuration Guide (PPRCFCN)
MO9211x*

V2X SVA Library:

- *V2X Shared Virtual Array
General Information
MO9134x*
- *V2X Shared Virtual Array
Introduction
MO9135x*

- *V2X Shared Virtual Array
Operation and Recovery*
MO9137x
- *V2X Shared Virtual Array
Planning*
MO9136x
- *V2X Shared Virtual Array
Reference*
MO9139x
- *V2X Shared Virtual Array
System Assurance*
MO9138x

V960 SVA Library:

- *V960 Shared Virtual Array
General Information*
MO5011x
- *V960 Shared Virtual Array
Introduction*
MO5006x
- *V960 Shared Virtual Array
Operation and Recovery*
MO5007x
- *V960 Shared Virtual Array
Planning*
MO5008x
- *V960 Shared Virtual Array
Reference*
MO5009x
- *V960 Shared Virtual Array
System Assurance*
MO5010x

Peer-to-Peer Remote Copy for V2X, V2X2, and V960:

- *Peer-to-Peer Remote Copy
Configuration Guide*
MP4007x

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- StorageTek
- SVA

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- FICON
- IBM
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Refer to the document *Requesting Help from Software Support* for detailed information about contacting StorageTek for technical support in your country or geographical location.

During problem resolution, Software Support may request that you provide specific diagnostic materials. Although printed data might be acceptable, data in machine-readable form is much preferred.

VM Diagnostic Materials

Software Support may request one or more of the following kinds of diagnostic materials, depending on the nature of the problem:

- Details of the circumstances in which the problem occurred
- Console logs
- EREP type 'S' records
- ISPF panel images
- ISPF panel names and SPFLOG
- CCW I/O trace (TRSOURCE) output
- VMDUMP data
- CP dump data
- Listings of SVAA files altered during installation, including the PROFSIBS and PROFSIBA macros
- Copies of logging files

Summary of Changes

Fifth Edition (Rev E), March 2005 -- EC 132026

This edition:

- Adds 3390-9 to the list of possible values for DEVICE TYPE in the Definition of Field Names section of Chapter 9.

All significant changes are identified by a vertical bar in the left margin.

Fourth Edition (Rev D), April 2004 -- EC nnnnnn

This edition:

- Updates the QUERY DEVICE subcommand to indicate that the subcommand does not display information about PAV Alias devices.
- Updates the SET ECAMDEVICE subcommand to note that PAV Alias devices can not be defined as ECAM devices.
- Adds notes that PAV Alias devices are excluded from all data collection. As a result, performance and space utilization data is not reported for Aliases.

All significant changes are identified by a vertical bar in the left margin.

Third Edition (Rev C), November 2003 -- EC 128861

This edition:

- Uses the term “FICON” where appropriate.
- Uses the term “ESCON” rather than “serial.”
- Updates the “chanType” field of the Channel Interface Statistics Record in Chapter 10.
- Makes minor corrections and edits throughout the document.

All significant changes are identified by a vertical bar in the left margin.

Second Edition (Rev B), October 2002 EC 128585

This edition:

- Adds a SNAPSHOT option to the SVAA main menu (page 7-5). This enables you to navigate to the SnapShot ISPF panels, which are described in the *SVAA for VM Configuration and Administration* manual.
- Revises unit and volume parameter descriptions in Chapter 8 to reflect that you can define up to 4096 devices on the V2X SVA.
- Corrects some field descriptions in the SMF Subsystem Performance Record in Chapter 10.
- Corrects some SAS label descriptions in Table C-1 in Appendix C.

- Makes minor corrections and edits throughout the document.

All significant changes are identified by a vertical bar in the left margin.

Chapter 1. Introduction

Shared Virtual Array Administrator (SVAA) is host software that helps you manage the Shared Virtual Array (SVA) subsystem. SVAA runs on several operating systems—including VM. SVAA provides facilities for administering, configuring, and obtaining reports about the performance of SVA subsystems, about the performance of traditional DASD subsystems, and about the cache effectiveness of certain non-SVA subsystems.¹

Reporter is the part of SVAA that collects data from your subsystems and produces reports based upon that data. The Reporter program enables you to understand how well the SVA subsystems are performing, how well they are utilizing space, and how effectively they are using the cache.

This manual describes the reporting functions of SVAA Reporter. For documentation of the administration and configuration functions of SVAA see *SVAA for VM Configuration and Administration*.

With Reporter, you can control which statistics from the subsystems are reported, the time intervals that the reports cover, the times for which reports are to be produced, and the contents of the reports that Reporter produces. Alternatively, you can use data collected from the subsystems as input to your own reporting programs.

Reporter consists of three functions:

- Collecting subsystem data
- Managing the collected data
- Reporting on the data

Chapter 2 introduces the three functions and the control you have over them; later chapters describe the three processes in detail.

Figure 1-1 on page 1-2 shows a simplified view of the three functions of Reporter, with the input and output of each function.

¹ Reporter also provides Cache Effectiveness reports for subsystems attached to controllers that are compatible with the IBM 3990.

Introduction

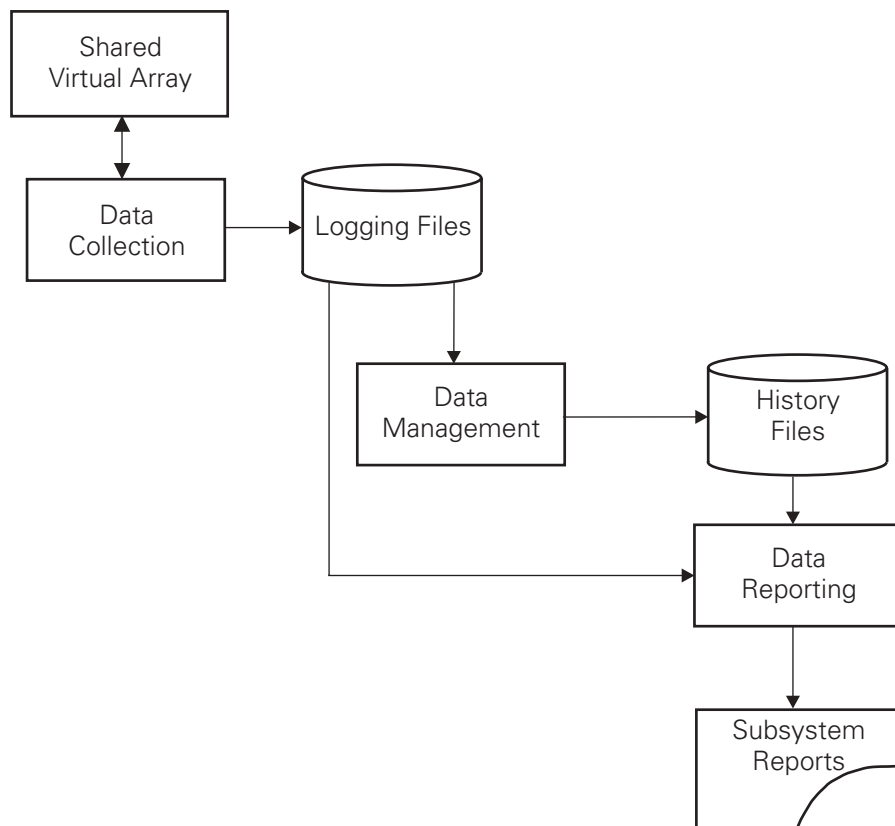


Figure 1-1. *Simplified view of Reporter*

You can access the Reporter functions by:

- Using SVAA panels under ISPF
- Entering SVAA subcommands on the CMS command line
- Entering SVAA subcommands from a CLIST or REXX EXEC.
- Entering SVAA operator commands from the host console

Chapter 2. Overview of SVAA Subsystem Reporting

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Collecting Data

This chapter provides an overview of the three major functions of Reporter:

1. Collecting the data
2. Managing the collected data
3. Reporting on the data

Collecting Subsystem Data

This section describes the data you can collect from the subsystems, and explains what you can control about collection so that the reports based on the collected data will be most useful.

Chapter 4, “Controlling Data Collection” provides details of specifying data collection.

Categories of Data

Reporter can collect both performance data and space-utilization data.

Performance Data

An SVA subsystem gathers statistics about its operation at intervals. Reporter commands initiate collection of statistics from the subsystems and determine how the statistics are stored for later analysis.

You can collect data for analysis of:

- Performance of the functional devices
- Cache effectiveness
- Space utilization (net capacity load and free-space collection load)

Reporter collects this data at the times you specify and stores the data in DASD files.

Space-Utilization Data

Unlike data about performance and space utilization, data about space utilization is a view of the conditions at a particular time. While performance data is collected at intervals and reported on later, space-utilization data is used directly to produce reports.

Data about utilization of space includes:

- The amount of functional space defined
- The amount of functional space allocated
- The amount of functional space used
- The amount of physical back-end space used by each functional volume

Controlling Data Collection

This section summarizes the aspects of collection over which you have control with Reporter. You control the times for collection and the devices for which statistics are to be collected. Each time Reporter collects statistics from a subsystem is called a *collection instance*.

Collecting Performance-Tracking Data

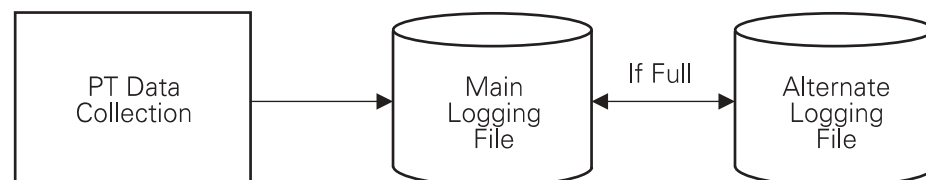
Typically, statistics collected with Reporter are *performance-tracking* (PT) data.

Performance-tracking (PT) data is a set of statistics about subsystem performance gathered over a period of time, at specified intervals. You can specify the collection of either device-performance data or cache-effectiveness data, or both. The Data Collection Task collects PT data at intervals and accumulates the data in the main logging file. There can be only one PT data collection run in a Data Collection Task at any one time.

Once you start data collection, Reporter collects data indefinitely (or until you stop collection). PT data consists of statistics collected for a defined period, as follows:

- Device performance, including:
 - Access density
 - Device utilization
 - I/O response time
 - I/O rates (by channel, subsystem, and functional device)
 - Channel activity
 - Free space collection load
 - Net capacity load
 - Drive module utilization (physical devices)
- Cache effectiveness, including:
 - I/O rates (for the subsystems and devices)
 - Read, write, and I/O cache hit percentages
 - DASD fast-write nonvolatile storage constraint
 - Stages per second
 - Hits per stage
 - Low reference count
 - Track occupancy

Reporter stores the collected PT data in a sequential file called the *main logging file*. If you anticipate collecting large amounts of data, you can define an additional file, an *alternate logging file*, so that when one file becomes full, collection can be switched to the other, as shown in Figure 2-1.



C46066

Figure 2-1. Full PT logging file

The logging files are stored on disk.

Collecting On-Request Data

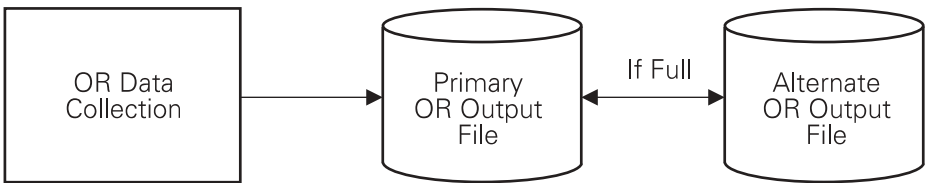
At times, you may want to make an ad hoc study of the performance of a DASD subsystem or change the parameters you specified for PT data collection. Rather than changing the parameters of PT data collection, you can request a special collection run that focuses more closely on the devices or time periods in which you

Collecting Data

are interested. Such collection is called *on-request* (OR) data collection. (Unlike PT data collection, you can have multiple OR data collection runs at the same time.)

OR data collection is used to gather the same kinds of data as performance-tracking data collection, but with different collection parameters. For example, OR collection can be used to gather data about a specific aspect of subsystem performance, in a more specific way than in PT collection. Again, you may notice in a cache-effectiveness exception report that the values of a variable have changed significantly. To collect statistics for that subsystem over more-frequent intervals, you can use OR data collection to gather the needed information without disturbing the normal collection of PT data for the subsystem. As further examples, you can request a special data collection run to help in diagnosing DASD performance problems, or to obtain detailed analysis with finer time resolution than you specified for PT data collection.

As with PT data collection, you can specify one or two files for data collection, a *primary OR output file* and an optional *alternate OR output file*. When one file becomes full, collection is switched to the other, as shown in Figure 2-2. OR data collection has no effect on PT data collection.



C46067

Figure 2-2. Full OR logging file

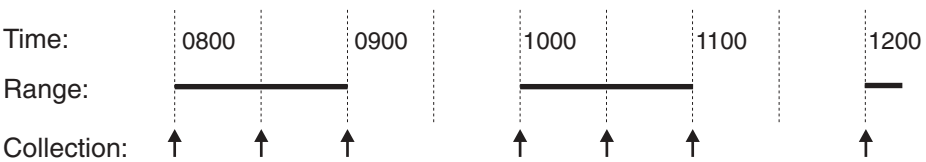
You can collect the OR data in the same files as the PT data by giving the OR collection run a unique identifier to distinguish the resulting data from the PT data.

Controlling When to Collect Data

You control, for each day, the time ranges over which collection is active, how often collection is made, and the synchronization of collection.

Controlling Collection Ranges

With Reporter you have great flexibility in specifying *ranges of times* (or *time ranges*) when data is to be collected. You can specify up to 16 time ranges for each day's data collection. These ranges are broad periods (usually hours) during which data is to be collected. For example, you can specify that an overall range of time for data collection is from 8 a.m. to 9 a.m. and from 10 a.m. to 11 a.m., thus:



C46069

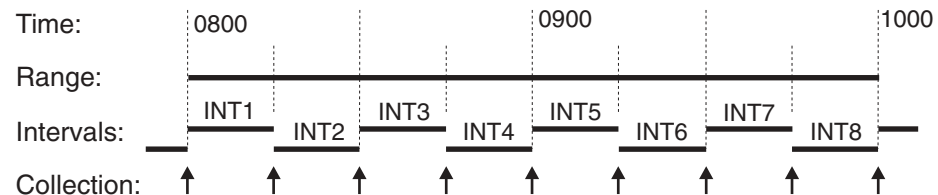
Figure 2-3. Time ranges

If you do not specify time ranges, Reporter collects data at the specified interval all day. If you do specify time ranges, Reporter collects data at the beginning and end of each time range and at the end of each interval during the time ranges, but not outside the ranges.

Controlling Intervals

If you were to examine total statistics over relatively long periods of time (such as several hours) less detail would be apparent. To make the data from the subsystems meaningful, you divide the collection periods into equal *intervals* of data collection. The collection interval is the time between *collection instances*.

You can specify the length of the collection intervals. For example, you can specify that the time range from 8 a.m. to 10 a.m. is to be broken into 15-minute intervals. Data would be collected at 0, 15, 30, and 45 minutes past each hour. Statistics would be collected at the beginning of the first interval and at the end of each interval, as shown in Figure 2-4.



C46068

Figure 2-4. Times of collection instances

In this example, interval 1 lasts from 8 a.m. to 8:15, interval 2 is from 8:15 to 8:30, and so on. There are 8 equal intervals. If collection is to start at 8:00 a.m., statistics are transferred from the subsystem to Reporter at 8:00 a.m. (taking a base reading), and at 8:15, 8:30, 8:45, and so on.

Synchronizing Collection

You can *synchronize* data collection so that one of your intervals starts at a particular number of minutes after the hour.

You can also specify that there is to be no synchronization, in which case collection is synchronized with the beginning of the collection range, if you have specified a range. However, if you specify neither ranges nor synchronization, SVAA starts collecting immediately and continues collecting until stopped (for performance-tracking data collection) or until midnight (for on-request data collection).

No matter what you specify for synchronization, there are always collection instances at the beginning and at the end of each time range (unless you are collecting subsystem data all day).

Specifying a synchronization point has the effect of moving the beginning and ending points of intervals to coincide with the synchronization time. The length of the intervals then determines the other times that collection intervals are to begin. For example, if you specify a time range from 8 a.m. to 10 a.m., intervals of 20 minutes, and a synchronization time of 5 minutes past the hour, data is collected as shown in the following diagram.

Collecting Data

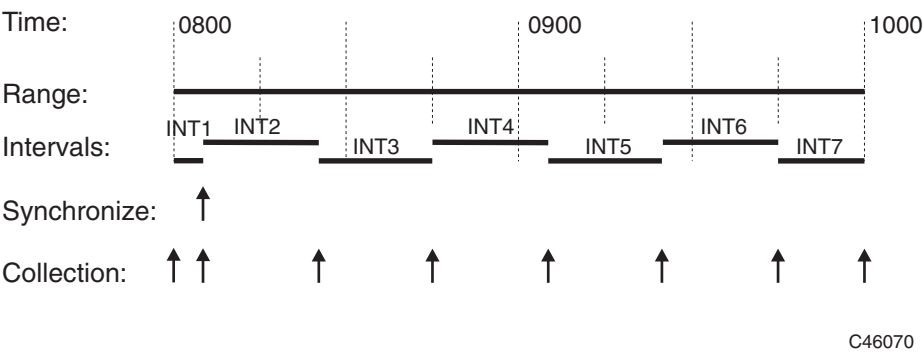


Figure 2-5. Synchronization out of step with intervals

In this example, there is a collection instance at 8:00 (taking the base reading) and again at 8:05. Interval 2 ends and collection occurs at 8:25, interval 3 ends and collection occurs at 8:45, and so on. Interval 7 ends at 10:00 a.m. and collection occurs at that time. Notice that there is data collection at 8:00 a.m. and at 8:05, and that interval 1 is only 5 minutes long. Also, interval 7 is shorter than the other full intervals by 5 minutes. In this example, specifying synchronization points of 5, 25, and 45 minutes would all have the same effect.

Such a combination of intervals and synchronization times as in this example is not recommended. To avoid having irregular collection periods, which could skew the data you obtain, you should specify that the time range would be from 8:05 until 10:05. Alternatively, you should specify that synchronization begin at 0 minutes past the hour:

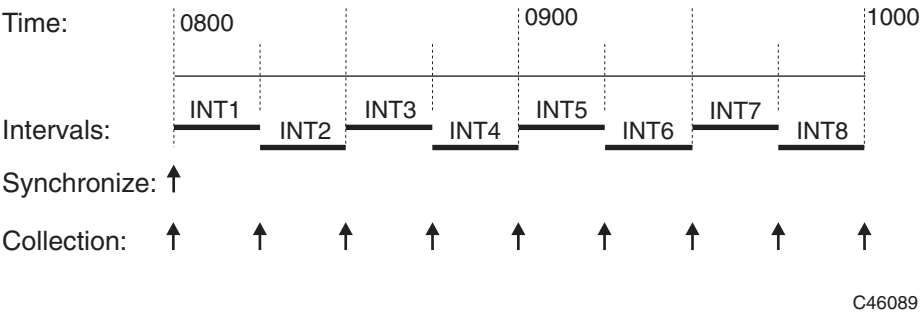
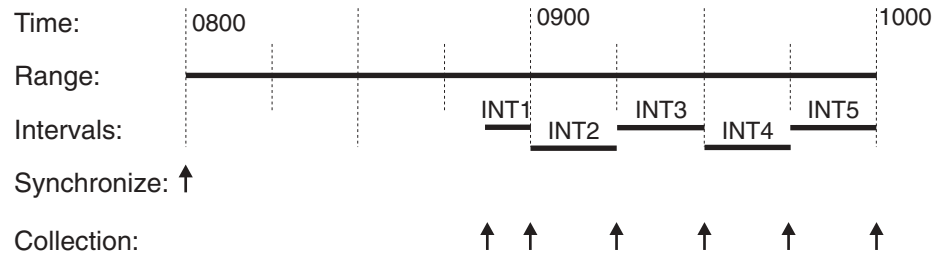


Figure 2-6. Synchronization in step with intervals

Issuing a command to collect data during a time range can also cause irregular first intervals to occur. For example, if you start OR collection at 8:50 when the time range is 8:00 to 10:00 and the collection interval is 15 minutes (collection instances occur every 15 minutes), and synchronization is on the hour, collection occurs at 8:50, 9:00, 9:15, and so on, so the first collection interval is shorter than the others:



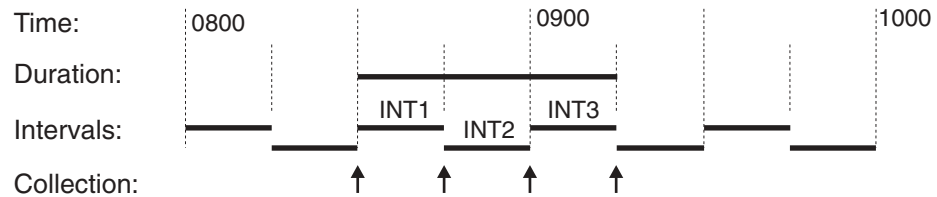
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Figure 2-7. Irregular first interval

Controlling the Duration of OR Collection

For OR collection only, instead of specifying a time range you can alternatively specify a *duration* of collection. Collection starts at the time you enter the collection command and continues for a duration you specify. A duration is essentially a single time range.

You can use intervals and time synchronization in connection with a duration, just as you can use them with time ranges. However, you can specify only one duration for collection, in contrast to time ranges, of which you can specify up to 16. For example, suppose you start OR collection at 8:30 a.m., you want collection to last for 45 minutes, and the collection interval is 15 minutes:



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Figure 2-8. Specifying a duration

The OR collection interval lasts from 8:30 to 9:15. Reporter reads the statistics from the subsystem at 8:30, 8:45, 9:00 and 9:15, and creates three records, each spanning 15 minutes.

Controlling the Devices for Data Collection

You can specify either subsystems or specific devices within subsystems for data collection. You can list either unit addresses or volume serial numbers (volsers) for the devices, or both. Reporter lets you specify exactly which devices to *include* in data collection. However, there are many variations among these arrangements.

Instead of specifying lists of functional devices for collection, you can specify ranges of SVAA subsystem names, volsers, or unit addresses. In addition, you can specify certain devices or ranges of devices to *exclude* from data collection. With exclusion, you subtract devices from the list already specified for inclusion in collection. You can even use wildcard characters to specify devices or ranges of devices for inclusion or exclusion.

Reporter thus provides great flexibility in enabling you to specify the devices for data collection. You can also specify collection from non-SVA disk subsystems, and you can collect data for the SVA Test or Production partitions (with overall totals), or

Collecting Data

you can collect detailed data for each functional device. For non-SVA disk subsystems, Reporter collects the same cache-effectiveness statistics as for SVA subsystems, except for the low reference count and track occupancy statistics—see page 2-3. Reporter does not collect space-utilization data for non-SVA subsystems.

Notes:

1. Performance data is not collected for Power PPRC Bridge devices.
2. In the SAS Macro library provided with SVAA, Power PPRC Bridge devices are considered CKD devices for the purposes of space-utilization data collection and reporting.
3. PAV Alias devices are excluded from all data collection; thus, performance data is not reported for Aliases.

Multiple Collection Tasks and Subsystems

One Data Collection Task can collect data for multiple disk subsystems. However, to avoid redundant data, you should not have multiple Data Collection Tasks collecting data for the same subsystem.

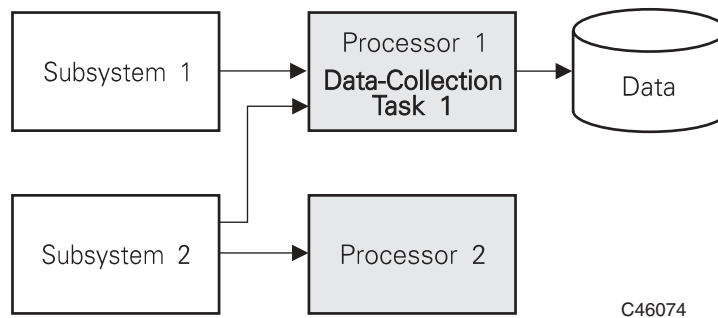


Figure 2-9. *One Data Collection Task for two subsystems.* Processors 1 and 2 can also be logical partitions of a single processor.

For example, in Figure 2-9, Processor 1 has access to both Subsystem 1 and Subsystem 2; Processor 2 has access only to Subsystem 2. For this configuration, you can define one Data Collection Task to run on Processor 1 and collect data for both Subsystems 1 and 2. In this case, Processor 2 does not need to run a Data Collection Task.

Figure 2-10 on page 2-9 shows the addition of Subsystem 3 to the configuration.

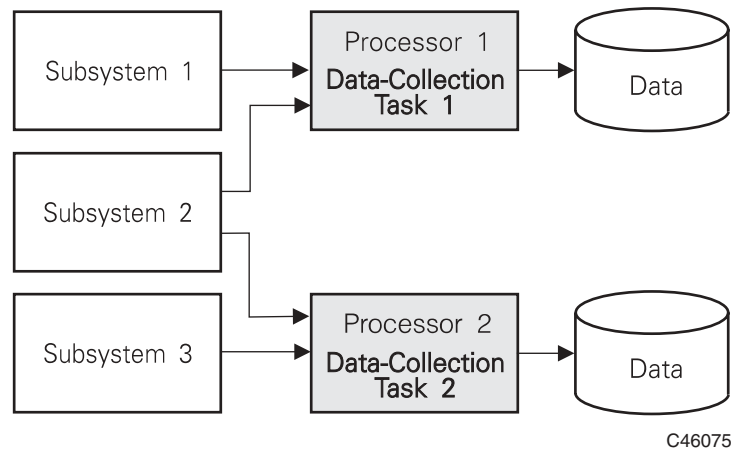


Figure 2-10. Two Data Collection Tasks for three subsystems

You can still run one task on Processor 1 to collect data for Subsystems 1 and 2. However, you should now define a Data Collection Task to run on Processor 2 to collect data for Subsystem 3, because the Data Collection Task in Processor 1 does not have access to Subsystem 3.

Note: In Figure 2-10, a Data Collection Task 2 running in Processor 2 would collect information about Subsystem 2 that is redundant with the data collected in Data Collection Task 1. You should choose to exclude Subsystem 2 from collection in Data Collection Task 2.

With SVAA, you can combine the data from each Data Collection Task into a single file for combined reporting for all your subsystems.

Managing the Collected Data

There are three tasks involved with managing the collected data:

- Copying the logging files, usually at the end of the day.
- Copying and switching the logging files if they become full.
- Summarizing the collected data

Chapter 5, “Managing the Collected Data” provides details of specifying data management.

Copying the Logging Files

Depending on how you use and name the logging files, you may want to start with fresh copies of the logging files each day, so that each day's files are uniquely identifiable.

Handling Full Logging Files

As the logging files become full, you copy the data to other files that you will use later as input to the summarization step. On-request collection is usually for a relatively short time, so the logging files can be made large enough so that there is no need for copying.

You should store data on a sufficiently large minidisk—one that will not fill up and, thus, require copying. If the minidisk should become full, and if you have specified an alternate logging file on another minidisk, you can specify in an exit that collection output be switched to the other logging file. The same applies to the

Reporting Data

minidisks containing the primary or alternate OR output files becoming full. If the alternate minidisk becomes full, Reporter switches back to the minidisk containing the main file.

Summarizing the Data

As already described, Reporter stores the data collected from the subsystem in sequential logging files. You can use Reporter to summarize the collected data for input to SAS, which produces reports printed in a columnar format, or to SAS/GRAPH for a graphic report.¹ SVAA also produces a SAS program that can be run later to summarize the data. Reporter stores the summarized data in a file called the *history file*.

Data from previous history files can be combined with the current logging data to produce a new history file.

Controlling the Files to be Summarized

You can specify any number of previously unsummarized logging files to be summarized. Reporter merges these input files with the previous history file to create a new history file.

Controlling the Output from Summarization

If you plan to use the SVAA summarization function, you must specify the name of a SAS file for the new history file. You can also specify the name that Reporter is to give to the SAS program that you run later to actually produce the new history file.

Controlling the Summarization Interval

If you plan to use the SVAA summarization function, you can specify the period of time for which the input data is to be summarized. For example, the collection interval was 15 minutes (that is, collection instances occurred every 15 minutes), but you decide that the collection data should be summarized in two-hour periods. (The summarization interval must be a multiple of the collection interval.)

Controlling the Data to be Retained

If you are working with the previous history file as input, you have the option to specify how many days' data is to be kept in the new history file. This enables you to limit the amount of data in the history file to the number of days for which you intend to produce reports. The default is to keep 13 months' data, which are usually sufficient.

Reporting on the Data

Reporter provides the following reports, which are based on the summarized data described above. You can request:

- Detailed and/or summary reports for specific devices, for a specific date or time interval, or for ranges of dates or time intervals
- Daily, weekly, or monthly summary reports

¹ SAS and SAS/GRAPH are separate products sold by SAS Institute Inc.

- Reports showing statistics in bar-chart (histogram) form
- Reports that flag the data when the subsystem statistics exceed or fall below the thresholds that you specify
- Files that can be used as input to the SVAA sample graphics program or to your own graphics programs

Reporter also produces Space Utilization reports on the amounts of functional space currently defined and in use at an instant in time.

You control the scope of these reports. For example, you can specify which functional devices are to have their statistics reported. You see the data as computed averages, percentages, and totals.

You can also produce reports from the summarized data using your own report writer or graphics display program.

Chapter 6, “Controlling the Reports” describes how to specify the reports you want Reporter to produce.

Selecting Types of Reports

You can select the Space Utilization reports or various types of Cache Effectiveness or Device Performance reports.

Space Utilization Reports

A Space Utilization report provides a view of conditions in the subsystems at a particular time. The report shows the amount of functional space defined and in use, as well as the amount of physical back-end space in use by each functional device.

Device Performance and Cache Effectiveness Reports

Device Performance and Cache Effectiveness reports are based on statistics collected over a period of time from the subsystems. There are overall summary, interval, time-ordered, and daily, weekly, and monthly summary, and exception reports for both device performance and for cache-effectiveness.

Overall Summary Report

An overall summary report produces summaries for the entire report period by subsystem, by individual functional device, and by reporting period. Reporter produces a summary report for each time range you specify.

A summary appears at the end of each overall summary report. The summary shows the totals by Test partition, Production partition, and overall subsystem.

Interval Report

An interval report provides the statistics by subsystem within each interval. You can specify that the reports show statistics for subsystem totals only, or you can also have the report show details for each functional device. Thus, if you have two subsystems, Reporter produces two reports, one for each subsystem, each report covering each specified interval.

Time-Ordered Report

A time-ordered report provides statistics by interval within each subsystem. You can specify that the report show statistics only for each partition and for subsystem totals, or you can also have the reports show details for each functional device. These reports provide the same statistics as the interval report, except that the statistics are organized for each interval, rather than by subsystem.

Summary Reports (Daily, Weekly, or Monthly)

Daily, weekly, and monthly summary reports summarize statistics for each time range. You can specify that the report show statistics only for each partition and the subsystem totals, or that the reports also show details for each functional device.

A daily summary report is the same as an interval report for one day with each of the reporting intervals in that day specified. A weekly summary provides the totals for a week, with separate statistics for each interval. A monthly summary provides the totals for a month, with separate statistics for each interval. There is no summary of all the intervals taken together.

Each entry in a weekly summary report summarizes statistics for Sunday through Saturday of one week. Each entry in a monthly summary report summarizes statistics from the first day of a calendar month to the last day of that month.

A summary appears at the end of each overall summary report. The summary shows the totals by Test partition, Production partition, and overall subsystem.

Exception Report

An exception report for an SVA device shows statistics that fall below or exceed certain threshold values during the times covered by the report. You can specify that the reports show statistics for each partition and for subsystem totals, or you can also have the reports show details for each functional device. You can specify the exception thresholds or take the defaults; Reporter flags the values that go beyond the threshold values for each device.

Bar Chart

A bar-chart (histogram) report represents selected values from one or more of the other types of report, plotted over time.

Graphics

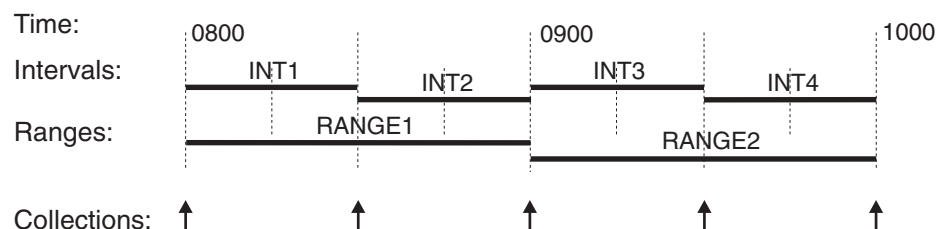
Users with SAS/GRAPH installed can request graphic displays of interval, time-ordered, daily, weekly, or monthly summary report data. Reporter saves the summarized data from the report in SAS file format to be sent to a separate SAS/GRAPH program. Reporter includes sample SAS/GRAPH programs for producing graphics output from the saved data. Input data to SAS/GRAPH must already be summarized; no further SAS computation is necessary. SAS/GRAPH output includes trend analysis.

Controlling Report Input

Input can be either from the SAS history file or directly from the logging files. You cannot use a combination of these sources of input.

Controlling the Time Ranges for Reporting

For reporting, you control time ranges, intervals, synchronization, and durations as you do for data collection. Each time range you specify for reporting must be a multiple of the range for the corresponding collection run. For example, with half-hour collection periods, you should not specify 45-minute reporting ranges, but you can specify one-hour reporting ranges, as shown in Figure 2-11.



C46072

Figure 2-11. Time ranges for reporting

Note: In SVAA reports, the time indicated for an interval is the *ending* time. However, in MICS reports, the indicated time is the *starting* time of the interval.

Specifying Days of the Week to be Included

You can specify the days of the week that are to be included in or excluded from reporting.

Specifying Dates to be Included

You can specify the individual dates or ranges of dates that are to be included in or excluded from reporting. Reporting for holidays, for instance, can be controlled.

Specifying Exception Thresholds

For most statistics that you gather from an SVA subsystem, you can specify a report of those values that exceed or fall below a value you choose or that fall within or outside a specified range of values. These values are called *exception thresholds*.

Additional Software

To use Reporter, you may need the following additional software:

- SAS, if you want to use SAS to produce reports or to summarize the data with Reporter.
- SAS/GRAPH, if you want to produce graphic displays of the reported data.
- ISPF, if you want to use the full screen (panel) interface to Reporter.

Note: For the specific versions or releases of these programs required for use with this release of SVAA, see the *SVAA for VM Installation, Customization, and Maintenance* guide.

Additional Software

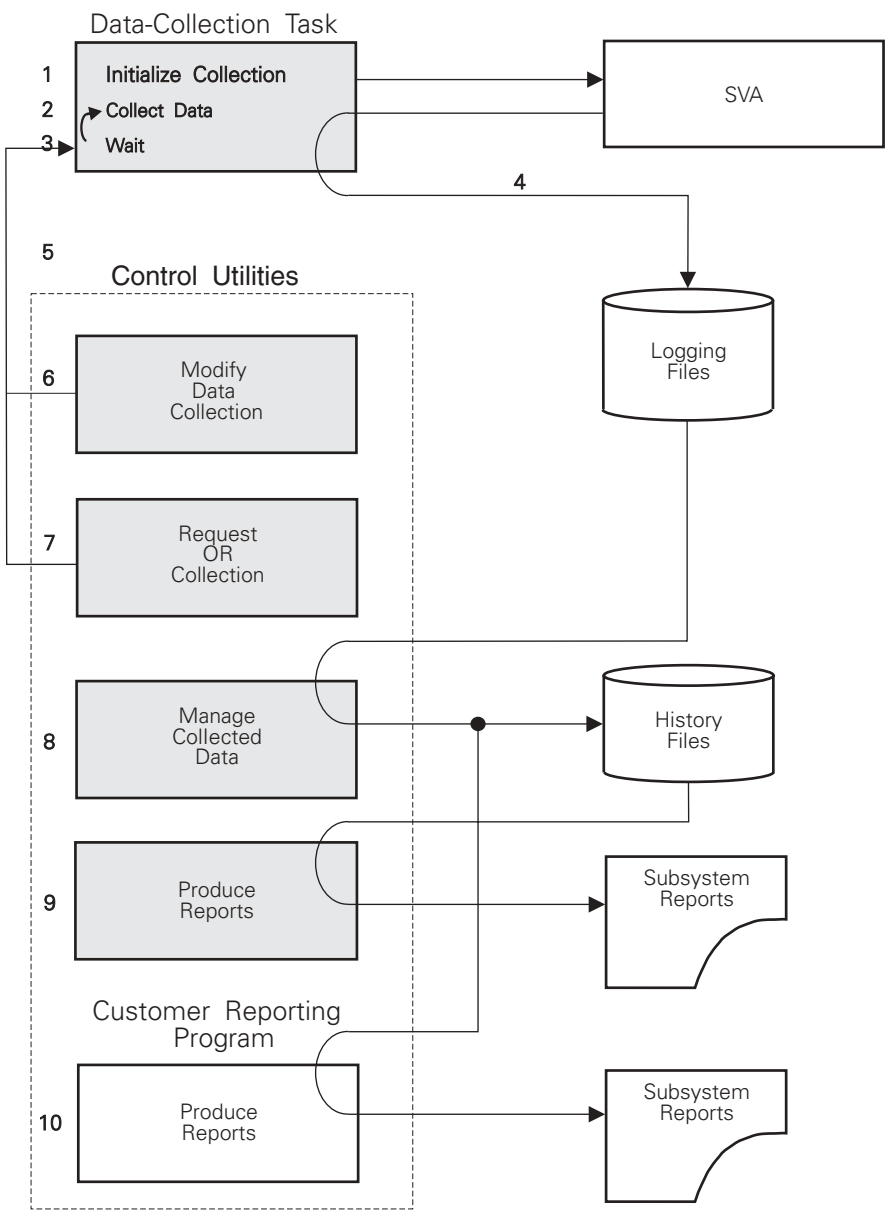
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Subsystem Reporting

Figure 3-1 illustrates the VM environment of Reporter.



C46281

Figure 3-1. *Environment of Reporter (VM)*

In the following description of how Reporter operates, the step numbers at the left correspond to the small numerals in the figure above.

- 1. Initialize collection.** The Data Collection Task runs in a disconnected service virtual machine. In the Data Collection Task, you first issue a SIBSRP command, which invokes an initialization routine that is similar in intent to

the PROFILE EXEC in CMS. The routine is an SVAA macro called PROFSIBS SIB that contains commands to initialize and start data collection, such as:

- SET ECAMDEVICE subcommands to define your SVA device addresses that are to be used for communicating the SVA collection statistics to Reporter.
- SET NONICEBERG subcommands to specify the devices that are to communicate non-SVA collection statistics to Reporter.
- A SET DEVICEMAP subcommand to map FDIDs to host device addresses in reports.
- An INITIALIZE MAINLOG subcommand to define the files to be used for data collection.
- COLLECT PTDATA subcommands to start performance-tracking (PT) data collection, as defined below.
- COLLECT ORDATA subcommands to start on-request (OR) data collection, as defined below.
- Any other initialization subcommands you want to use such as SET CASE(UPPER) and SET CMDECHO(ON).

Note: For more information, see “SVAA Initialization Routines” on page 3-5.

2. **Collect data.** After initializing data collection and during the time ranges that you specify for collection, the Data Collection Task is usually dormant (not processing), but “wakes up” at intervals you specify to collect data.

Reporter collects performance data for use as input to the default reports and to any reports that you specify. The primary performance data is called *performance-tracking* (PT) data and is always in SMF record format. Data for the periods in which the task is not running are not collected.

3. **Wait.** Once the data for an interval has been collected, the Data Collection Task waits until the end of the next collection interval. The Data Collection Task also waits for commands from an Reporter control utility, such as commands to modify data collection. This task runs until it is specifically stopped.
4. **Store data.** Reporter stores the collected PT data in one or two *logging files*. One of these is the *main logging file*. There may also be a second file (on a different minidisk), the *alternate logging file*, to be used if the minidisk containing the main logging file becomes full. The data is sent to the logging files in SMF format.

Whenever a logging file minidisk becomes full, Reporter calls a user exit, SIBSRPSW SIB, in which you can direct SVAA to invoke procedures to offload the data and to switch to the alternate logging file, if one is available. On the RUN disk, SVAA provides a sample exit macro (in REXX) that you may copy and modify. The input you provide for SIBSRPSW SIB is described in “Handling Full Logging Files” on page 5-5.

5. **Control utilities.** Users can invoke control utilities to change data collection, summarize the collected data, and manage reporting. There can be more than one of these control programs running at the same time. Think of these programs together with the Data Collection Task as making up Reporter.

- 6. Modify data collection.** You can modify data collection in two ways:
 - a. Issue control utility subcommands to modify collection parameters or to start, stop, suspend or resume data collection.
 - b. Issue additional COLLECT PTDATA commands to modify the collection parameters set during initialization.
- 7. Request OR data collection.** At times, you may find that the parameters you used for data collection are not adequate for understanding some aspect of the performance of the subsystem. In that case, you can request a separate collection run to produce *on-request* (OR) data. Such data can be written to the main logging file, or you can define one or two on-request output files for this purpose. These are called the *primary OR output file* and the *alternate OR output file*.
- 8. Manage collected data.** You also control how Reporter takes the detailed PT data and summarizes it in a file called the *history file*.
- 9. Produce reports with Reporter.** You can control the reports that you produce with Reporter.

You can also use SVAA panels for the same purposes as the commands in steps 6b through 9. Unlike the Data Collection Task, an Reporter control utility does not run continuously, but can be started or stopped at any time after the command has been processed.

Steps 6 through 9 can be performed in any order and at any time.
- 10. Produce reports without Reporter.** If you do not have SAS installed, you can write your own utilities to produce reports from the collected data.

SVAA Input

In the VM environment, there are two basic ways of entering input to SVAA:

- With SVAA subcommands.

Chapter 8, “SVAA Subcommands and Commands” is an alphabetical reference of the SVAA Reporter subcommands and their parameters.

- With the SVAA ISPF panels, as defined for your installation.

Chapter 7, “Using the SVAA Panels” explains how to use the panels that control subsystem data collection and reporting.

In the VM environment, SVAA provides three programs that run in virtual machines separate from the one in which the Data Collection Task runs.

You issue the following commands from CMS to invoke the programs:

SIBADMIN	Creates the environment in which you can issue subcommands to change data collection, summarize the history file, and request reports.
SIBSRP	Starts the Reporter Data Collection Task, in which you can initialize and control data collection.
SIBMENU	A CMS REXX EXEC that starts the ISPF panel interface to Reporter.

SVAA Subcommands

You can issue SVAA subcommands in several ways:

- From within SVAA initialization routines (SIB macros)
- Interactively, from the CMS command environment or at the **SIB:** prompt (which appears when you enter the **SIBADMIN** command by itself)
- From within a REXX EXEC or a SIB macro
- On the command line of the SVAA panels (preceded by **SIB**) See “Entering SVAA Subcommands in the Command or Option Field” on page 7-3.

SVAA Initialization Routines

Whenever you start SIBADMIN or SIBSRP, SVAA executes an initialization routine that sets the conditions under which later subcommands in the program will be executed. The routine includes an SVAA profile macro (PROFSIBA SIB for SIBADMIN, PROFSIBS SIB for SIBSRP), which is similar in action to the PROFILE EXEC in CMS. In the profile macro, you can specify SVAA subcommands and system commands. (Part of the sample PROFSIBS SIB macro appears in Figure 3-2 on page 3-6.)

The SIBSRP initialization routine (PROFSIBS) should include a SET ECAMDEVICE command to identify the SVA device that is to transmit the SVA data to Reporter. It should also include a SET NONICEBERG command if you want to collect data from non-SVA DASD.

Note: Reporter subcommands must not be used in the initialization routine of any task other than the Data Collection Task.

You should allocate a minidisk for the SRP data-collection virtual machine that is large enough to contain 5 to 10 days of raw performance data. The Reporter virtual

machine owns the minidisk and Reporter initialization routine accesses this minidisk as filemode B. See “Space Requirements” on page 5-7 for more information.

```

/* */
/*
** Access SVA subsystem SYSA and SYSB for SVAA communication.
*/

/* call cpcmd "ERRMSG LINK $SUBSYS$ 200 200 MW"
** call cpcmd "ERRMSG LINK $SUBSYS$ 210 210 MW"
**
** "SET ECAMDEVICE (200 210)"
*/

/*
** SVAA Device Mapping.
** Caution - refer to the SVAA Device Mapping section
** of the SVAA for VM Installation Guide for
** behavior in non-contiguous device ranges.
*/

/*
** "SET DEVICEMAP (ON)"
*/

/*
** Access the minidisk used to record the performance data.
*/

address COMMAND "ACCESS 196 B"

/*
** Initialize the main logging file.
*/

"INITIALIZE MAINLOG ( OUTFILE(&DAYDATE SRPDATA B) )"

/*
** Initialize the data collection parameters.
*/

"COLLECT PTDATA( INTERVAL(15M) SYNC(15M) )"

```

Figure 3-2. Sample PROFSIBS SIB file

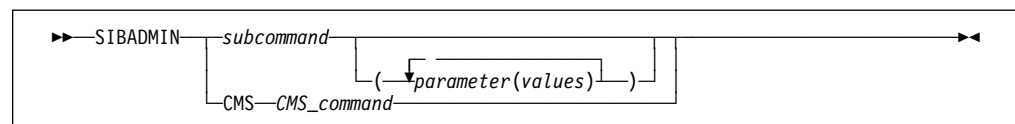
Issuing Subcommands Interactively

You can issue subcommands interactively from either the **CMS** prompt or the **SIB:** prompt.

From the CMS Prompt

To issue an SVAA subcommand from the **CMS** prompt, enter the **SIBADMIN** command followed by the subcommand. You can also follow **SIBADMIN** with **CMS** and a CMS command.

The syntax is:



Thus, SIBADMIN can be followed by:

- Any of the SVAA subcommands described in Chapter 8, “SVAA Subcommands and Commands.”
- Any of the SVAA subcommands described in the *SVAA for VM Configuration and Administration* manual.
- A CMS command.

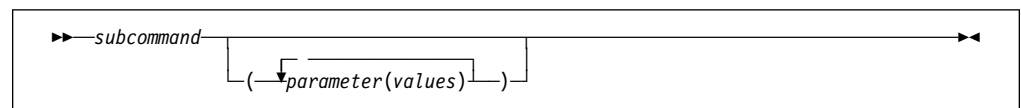
The maximum allowable length of a SIBADMIN command, including its subcommands and parameters, is 950 characters, including blanks.

Note: You can also issue SIBADMIN commands in a REXX EXEC (see section below).

From the SIB Prompt

In CMS, a subcommand addressing environment called **SIB** is established when SIBADMIN is invoked. At the **CMS** prompt, enter **SIBADMIN** by itself. This causes SVAA to display the **SIB:** prompt, at which you can enter SVAA subcommands directly.

The syntax is:



The **SIB:** prompt can be followed by:

- Any of the SVAA subcommands described in Chapter 8, “SVAA Subcommands and Commands.”
- Any of the SVAA subcommands described in the *SVAA for VM Configuration and Administration* manual.

Type **end** to leave the SIB addressing environment.

Note: You can also issue SVAA subcommands in a SIB macro (see section below).

Issuing SVAA Subcommands in EXECs or Macros

You can issue SVAA subcommands in both REXX EXECs and SIB macros. This is very useful if you want to issue the same set of subcommands at regular intervals, such as daily or weekly.

REXX EXECs are issued at the **CMS** prompt. SVAA subcommands in a REXX EXEC are preceded by **SIBADMIN**.

SIB macros should have a file type of SIB, and can be issued only at the **SIB:** prompt. You can issue the same subcommands in macros that you can issue at the **SIB:** prompt. The PROFSIBS SIB file above is an example of a SIB macro. For more information, see “Executing Macros from SIBADMIN and SIBSRP” on page 8-3.

Command Output

By default, when started with a SIBADMIN command, SVAA directs reports to a file called SIBRPT LISTING A1, and returns response messages (both informational messages and error messages) to the terminal. (When you run SAS reporting, messages go to SIBRPT SASLOG A1.) When started from the ISPF panels, SVAA sends both messages and reports to REXX variables.

You can change the destinations for messages and report output with the OUTMSG (for messages) and OUTFILE (for reports) parameters of the SET DESTINATION subcommand. The OUTMSG destination defaults to **TERMINAL**; the OUTFILE destination defaults to a CMS file called **SIBRPT LISTING A1**.

Reporter handles output file destinations identified by the OUTMSG and OUTFILE parameters as follows:

- It creates the file, if one does not exist.
- If the file exists but has not previously been used in this run of SIBADMIN or SIBMENU, Reporter replaces the previous contents of the file.
- If the file exists and has been previously used by an SVAA subcommand in this run of SIBADMIN or SIBMENU, Reporter appends its output to the file.

You can also redirect the message and report output of a particular subcommand of SIBADMIN. See “Redirecting Subcommand Output” on page 8-8 for more information.

Accumulating Data from the Subsystem

At the times set for data collection, Reporter sends a message to the subsystem to obtain the values of the subsystem’s counters. The response is called a *collection instance*. Input counters obtained from the subsystem always consist of raw data. That is, the subsystem does not compute rates or averages.

Reporter maintains accumulators for each data element collected. These collection accumulators contain the current value collected for the data element, which is the value that was collected in the most recent collection instance. Each time a new collection instance occurs, Reporter subtracts the old value from the new value; the difference becomes the computed value for the elapsed interval. The differences between the old values and the current values are sent to the logging files.

The logging file always contains the computed values for each element for the elapsed interval. Logging records are time-stamped with the ending dates and times of the data-collection intervals. There is a separate record subtype for each object of data collection: subsystem, channel interface, functional device, and drive module.

“Space Requirements” on page 5-7 discusses the space requirements for the logging files.

Reporting Information from Collection Runs

Reporter examines the data collected from the subsystems and stored in logging files. You request a performance report about this data and have a great deal of discretion about the material to be presented in a particular report. For instance, as you become more familiar with SVA performance or as there are changes in the

amounts of data or the density in the SVA, you might change the parameters of exception reporting.

As with data collection, you can control data reporting, either using the Reporter panels or Reporter commands (which can be entered either at the command line or in an SVAA macro). See Chapter 6, “Controlling the Reports” for more information.

Security Checking

Before the Data Collection Task executes any commands that you send from another source, Reporter verifies your authority to issue the command. To do this, Reporter calls an SVAA macro called SIBSRPAC (written in REXX).

On the RUN disk, SVAA provides a sample SIBSRPAC macro that you can copy to your own disk and modify to meet your needs. The input parameters to this macro are:

- Userid that issued the Reporter command
- Command string

It is the responsibility of the SIBSRPAC macro to verify the authority of the command user (using tables you code in the macro to list authorized users). The possible return codes from this macro are:

0 Allow the request
Non-zero Deny the request

By default, The sample SIBSRPAC macro always denies the request so that SVAA only allows the user IDs and command strings explicitly specified by the administrator. For more information, see the *SVAA for VM Installation, Customization, and Maintenance* manual.

Chapter 4. Controlling Data Collection

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Data Collection

This chapter describes how to control data collection with Reporter and deals with the concepts involved with subsystem data collection. Later chapters provide the details of using ISPF panels, system-operator commands, and subcommands of SIBADMIN to control the collection of data.

The following discussion describes each of the collection criteria that are under your control and identifies the subcommand parameters or the panel fields that you use to specify each of the criteria.

There are some data-collection criteria (for example, the destination for the collected data) that you cannot modify after data collection has begun. You can specify them only when you start up data collection. Other criteria can be modified later.

Note: In this chapter, tables show which subcommands and which fields of panels to use to obtain the desired results.

Starting Data Collection

You usually issue a COLL PT subcommand in the initialization statements that Reporter processes when you start SIBSRP. You can issue a COLL ORD subcommand at any time. These subcommands start data collection from your subsystems according to the parameters you issue with the subcommands. There are defaults for most of the parameters you omit.

You can modify data-collection runs that are currently in progress by specifying MODIFY(YES) on a COLL PT or COLL ORD subcommand. If you do so, the parameters on the original subcommand remain in effect unless you override them with parameters on the new command, with one exception. If you originally specified any device-selection parameters, and if you have no device-selection parameters on the new command, the original selection parameters remain in effect. However, if you specify any device-selection parameters on the new command, they completely override and replace the original parameters.

You can start data collection by any of these methods:

- System operator commands. See Chapter 8, “SVAA Subcommands and Commands” for more information.
- COLLECT ORDATA or COLLECT PTDATA subcommands included in the SVAA profile macro (PROFSIBS) for the Reporter service machine.
- Reporter subcommands from a CMS userid under SIBADMIN.
- ISPF panels displayed by using the SIBMENU command.

Specifying Where to Send Output

Reporter collects performance-tracking (PT) data in the main logging file and, optionally and if necessary, in the alternate logging file. On-request (OR) data is normally collected in its own files, though the main and alternate logging files can also be used for that data collection, using a unique collection identifier to identify each collection run. Remember that an OR collection run ends when the specified duration expires.

Before specifying the data-collection options, you must specify the names of the logging files, using parameters of the INIT MAIN subcommand issued in the initialization routine. (There are no corresponding ISPF panel fields.) In VM, output always goes to the logging files.

For information about the amount of storage needed for the collected data, see “Space Requirements” on page 5-7.

Specifying the Logging Files for PT Data

You can specify one or two files to be used as the logging files for PT data.

To specify the names of the logging files:

	Subcommand	Panel
Name main logging file	OUTF parameter of INIT MAIN	Not specifiable on panels
Name alternate logging file	ALTF parameter of INIT MAIN	Not specifiable on panels

The recommended procedure for data collection is to create daily logging files of the raw Reporter performance data. The recommended form of name to specify for the main logging file is:

filename **&DAYDATE**. Reporter substitutes the current date as the filename when performance data is written to disk. The format of **&DAYDATE** is *wwyyymmdd*, where *ww* are the first two letters of the day of the week, *yy* is the year, *mm* is the month (numerical), and *dd* is the day of the month (for example, **FR950324**, **SA951223**, **TU950404**).

If collection continues after midnight, Reporter opens a new file with a name based on the new date.

filetype **MAINLOG**.

filemode Arbitrarily set to **B**.

Note: If you use an alternate logging file, use the same form for the filename as the main logging file, but use a different filemode.

Specifying the Destination for OR Data

The destination for OR data collection can be either the main logging file or one or two other files that you define (the primary and alternate OR output files). The default is to write the OR collection data in the main logging file.

To specify the destination for OR data collection:

	Subcommand	Panel
Specify primary OR output file	OUTF parameter of COLL ORD	Primary OR Output File field
Specify alternate OR output file	ALTF parameter of COLL ORD	Alternate OR Output File field
Specify main logging file for OR collection	OUTMN parameter of COLL ORD	OUTMAIN field

Collection Options

Identifier for the OR Data-Collection Run

You must specify a unique identifier for an OR collection run.

Note: For a PT data-collection run, you cannot specify an identifier; it is always **PERFORMANCETRACK**.

To specify the OR collection identifier:

	Subcommand	Panel
Name the identifier	COLLID parameter of COLL ORD	Collection Identifier field

Example 1. Sending both OR and PT data to the main and alternate logging files

In the initialization routine:

```
INIT MAIN ( OUTF ( &DAYDATE MAINLOG B ) -  
            ALTF ( &DAYDATE MAINLOG D ) )
```

In SIBADMIN:

```
COLL ORD ( OUTM )
```

The main and alternate logging files are on different minidisks, in case the one in use should become full.

Choosing Data-Collection Options

You can specify the following options for data collection.

Types of Data Collection

You can specify either OR data collection or PT data collection. To specify the type of data collection:

	Subcommand	Panel
Collect OR data	COLL ORD	Reporter main panel, option 2
Collect PT data	COLL PT	Reporter main panel, option 1

Specifying New or Modified Data Collection

For both OR and PT data collection, you can specify that you are defining a new data collection run or you are modifying an existing run.

To specify whether this subcommand specifies a new or modified collection run:

	Subcommand	Panel
Specify modified or new collection run	MODIFY parameter of COLL PT or COLL ORD	Modify field of COLLECT PT DATA or COLLECT OR DATA panel

Specifying When to Collect Data

Data collection is the process of reading the accumulators in the subsystem. The times that data collection starts and ends are determined by several interconnecting factors that you specify. The factors controlling data collection are:

- Time ranges. These are the periods of time over which you want to collect data each day. For example:

TIMES(1200:1800)

specifies that the overall period of time for data collection starts at noon and ends at 6:00 p.m.

Reporter does not collect data continuously during the time ranges, but at specific times that are determined by the other parameters specified.

- Interval for collection. This determines how often Reporter collects data during the overall collection period. For example:

TIMES(1200:1800)

INT(10M)

specifies that Reporter reads the subsystem statistics and writes a record to the logging file every 10 minutes from noon until 6:00 p.m.

- Synchronization. This aligns the first collection interval to a particular minute after the hour. For example:

TIMES(1200:1800)

INT(10M)

SYNC(5)

specifies collection at 12:05, 12:15, 12:25, and so on.

- Duration of collection. For OR collection, this can be used instead of times of collection. For example:

DUR(20)

specifies that data collection is to start immediately and continue for 20 minutes.

The following sections describe these concepts in more detail.

Specifying Time Ranges for Collection

With times to suspend and resume collection specified, Reporter collects the data without the need for operator intervention. You can specify up to 16 time ranges for data collection to allow automatic suspension and resumption of data collection without stopping the Data Collection Task. This enables you to coordinate collection with your application or business schedules.

If you do not specify any time ranges for data collection, Reporter collects data at intervals over the whole day, at the interval and synchronization you specify.

To specify times for collection:

	Subcommand	Panel
Specify time ranges	TIMES parameter of COLL PT or COLL ORD (see "Specifying Time Ranges for Collection" below)	Times field of SPECIFY COLLECTION TIMES panels

Collection Options

The following explanation and examples of time ranges apply to data collection whether you are using either SIBADMIN subcommands or the panels.

Specify a time range in the form *hhmm:hhmm*, where *hh* and *mm* are hours and minutes of the 24-hour clock. The starting time must be between 0000 and 2359; the ending time must be between 0001 and 2400.

Example: **0000:2400**
 0700:0800
 1200:1800

For OR data collection, collection ranges apply for 24 hours from the time of the COLL ORD subcommand. For any times that fall before the first time that you specify for a range, the corresponding data-collection range occurs on the following day. For example, if at noon you specify:

COLL ORD (TIMES(1000:1100 1300:1400 1800:2100))

Reporter collects data from 1 p.m. to 2 p.m., from 6 p.m. to 9 p.m., and from 10 a.m. to 11 a.m. the next day.

Note: If you do not specify any time ranges, OR collection starts at the time you issue the COLLECT subcommand and continues until midnight.

PT collection repeats every day in the specified time ranges. PT collection stops only when the Data Collection Task itself stops.

Follow these rules in specifying time ranges:

- Use leading zeros for hours if appropriate.

Example: **0700:0800**
Not allowed: **300:800¹**

- Starting and stopping times must be different.

Example: **0700:0800**
Not allowed: **1100:1100**

- Specify midnight at the beginning of a range as **0000**.

Example: **0000:0800**
Not allowed: **2400:1100**

- Specify midnight at the end of a range as **2400**.

Example: **1800:2400**
Not allowed: **1800:0000**

- Specify collection for a full day only as **0000:2400**. (This means that you can only specify continuous collection for a full day in a single time range that starts at midnight. However, if you do not specify any time ranges, collection is always continuous.)

¹ However, this is allowed on the ISPF panels; ISPF adds the leading zeros if you omit them.

Example: 0000:2400
 Not allowed: 1200:1200
 2400:0000

- Use a starting time later than a stopping time to span midnight.

Example: 2300:1500 (11 p.m. to 3 p.m. next day)

- Separate multiple ranges by spaces.

Example: 0000:0400 0800:1200
 Not allowed: 0000:0400,0800:1200

- Specify time ranges in any order.

Example: TIMES(0600:0900 0000:0300 1200:1500)

- Do not overlap time ranges. (This means that, if you use multiple time ranges, only the range with the latest starting time can span midnight.)

Example: TIMES(0600:0900 1200:1800 2100:0300)
 Not allowed: TIMES(0600:0900 0800:1000)

Example 1. Specifying OR data collection at 1 a.m.

TIMES(0400:1200 2000:0200)

If you issue the COLL ORD subcommand at 1 a.m. (0100 hours) on December 1, SVAA collects data:

0100 to 0200 on December 1
0400 to 1200 on December 1

or until collection is stopped, modified, or suspended.

Example 2. Specifying OR data collection at 1 p.m.

TIMES(0400:1200 2000:0200)

If you issue the COLL ORD subcommand at 1 p.m. (1300 hours) on December 1, SVAA collects data:

2000 to 2400 on December 1
0000 to 0200 on December 2
0400 to 1200 on December 2

or until collection is stopped, modified, or suspended.

Example 3. Specifying PT data collection at 1 a.m.

TIMES(0400:1200 2000:0200)

If you issue the COLL PT subcommand at 1 a.m. (0100 hours) on December 1, SVAA collects data:

0100 to 0200 on December 1
0400 to 1200 on December 1
2000 to 2400 on December 1
0000 to 0200 on December 2 and succeeding days
0400 to 1200 on December 2 and succeeding days
2000 to 2400 on December 2 and succeeding days

until collection is stopped, modified, or suspended.

Example 4. Specifying PT data collection at 1 p.m.

TIMES(0400:1200 2000:0200)

If you issue the COLL PT subcommand at 1 p.m. (1300 hours) on December 1, SVAA collects data:

2000 to 2400 on December 1
0000 to 0200 on December 2 and succeeding days
0400 to 1200 on December 2 and succeeding days
2000 to 2400 on December 2 and succeeding days

until collection is stopped, modified, or suspended.

Data-Collection Interval

The data-collection interval determines the length of time between collection instances. The longer the interval, the less detailed is the data for the interval. However, if you set the interval too small, the data obtained may be difficult to interpret. The default interval is 15 minutes.

To specify the interval for data collection:

	Subcommand	Panel
Specify interval	INT parameter of COLL PT or COLL ORD	Collection Interval field of COLLECT OR DATA OR COLLECT PT DATA

Synchronizing the Collection Interval

You can also specify the minute (0-59) past the hour on which data collection is to be started. Data is collected at the synchronization time and at multiples of the collection interval added to the synchronization time. For example, if the interval is 15 minutes and the synchronization time is 10, data collection intervals start at 10, 25, 40, and 55 minutes past the hour. If the start of data collection plus the collection interval is later than the next synchronization time, the first collection interval is shortened to end at the next synchronization time. All subsequent intervals are the length you specify.

Suppose, for example, that the collection interval is 15 minutes and the synchronization time is 0 minutes. Data collection occurs at 0, 15, 30, and 45 minutes past the hour. If you made the request at 6:10, data collection starts at 6:10, and the first interval is only five minutes. All subsequent intervals are 15 minutes in duration.

If you request synchronization, the collection interval must divide evenly into 60 (that is, it can be 1, 2, 3, 4, 5, 10, 12, 15, 20, or 30). It can also be a multiple of 60. The default is no synchronization.

If you specify no synchronization, Reporter starts collection as follows:

- If you also specify time ranges, at the beginning of the next time range.
- If you do not also specify time ranges, on the next full minute after you issue the COLLECT command.
- If you specify a duration, at the beginning of the duration.

Note: Each collection instance (with the possible exception of the last) is exactly one collection interval after the previous one.

To specify synchronization:

	Subcommand	Panel
Specify synchronization time	SYNC parameter of COLL PT or COLL ORD	Synchronization Time field of COLLECT OR DATA or COLLECT PT DATA

Duration of Collection

For OR data collection, you can specify that data collection start immediately and last for a specified time period. The maximum duration that you can specify is 9999 hours (over 400 days).

To specify the duration of data collection:

	Subcommand	Panel
Specify OR collection duration	DUR parameter of COLL ORD	Duration field of COLLECT OR DATA

Categories of Data to Collect

You can choose between collection of functional-device performance data, cache-effectiveness data, or both. (The default is to collect data for both categories.)

To specify the collection category:

	Subcommand	Panel
Choose device performance	DEVPERF parameter of COLL PT or COLL ORD	Device Performance field of COLLECT OR DATA or COLL PT DATA
Choose cache effectiveness	CAEFF parameter of COLL PT or COLL ORD	Cache Effectiveness field of COLLECT OR DATA or COLL PT DATA

Specifying Devices for Data Collection

SVAA uses the inclusion parameters (SUBSYS, VOL, and UNIT) and exclusion parameters (EXSUBSYS, EXVOL, and EXUNIT) you specify to select devices for collection (the same principles apply to specifying devices for reporting):

1. If there are no inclusion or exclusion parameters, all devices are selected.
2. If there are any SUBSYS parameters, all devices in subsystems not specified are excluded from selection (even if the devices are specified in VOL or UNIT parameters).
3. If there are any EXSUBSYS parameters, the devices they specify are excluded from selection.
4. If there are any VOL or UNIT parameters, any devices not specified in both parameters are excluded from selection.
5. If there are any EXVOL or EXUNIT parameters, the devices they specify are excluded from selection.

Notes:

1. Wildcard characters and ranges are allowed in inclusion and exclusion parameters (see page 8-5 for information about wildcard characters and page 8-5 for information about ranges).
2. If there is no NONIB parameter, all non-SVA devices are excluded from selection.
3. Performance data is not collected for Power PPRC Bridge devices.
4. In the SAS Macro library provided with SVAA, Power PPRC Bridge devices are considered CKD devices for the purposes of space-utilization data collection and reporting.
5. PAV Alias devices are excluded from all data collection, so performance and space utilization data is not reported for Aliases.

The examples below are concerned with data collection; the same principles apply to data reporting. All examples apply to the following sample configuration of three SVA subsystems, each with four volumes defined:

SUBSYSA1	SUBSYSA2	SUBSYSA3
-----	-----	-----
3A0 PROD33	4A0 WORK01	5A0 PAYR01
3A1 PROD44	4A1 PAYR22	5A1 PAYR02
3A2 TEST01	4A2 PAYR23	5A2 TEST03
3A3 PROD34	4A3 TEST02	5A3 PROD41

Example 1. Specifying units

UNIT(4A0 4A2 4A3)

The three devices listed are selected for collection. All other devices are excluded from data collection.

The asterisks indicate the selected volumes:

SUBSYSA1 -----	SUBSYSA2 -----	SUBSYSA3 -----
3A0 PROD33	* 4A0 WORK01	5A0 PAYR01
3A1 PROD44	4A1 PAYR22	5A1 PAYR02
3A2 TEST01	* 4A2 PAYR23	5A2 TEST03
3A3 PROD34	* 4A3 TEST02	5A3 PROD41

Example 2. Specifying subsystems and units

SUBSYS(SUBSYSA1 SUBSYSA2) UNIT(3A0 3A1 4A0 4A1 5A1)

There are both SUBSYS and UNIT parameters. To be selected for collection, devices must be specified in both parameters. Devices **3A0**, **3A1**, **4A0**, and **4A1** are selected for collection. There is no collection for device **5A1**, though it is specified in a UNIT parameter, because SUBSYSA3 is not in the list of selected subsystems.

The asterisks indicate the selected volumes:

SUBSYSA1 -----	SUBSYSA2 -----	SUBSYSA3 -----
* 3A0 PROD33	* 4A0 WORK01	5A0 PAYR01
* 3A1 PROD44	* 4A1 PAYR22	5A1 PAYR02
3A2 TEST01	4A2 PAYR23	5A2 TEST03
3A3 PROD34	4A3 TEST02	5A3 PROD41

Example 3. Specifying subsystems, volumes, and units

SUBSYS(SUBSYSA1 SUBSYSA2) VOLUME(PROD* PAYR*) UNIT(4A*)

To be selected for data collection when the SUBSYS, VOLUME, and UNIT parameters are all specified, a device must be specified by all three parameters. Only devices **4A1** and **4A2** are selected; all other devices are excluded.

The asterisks indicate the selected volumes:

SUBSYSA1 -----	SUBSYSA2 -----	SUBSYSA3 -----
3A0 PROD33	4A0 WORK01	5A0 PAYR01
3A1 PROD44	* 4A1 PAYR22	5A1 PAYR02
3A2 TEST01	* 4A2 PAYR23	5A2 TEST03
3A3 PROD34	4A3 TEST02	5A3 PROD41

Example 4. Using a wildcard character

VOL(PROD3*) UNIT(3A0)

To be selected for collection, a device must have both a unit address of **3A0** and a volume serial number starting with **PROD3**. For the sample configuration, only device **3A0** satisfies both these requirements and is selected for data collection. All other devices are excluded from collection.

The asterisks indicate the selected volumes:

SUBSYSYA1 -----	SUBSYSYA2 -----	SUBSYSYA3 -----
* 3A0 PROD33	4A0 WORK01	5A0 PAYR01
3A1 PROD44	4A1 PAYR22	5A1 PAYR02
3A2 TEST01	4A2 PAYR23	5A2 TEST03
3A3 PROD34	4A3 TEST02	5A3 PROD41

Example 5. Specifying ranges of subsystems

SUBSYS(SUBSYSYA2:SUBSYSYA3)

All devices in subsystems named **SUBSYSYA2** and **SUBSYSYA3** are selected for data collection.

The asterisks indicate the selected volumes:

SUBSYSYA1 -----	SUBSYSYA2 -----	SUBSYSYA3 -----
3A0 PROD33	* 4A0 WORK01	* 5A0 PAYR01
3A1 PROD44	* 4A1 PAYR22	* 5A1 PAYR02
3A2 TEST01	* 4A2 PAYR23	* 5A2 TEST03
3A3 PROD34	* 4A3 TEST02	* 5A3 PROD41

Example 6. Specifying inclusion and exclusion of subsystems, inclusion of volumes

SUBSYS(SUBSYSYA*) EXSUBSYS(SUBSYSYA2) VOL(PROD*)

All devices in **SUBSYSYA1** and **SUBSYSYA3** and with volume serial number starting with **PROD** are selected. For the sample configuration, devices **3A0**, **3A1**, **3A3**, and **5A3** are selected. No other devices are selected.

The asterisks indicate the selected volumes:

SUBSYSYA1 -----	SUBSYSYA2 -----	SUBSYSYA3 -----
* 3A0 PROD33	4A0 WORK01	5A0 PAYR01
* 3A1 PROD44	4A1 PAYR22	5A1 PAYR02
3A2 TEST01	4A2 PAYR23	5A2 TEST03
* 3A3 PROD34	4A3 TEST02	* 5A3 PROD41

Example 7. Specifying inclusion because not excluded

EXSUBSYS(SUBSYSYA3) EXUNIT(*A3)

All devices with device numbers ending in **A3** are excluded from data collection. In addition, all devices in subsystem **SUBSYSYA3** are excluded. All other devices are selected, because only exclusion parameters are specified. For the sample configuration, devices **3A0**, **3A1**, **3A2**, **4A0**, **4A1**, and **4A2** are selected.

The asterisks indicate the selected volumes:

SUBSYSYA1 -----	SUBSYSYA2 -----	SUBSYSYA3 -----
* 3A0 PROD33	*4A0 WORK01	5A0 PAYR01
* 3A1 PROD44	*4A1 PAYR22	5A1 PAYR02
* 3A2 TEST01	*4A2 PAYR23	5A2 TEST03
3A3 PROD34	4A3 TEST02	5A3 PROD41

Example 8. Using a wildcard character and a range

VOL(PAYR*) UNIT(5A0:5A3)

Data is to be collected for any device having a device number **5A0** through **5A3** as well as having a volume serial number that starts with **PAYR**. For the sample configuration, only **5A0** and **5A1** are selected.

The asterisks in the following table indicate the selected volumes:

SUBSYSYA1 -----	SUBSYSYA2 -----	SUBSYSYA3 -----
3A0 PROD33	4A0 WORK01	* 5A0 PAYR01
3A1 PROD44	4A1 PAYR22	* 5A1 PAYR02
3A2 TEST01	4A2 PAYR23	5A2 TEST03
3A3 PROD34	4A3 TEST02	5A3 PROD41

Example 9. Modifying a data collection run

The following command defines an on-request data collection run:

COLL ORD (COLLID(AMADEUS) INT(30) SUBSYS(SUBSYSYA1) VOL(PAYR*))

The asterisks in the following table indicate the volumes selected for collection.

SUBSYSYA1 -----	SUBSYSYA2 -----	SUBSYSYA3 -----
* 3A0 PROD33	4A0 WORK01	* 5A0 PAYR01
* 3A1 PROD44	* 4A1 PAYR22	* 5A1 PAYR02
* 3A2 TEST01	* 4A2 PAYR23	5A2 TEST03
* 3A3 PROD34	4A3 TEST02	5A3 PROD41

The following command modifies the collection run:

COLL ORD (COLLID(AMADEUS) VOL(TEST*) MODIFY(YES))

The asterisks indicate the volumes now selected for collection:

SUBSYSYA1 -----	SUBSYSYA2 -----	SUBSYSYA3 -----
3A0 PROD33	4A0 WORK01	5A0 PAYR01
3A1 PROD44	4A1 PAYR22	5A1 PAYR02
* 3A2 TEST01	4A2 PAYR23	* 5A2 TEST03
3A3 PROD34	* 4A3 TEST02	5A3 PROD41

Notice that the original selection of volumes for collection is completely overridden by this command. If you do not specify any VOLUME, SUBSYSTEM, or UNIT parameters on the modified command, the values of those parameters that you specified on the original command are still in effect.

Note: The absence of other parameters does not mean that the parameters now take their defaults. (For example, the collection interval is still 30 minutes.)

Other Collection Choices

This section describes several other choices you have for data collection.

Multiple Data-Collection Runs

Several different collection runs (one PT data-collection run, one or more OR data collection runs) can be active at any given time. Each collection run is uniquely identified. For PT collection, the identifier, which you can omit, is always "PERFORMANCETRACK"; you must specify some other identifier for OR data-collection runs. All output records are stamped with the collection run identifier.

The shortest of the current collection intervals always determines the "wake up" interval for the Data Collection Task. The collection task recognizes when interval end times coincide and writes output data for all affected collection runs.

Output File Records

Reporter produces output records at the end of the collection interval for each selected device and subsystem. The output includes data for only those devices selected by the UNIT or EXUNIT, SUBSYS or EXSUBSYS, and VOL or EXVOL parameters of the COLL PT or COLL ORD subcommand. Reporter produces only the selected category of output records (device performance, cache effectiveness, or both).

See Table 5-1 on page 5-2 for the kinds of records produced under various circumstances.

Chapter 5. Managing the Collected Data

Chapter Summary

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Managing the Data

Reporter collects statistics from the subsystems and either sends the data to SMF or stores the data in the logging files (the main logging file and the optional alternate logging file, and the optional OR output file or files). The data is stored in the logging files in SMF record format, which can be used as input either by SAS or by user reporting programs.

Figure 5-1 on page 5-3 shows the format of the Reporter data at the various stages of the data collection, management and reporting processes.

There are four kinds of records in the logging files and SMF files:

- Subsystem performance records
- Functional device records
- Channel interface statistics records
- Drive module performance records

The following table shows the circumstances under which Reporter produces these records:

Table 5-1. <i>Kinds of records collected</i>				
Record type	Requested Collection			
	Device Performance		Cache Effectiveness	
	SVA	Non-SVA ¹	SVA	Non-SVA
Subsystem Performance	Yes	No	Yes	Yes
Channel Interface Statistics	Yes	No	No	No
Functional Device Performance	Yes	No	Yes	Yes
Drive Module Performance	Yes	No	No	No

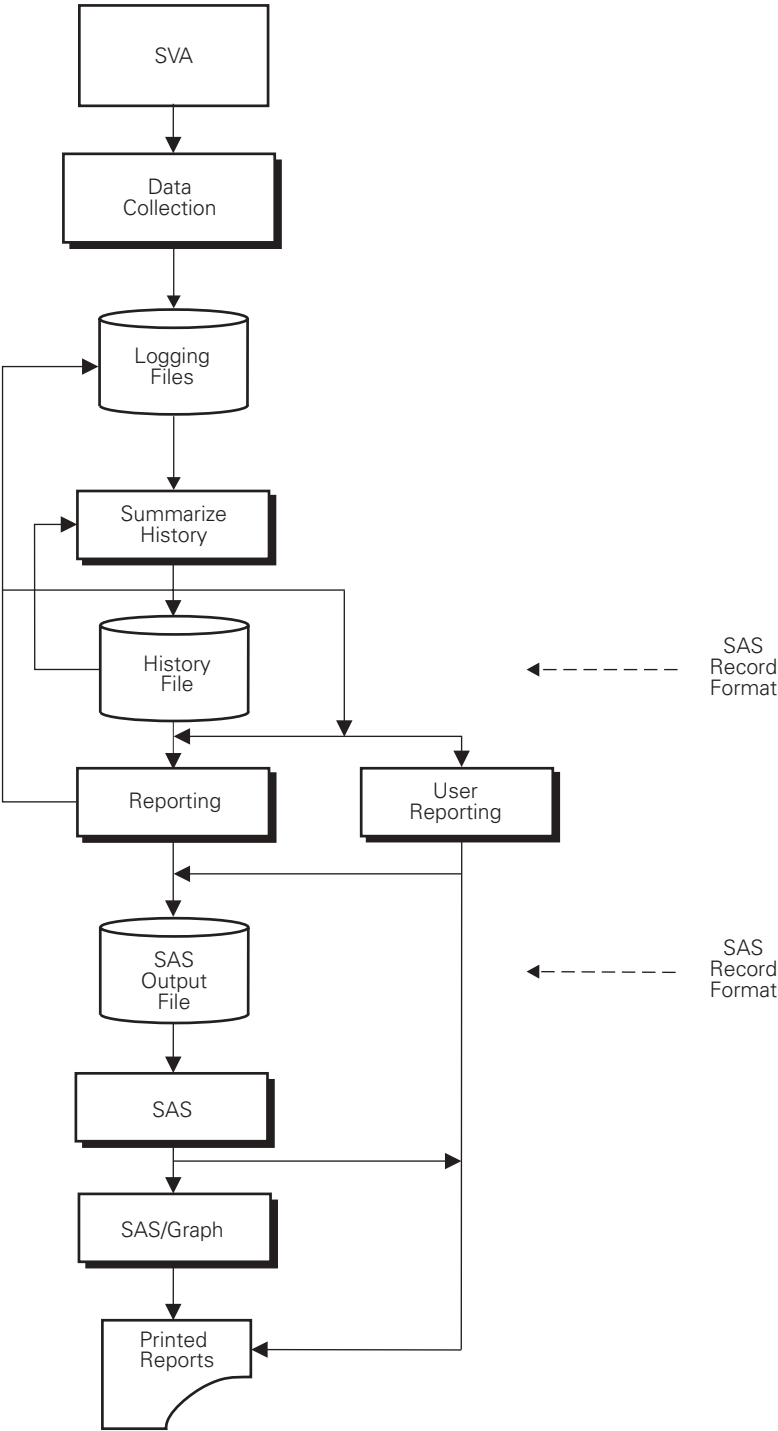
These records are intermingled in the logging files with variable record lengths. For more information, see Chapter 10, “Format of Logging Records.”

There are three independent situations in which the data in the logging files or on-request (OR) output files need attention:

- The daily time for copying the logging files occurs.
- The detailed information in the logging files must be summarized in the history file to conserve storage space and for use in the reports.
- The main logging files or OR output files become full.

This chapter explains what to do in these circumstances.

¹ Device-performance data is never collected for non-SVA devices.



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Figure 5-1. Summary of Reporter data formats

Copying the Logging Files

At a daily time that you determine, you can run programs that copy the contents of the logging files.

However, copying the accumulated logging files should be unnecessary if your installation has allocated a large enough minidisk to contain the raw data files.

Note: The logging files produced by SVAA have variable record format. Do not copy the logging files to fixed-block files.

Summarizing Logged Data

The Reporter SUMM HIST command summarizes performance-tracking data only (even if you use the logging files for collecting OR data, that data is not summarized). There are four kinds of subsystem records in the logging data:

- Subsystem performance records
- Channel interface statistics records
- Functional device performance records
- Drive module performance records

Reporter summarizes the four kinds of records and stores the summarized data in four separate SAS files, one for each kind of record. The four files are collectively called the *history file*. These files will be used later as input to the Reporter reports or as input to the data extraction function of Reporter, which is described later in this chapter.

You can specify up to seven characters for the name of the history file (with the HISTOUT parameter of the SUMM HIST subcommand). In storing the data, Reporter adds a last letter to the filenames of these files to indicate the type of history file:

S Subsystem Performance File
C Channel Interface Statistics File
V Functional Device Performance File
P Drive Module (Physical Device) Performance File

Note: The four history files must all remain on the same minidisk.

After summarization, the history file contains summarized performance-tracking data for the number of days you specify (with the KP parameter of the SUMM HIST command). If you omit the KP parameter, Reporter keeps the data for 395 days (thirteen months).

Note: There is no SVAA panel for the summarization function.

Reporter summarizes the data over an interval you specify (with the INTERVAL parameter of the SUMM HIST command). Reporter determines the summary interval the first time the history file is produced; it can be specified in subsequent runs but the interval must be a multiple of the original data-collection interval and must be evenly divisible into 24 hours. The larger the summary interval, the less space the history file occupies, but you have less detail. The default summary interval is two hours.

Reporter stores the summarized data in the history files in SAS format. See Chapter 10, "Format of Logging Records" for the content and layout of the records in these files.

Summarizing Historical Data

You should have a VM userid autologged daily to process the previous day's performance data in the main logging file (see "Specifying Where to Send Output" on page 4-2) and to manage the Reporter history file database (SAS® data library). You should allocate a minidisk large enough to contain the SAS history file database. If you summarize the data at 2-hour intervals and want to keep a year's data, about 600 cylinders of 3380 DASD per subsystem should be allocated.

In the SIBSAMP MACLIB, Reporter provides a sample REXX EXEC, SIBSRPSH, to run the Reporter summarization program and update the history file.

Input parameters to the REXX EXEC:

- The CMS disk mode of the disk containing the Reporter performance data in the main logging file (R/O)
- The CMS disk mode of the SAS database minidisk (R/W)
- The summarization interval in minutes
- The number of SAS files to retain each day

Assuming the default **&daydate** for the file name of the logging file, the sample SIBSRPSH EXEC summarizes the raw data in a file whose name depends on the date (for instance, **SU931225 SRPDATA**). The names of the files produced by the SAS program would be **SRPDAYx SU931225**, where x is one of the letters **S**, **C**, **V**, or **P**.

Handling Full Logging Files

When all space in the affected minidisk is exhausted, a "file full" condition occurs. To determine the action to be taken, Reporter calls a user exit—an SVAA macro called SIBSRPSW SIB. On the RUN disk, SVAA provides a sample SIBSRPSW macro (in REXX) that you may copy and modify. The input parameters to this macro are:

- The CMS name of file being written.
- The name of the alternate file, or, if there is no alternate file, * * *.
- An indication (**Y** or **N**) of whether it is the main logging file that is full.
- An indicator (**Y** or **N**) of whether the alternate file is empty.
- **&DAYDATE** filename indicator (**Y** or **N**). See "Specifying the Logging Files for PT Data" on page 4-3 for more information.
- The reason the exit was invoked:
 - 1 File full
 - 2 Switch command received
 - 3 I/O error
 - 4 Open, close, or allocate error

The SIBSRPSW SIB macro erases the oldest daily file, if:

- You are using the main logging file; and
- You have not provided the name of an alternate file; and
- The filename of the current file is **&DAYDATE**

Table 5-2 on page 5-6 describes the possible return codes from the SIBSRPSW exit.

Return Codes from SIBSRPSW

Table 5-2. Possible return codes from SIBSRPSW		
Return code	Reason invoked	Action to be taken by Reporter
0	1, 3	Switch to the other logging file, if it exists, and redrive the I/O.
1	1, 3	Switch to the other logging file, if it exists, and bypass the I/O.
2	1	(in VM only) Redrive the I/O to the end of the current file.
3	1	Reposition to the start of the current file and redrive the I/O.
4	1	Reposition to the start of the current file and bypass the I/O.
5	1	Close the file and bypass all I/O until the file becomes empty.
6	2, 4	Switch to the other logging file and open it.
7	2	Ignore the SWITCH command.
8	Any	Close the file and stop all collection runs using the file.

Extracting History Data for Graphing

SVAA collects from the subsystems statistics that include a large number of variables, resulting in a very large amount of data. SVAA summarizes the data collected for all the reporting variables, as described in “Summarizing Logged Data” on page 5-4. There is an SVAA option, however, that lets you create a SAS program that extracts data from the history file for just the variables you specify. You can reduce the amount of data further by specifying the dates and times, the summarization intervals, and the partitions from which the data you want was collected. You can also specify the type of summary you want, by functional device or by subsystem.

The extracted data is sufficiently moderate in size that you can download the output to a personal computer or a workstation for processing in a report or graph; of course, the data can also be processed on the host. The SAS program created in the process produces data either in a comma-delimited file for processing by a spreadsheet application, such as Microsoft® Excel, or in SAS format for further processing by SAS or SAS/GRAPH.

You can select variables from the categories of channel interfaces, cache effectiveness, or device performance (or any combination of these). A set of panels enables you to choose among the variables to be calculated (those, such as I/O hit percentage, that are calculated from the detail data obtained from the subsystem). These panels also enable you to select identification variables, such as the subsystem name, that help you identify the source of the statistical data. An additional set of panels enables you to specify detail variables, such as functional device utilization time.

SVAA includes in the output data only those variables that you specifically name for extraction. Thus, if you wish to include the detail variables that are involved in a calculated variable, you must specifically name the detail variables to be extracted, as well as naming the calculated variables.

Note: If you request device summarization with variables for both channels and functional devices, SVAA provides only channel totals. (Otherwise, data for a functional device would be collected redundantly over each channel.)

Appendix D, “Using Data Extraction” defines all the calculated and detail variables for which data is summarized by SVAA. The data extraction function is panel-driven only; there are no corresponding SIBADMIN subcommands.

The SVAA SIBSAMP MACLIB includes a sample Excel macro and sample SAS/GRAPH programs that you can use to generate graphs from extracted data.

For information about using the panels for data extraction, see “Extracting Summarized History Data” on page 7-47.

Space Requirements

Reporter requires approximately 320 bytes per collection instance to collect all performance data for a functional device (in the Functional Device Performance File) and about 5200 bytes for the other three records. Data-collection space requirements for a fully populated SVA subsystem (1024 functional devices) can therefore be computed to be:

- About 333K bytes per collection instance
- About 52 cylinders of 3380 DASD per day if you use the default collection interval of 15 minutes
- About 2365 cylinders of 3380 DASD for history data file space per year, if you use the default summary interval of two hours

Assuming 320 bytes per device and 1024 devices per subsystem, each subsystem collection instance produces 81 4-kilobyte blocks of data. If the collection interval is 15 minutes, one SVA subsystem requires 52 cylinders of 3380 DASD data per day. Thus, Reporter needs 520 cylinders of 3380 DASD to maintain 10 days' raw performance data for each subsystem.

Note: For SVA subsystems that support the definition of more than 1024 devices, the above numbers are higher.

For non-SVA subsystems, Reporter requires approximately 268 bytes per collection instance to collect data for a functional device, plus about 192 bytes for the subsystem records. Therefore, the space requirements for a fully populated 3390-3 (64 devices) can be calculated to be:

- About 17.1K bytes per collection instance.
- About 3 cylinders of 3380 DASD per day if you use the default interval of 15 minutes.
- About 120 cylinders of 3380 DASD for history data per year if you use the default summary interval of two hours.

Space Requirements

Chapter 6. Controlling the Reports

Chapter Summary

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Creating Your Own Reports

You can use the collected data in SMF format and a report-generation program to produce your own reports. In doing so, keep in mind:

- The formats of the four kinds of files in the history file appear in Chapter 10, “Format of Logging Records.”
- During the summarization process, Reporter inserts the current date and time, along with the summarization interval used, in the MEMLABEL field of the SAS variables for the history file.

Do not modify the MEMLABEL field; it is reserved for Reporter use.

You can run the PROC CONTENTS function in SAS to see the format of the SAS output files.

Requesting Reports

You request reports in one of these ways:

- Using panels that appear when you issue the SIBMENU command. See Chapter 7, “Using the SVAA Panels” for instructions.
- Using the REPORT PERFORMANCE or REPORT SPACEU subcommand, either from the command line or in batch programs. See Chapter 8, “SVAA Subcommands and Commands” for instructions about using the Reporter subcommands to control reporting.

Specifying Report Characteristics

This section identifies the Reporter subcommands and their parameters that control reporting, as well as the panel fields that do the same.

Choosing Report Category

Reporter provides two categories of reports:

- Performance reports. There are two kinds of performance reports:
 - Device Performance reports, which provide statistics that are helpful in understanding I/O performance of the functional devices.
 - Cache Effectiveness reports, which help in determining how effectively the cache is being utilized.
- Space Utilization reports, which show functional and physical space usage and capacity.

See Chapter 9, “Understanding the SVAA Reports” for samples of the reports.

To specify the category of report you want:

	Subcommand	Panel
Performance	REPORT PERF subcommand	Option 3 on SUBSYSTEM REPORTING panel
Device performance	DEVPERF parameter of the REPORT PERF subcommand	Device Performance field of SPECIFY PERFORMANCE REPORTING panel
Cache effectiveness	CAEFF parameter of the REPORT PERF subcommand	Cache Effectiveness field of SPECIFY PERFORMANCE REPORTING panel
Space utilization	REPORT SPACEU subcommand	Option 4 on SUBSYSTEM REPORTING panel

The default for REPORT PERF is to report both performance types. If there is no data in the input file, Reporter produces a report containing only a header and a message that no cache-effectiveness or device-performance data is available.

Choosing Report Type

“Selecting Types of Reports” on page 2-11 describes the types of reports you can produce with Reporter.

The interval summary, overall summary, time-ordered, and exception reports, and the bar chart can be used to depict short-term subsystem performance. The input to these reports is normally in detail logging files, although you can also use the history file.

The daily, weekly, and monthly summary reports and optional SAS/GRAPH output are used for historical trend analysis. The history file is normally used as input to these reports.

Note: A weekly summary report begins on a Sunday and ends on the following Saturday. A monthly summary report covers all the days of a calendar month.

To specify the type of report:

	Subcommand	Panel
Overall	OVERALL parameter of the REPORT PERF subcommand	Overall field of SPECIFY PERFORMANCE REPORTING
Interval	INTRPT parameter of the REPORT PERF subcommand	Interval field of SPECIFY PERFORMANCE REPORTING
Daily summary	SUMDAY parameter of the REPORT PERF subcommand	Daily field of SPECIFY PERFORMANCE REPORTING
Weekly summary	SUMWK parameter of the REPORT PERF subcommand	Weekly field of SPECIFY PERFORMANCE REPORTING
Monthly summary	SUMMON parameter of the REPORT PERF subcommand	Monthly field of SPECIFY PERFORMANCE REPORTING
Time-ordered	TIMORD parameter of the REPORT PERF subcommand	Time-Ordered field of SPECIFY PERFORMANCE REPORTING
Exception	EXCPTN parameter of the REPORT PERF subcommand	Exception field of SPECIFY PERFORMANCE REPORTING
Bar chart	BAR parameter of the REPORT PERF subcommand	Bar Chart field of SPECIFY PERFORMANCE REPORTING

Specifying Report Characteristics

The default is to produce the overall report.

Specifying Report Input

You can specify to the Reporter performance-reporting function where it is to find the collected data, either in SAS form in the history files or in the detail logging files. To include OR data, you specify an OR collection identifier for the data to include in the report.

To specify where Reporter can find input:

	Subcommand	Panel
SAS history files	RPTSAS parameter of the REPORT PERF subcommand	SAS File ID field of the SPECIFY PERFORMANCE REPORTING panel
Logging files	RPTFL parameter of the REPORT PERF subcommand	Input File Name field of the SPECIFY PERFORMANCE REPORTING panel
Identify SMF record number	SMFN parameter of the REPORT PERF subcommand	SVAA SMF Number field of the SPECIFY PERFORMANCE REPORTING panel
OR collection input	COLLID parameter of the REPORT PERF subcommand	Collection Identifier field of the SPECIFY PERFORMANCE REPORTING panel

Specifying Format of Reports

Normally, Reporter produces tabular reports. You also can specify that bar charts, exception reports, time-ordered reports, interval reports, and the daily, weekly, and monthly summary performance reports (that is, all except the space utilization and overall device-performance reports) be sent to a SAS file for later graphics processing in a separate step. You can use the sample SAS/GRAPH programs (included in the SVAA SIBSAMP maclib) to process the data, or you can create your own SAS/GRAPH programs.

To specify the format of reports:

	Subcommand	Panel
SAS device detail file	SASDFL parameter of the REPORT PERF subcommand	SAS File Name of SPECIFY REPORT OPTIONS panel
SAS subsystems totals file	SASSFL parameter of the REPORT PERF subcommand	SAS File Name of SPECIFY REPORT OPTIONS panel

Specifying the SAS Program Name

You can specify that a SAS program be produced by the REPORT PERF subcommand. This program, which you must execute in a later step, produces the actual report output. You can specify the name of the file containing the program, or you can use the default name of SIBSRP SAS.

To specify the SAS program name:

	Subcommand	Panel
SAS program name	SASPGM parameter of the REPORT PERF or REPORT SPACEU subcommand	SAS Program Name field of the SPECIFY PERFORMANCE REPORTING panel or SPACE UTILIZATION REPORTING panel

Specifying Devices for Reporting

You can include in reporting one or a range of subsystems, volumes, or functional devices (units). You can exclude subsystems, volumes or functional devices, singly or by range, from the devices you define to be included.

Note: Before attempting to specify subsystems or functional devices for data reporting or collection, you must understand how Reporter uses your specifications to select subsystems and functional devices for data collection.

To understand this, study “Specifying Devices for Data Collection” on page 4-10 for the interactions between device inclusion and exclusion parameters; study also the examples in that section.

To specify devices for reporting:

	Subcommand	Panel
Include subsystem	SUBSYS parameter of the REPORT PERF or REPORT SPACEU subcommand	S beside Select Subsystems on SELECT LISTS panel and I on the SELECT SUBSYSTEMS panel, followed by subsystem selections.
Exclude subsystem (on panels, devices that are not specifically excluded are included).	EXSUBSYS parameter of the REPORT PERF or REPORT SPACEU subcommand	S beside Select Subsystems on the selection list and X on SELECT SUBSYSTEMS panel, followed by subsystem selections.
Include functional device	UNIT parameter of the REPORT PERF or REPORT SPACEU subcommand	S beside Specify Device Ranges on the SELECT LISTS panel and I on SELECT DEVICES or SPECIFY DEVICE RANGES panels.
Exclude functional device	EXUNIT parameter of the REPORT PERF or REPORT SPACEU subcommand	S beside Specify Device Ranges on SELECT LISTS panel and X on SELECT DEVICES or SPECIFY DEVICE RANGES panels.
Include volume	VOL parameter of the REPORT PERF or REPORT SPACEU subcommand	S beside Specify Volser Ranges on SELECT LISTS panel and I on SELECT DEVICES or SPECIFY VOLSER RANGES panels.
Exclude volume	EXVOL parameter of the REPORT PERF or REPORT SPACEU subcommand	S beside Specify Volser Ranges on SELECT LISTS panel and X on SELECT DEVICES or SPECIFY VOLSER RANGES panels.
Include non-SVA devices	NONIB parameter of the REPORT PERF subcommand	I beside Selection Mode and then S beside Non-SVA Subsystems on the SELECT SUBSYSTEMS panel.
Exclude non-SVA devices	EXNONIB parameter of the REPORT PERF subcommand	X beside Selection Mode and then S beside Non-SVA Subsystems on the SELECT SUBSYSTEMS panel.

Specifying Report Characteristics

The default for reporting is for all devices for which data was collected (for performance reports) or for all installed subsystems (for space utilization reports).

Choosing Degree of Detail

This option controls whether the report should include details for the functional devices you specify. You always obtain the subsystem summary.

To specify the degree of detail for reports:

	Subcommand	Panel
Subsystem totals only	DEVDET(NO) parameter of the REPORT PERF subcommand	Device Details field of the SPECIFY PERFORMANCE REPORTING panel
Device details	DEVDET(YES) parameter of the REPORT PERF subcommand	Device Details field of the SPECIFY PERFORMANCE REPORTING panel

The default is to report Test partition, Production partition, and subsystem totals only.

Choosing Time Ranges for Reporting

You can specify up to 16 pairs of report starting and ending times (time ranges) for all performance reports to coordinate reports with the collected data. If the starting or ending time falls within a collection or summarization interval, the report includes data for the entire interval. Therefore, for most effective reporting, you may want to coordinate reporting ranges with collection ranges.

Note: Due to processing times, the time stamp on a record can be a few seconds after the ending time of a collection range. Similarly, the starting time of a collection range can appear to occur during a previous collection range.

To specify pairs of starting and ending times:

	Subcommand	Panel
Times	TIMES parameter of the REPORT PERF subcommand	Type 0 in the Times field of the SPECIFY PERFORMANCE REPORTING panel and fill in the times on the resulting SPECIFY REPORTING TIMES - PERFORMANCE REPORTING panel

The default is to include all collected data.

Note: The discussion and rules in “Specifying Time Ranges for Collection” on page 4-5 apply in general to reporting, with some significant differences:

1. SVAA first considers for reporting data that was collected on all dates specified with the DATES or DAYS parameters. SVAA then selects for reporting from that data all of the data that was collected in the time ranges specified with the TIMES parameter. That is, SVAA does *not* consider the date and time ranges as defining starting and ending date-time pairs; data is selected first for the specified dates then, from that data, data is selected from the specified time ranges.
2. Data for the ending times of time ranges may appear to be missing from reports. This can happen when, for instance, the interval is 30 minutes, and

collection occurs on the hour and half-hour. The data collected at midnight may have an internal time-stamp a few seconds after midnight, because of processing times. The last collection instance included in the report would occur at 11:30 p.m. (to include the midnight collection, you could specify an ending time of 1201 on the time range).

Example 1. Specifying date and time ranges for data that starts at 1 a.m.

DATES(01DEC1998:03DEC1998)
TIMES(0400:1200 2000:0200)

If you issue the REPORT PERF subcommand for data that starts at 1 a.m. (0100 hours) on December 1, SVAA includes in the report all data collected:

0100:0200 on December 1
 0400:1200 on December 1
 2000:2400 on December 1
 0000:0200 on December 2 and 3
 0400:1200 on December 2 and 3
 2000:2400 on December 2 and 3

Example 2. Specifying date and time ranges for data that starts at 1 a.m.

DATES(01DEC1998:03DEC1998)
TIMES(0400:1200 2000:0200)

If you issue the REPORT PERF subcommand for data that starts at 1 p.m. (1300 hours) on December 1, SVAA includes in the report all data collected:

2000:2400 on December 1
 0000:0200 on December 2 and 3
 0400:1200 on December 2 and 3
 2000:2400 on December 2

Choosing Days of the Week for Reporting

You can specify that reporting is to cover specific days of the week, weekdays in general, or weekend days. The days of the week you specify apply to all reports, for the date ranges specified by the DTE and EXDTE parameters.

To specify reporting days:

	Subcommand	Panel
Include specific days of week	MON, TUE, ... subparameters of the DAY parameter of the REPORT PERF subcommand	On the SPECIFY DATE RANGES panel, type I in the Selection Mode field and S next to each weekday to be included.
Include all weekdays	WKDY subparameter of DAY parameter of the REPORT PERF subcommand	On the SPECIFY DATE RANGES panel, type I in the Selection Mode field and S next to each weekday.
Include weekend days	WKND subparameter of DAY parameter of the REPORT PERF subcommand	On the SPECIFY DATE RANGES panel, type I in the Selection Mode field and S next to SAT and SUN .

Specifying Report Characteristics

	Subcommand	Panel
Exclude specific days of week	EXDAY parameter of the REPORT PERF subcommand	On the SPECIFY DATE RANGES panel, type X in the Selection Mode field and S next to each weekday to be excluded.
Exclude weekdays	WKDY subparameter of the EXDAY parameter of the REPORT PERF subcommand	On the SPECIFY DATE RANGES panel, type X in the Selection Mode field and S next to each weekday.
Exclude weekend days	WKND subparameter of the EXDAY parameter of the REPORT PERF subcommand	On the SPECIFY DATE RANGES panel, type X in the Selection Mode field and S next to SAT and SUN .

Notes:

1. If you specify WEEKDAYS for exclusion or inclusion, Monday through Friday are the effective days.
2. If you specify WEEKENDS for exclusion or inclusion, Saturday and Sunday are the effective days.
3. The days you specify with the DAY, or EXDAY parameters of the REPORT PERF subcommand or with the DATE RANGES panel apply to all the performance reports.

Choosing Report Dates or Date Ranges

Date-control parameters allow you to limit reporting to the desired dates. To limit reporting to certain days of the week, see “Choosing Days of the Week for Reporting” on page 6-7.

The following parameters can be specified for all performance reports. The default is to include all collected data.

To specify reporting dates:

	Subcommand	Panel
Include single dates	DTE parameter of the REPORT PERF subcommand	On the SPECIFY DATE RANGES panel, specify dates in the From-Date fields and type I in the Selection Mode field.
Include date ranges	DTE parameter of the REPORT PERF subcommand	On the SPECIFY DATE RANGES panel, specify starting dates in the From-Date fields, ending dates in the To-Date fields, and type I in the Selection Mode field.
Exclude single dates	DTE parameter of the REPORT PERF subcommand	On the SPECIFY DATE RANGES panel, specify dates in the From-Date fields and type X in the Selection Mode field.
Include date ranges	DTE parameter of the REPORT PERF subcommand	On the SPECIFY DATE RANGES panel, specify starting dates in the From-Date fields, ending dates in the To-Date fields, and type X in the Selection Mode field.

Notes:

1. Specify dates in the form *ddmmmyyyy*, where *dd* is the day of the month, *mmm* is the first three letters of the month, and *yyyy* is the year. In subcommands, specify ranges of dates (pairs of dates for starting and stopping report coverage) in the form *date1:date2*, where each *date* is in the form *ddmmmyyyy*.
2. You can specify dates in the future.
3. You can set up a canned report-performance job that excludes all holidays.
4. Do not specify a date range with two equal dates. Ranges must not overlap.
5. You can exclude one or more dates from the report. For example, you can use the EXDATES parameter to exclude holidays from workday reports.
6. You can specify both report exclude dates and report include dates (but not at the same time on panels).
7. You can select reporting of specific dates in a variety of ways:
 - Multiple starting/stopping time or date pairs.
 - Single starting/stopping time or date pair.
 - Single starting/stopping time or date pair with excluded days.
 - Single starting/stopping time or date pair with included days.
 - Any of the above options plus excluded dates. Excluded dates override included days.
8. With the DTE parameter of REPORT PERF or on the SPECIFY DATE RANGES panel, you can specify up to 16 ranges of dates, up to 16 single dates, or a combination of up to 16 dates and ranges of dates.
9. Similarly, with the SPECIFY DAILY REPORT OPTIONS panel (or the corresponding weekly and monthly report panels), you can specify up to 4 ranges. The dates or date ranges you specify with the EXDATES parameter take precedence over the dates you specify with the DATES parameter. This allows you to exclude holidays.
10. The dates or date ranges you specify with the DATES or EXDATES parameters of REPORT PERF or with the DATE RANGES panel apply to all reports. However, the dates or date ranges you specify with the DATES subparameter of the SUMDAY, SUMWK or SUMMON parameter of REPORT PERF or on the SPECIFY SUMMARY REPORT OPTIONS panel apply only to those reports. If you specify neither the DATES subparameter of a summary report parameter nor the DATES parameter, Reporter produces reports for all data in the history file.
11. If you have intervals that span midnight, your reports will include data from the day previous to the first date you specify for reporting. See Example 4 on page 8-56.

Choosing the Reporting Interval

A report summary interval can be specified for the Interval, Time-Ordered, Performance Bar Chart and Exception reports. The report summary interval must be a multiple of the interval present in the input file (the data collection interval or the historical data summary interval). The default is 120 minutes. (For more information, see “Controlling the Time Ranges for Reporting” on page 2-13.)

Specifying Report Characteristics

To specify the reporting interval:

	Subcommand	Panel
Report interval	RPTINT parameter of the REPORT PERF subcommand	Report Interval field of the SPECIFY PERFORMANCE REPORTING panel (enter minutes or hours)

The report summary interval is not specified for the daily, weekly, or monthly summary reports, or for the space utilization reports. Data in those reports is summarized by day, week, or month over the entire interval specified by the report starting and ending times.

Suppressing Report Printing

You can specify that printing of a report be suppressed if you want only a file for SAS/GRAPH output. To obtain SAS file output, you must also specify one or both of the SASDFL and SASSFL parameters.

Suppress report printing by:

	Subcommand	Panel
Suppress printing	SUPP parameter of the REPORT PERF subcommand	Suppress Print field of the SPECIFY PERFORMANCE REPORTING panel

Specifying Exception Thresholds

For SVA subsystems, you can specify thresholds for certain variables to be tracked for the exception report. The exception report flags with asterisks the values that represent exceptions from the values you specify for the thresholds. The defaults for these threshold values appear in Appendix A, "Exception Thresholds."

To specify exception reporting:

	Subcommand	Panel
Exception reporting	EXCPTN (YES or NO) parameter of the REPORT PERF subcommand	EXCEPTION field of the SPECIFY PERFORMANCE REPORTING panel
Threshold values	THRSH parameter of the REPORT PERF subcommand	LT and GT values for each threshold on SPECIFY EXCEPTION THRESHOLDS panel
Threshold values in an exception file	EXCPFL parameter of the REPORT PERF subcommand	Exception File Name field on SPECIFY EXCEPTION THRESHOLDS panel
Partition	PART (PROD or TEST or ALL) parameters of the REPORT PERF subcommand	Enter Partition field on SPECIFY EXCEPTION THRESHOLDS panel

Specifying Exception Reporting by Subcommands

With the THRSH parameter of REPORT PERF, specify exception thresholds in sets of three positional parameters enclosed in parentheses and separated by blanks.

EXCePTioNs (YES THReSHoLds((*exception operator threshold*)...))

where:

- exception* Is a mnemonic for the report variable that you are specifying the exception for. See Appendix A, “Exception Thresholds” for these mnemonics and for the defaults.
- operator* Is the comparison to be made: either **LT** (less than), **GT** (greater than) or **NO**. **NO** specifies that there is to be no exception flagging for the variable specified by the *exception* variable. (On the panels, a blank line has the same function as **NO**.)
- threshold* Is the value you are assigning for comparison with the subsystem values. If you specify the threshold value as an asterisk, Reporter uses the default threshold provided for the report variable. If you specify **NO** for the operator, Reporter ignores the threshold value.

If you do not specify the thresholds for a variable, Reporter uses the default threshold values.

For example, (**DEAVLPCT LT 99**) requests flagging with asterisks of all intervals in which the device was available less than 99% of the time. (**UTILPCT GT ***) requests flagging of all intervals in which device utilization was greater than the default maximum.

To specify more than one threshold value, enclose each specification in its own parentheses. For example:

EXCPTN(YES THRSH((DISCTM GT 15) (CHNL RTE GT *) (ACCDEN GT 12)))

Specifying Exceptions

The rules for exception specification either in subcommands or in panels are:

- If you specify both an **LT** value and a **GT** value for the same exception variable and if the **LT** value is less than the **GT** value, Reporter flags any occurrence *outside* the range defined by the **LT** and **GT** values. For example, (**UTILPCT LT 5**) (**UTILPCT GT 40**) directs Reporter to flag all percentages of device utilization that are either less than 5 or greater than 40 (that is, that are outside the range $5 \leq \text{UTILPCT} \leq 40$).
- If you specify an **LT** value greater than the **GT** value for the same exception variable, Reporter flags any occurrence *within* the range defined by the **LT** and **GT** values. For example, (**DEAVLPCT LT 100**) (**DEAVLPCT GT 0**) directs the Reporter to flag all devices that were available at least some of the time (that is, that were not disabled) and that were less than 100% available.
- If you specify equal **LT** and **GT** values, Reporter flags all occurrences that do not have exactly that value.
- If you specify only the **LT** value or only the **GT** value, Reporter uses only the range determined by that value. For example, (**DISCTM LT 30**) directs Reporter to flag all disconnect times less than 30 (that is, Reporter does not use the default value for the **GT** operator).
- Separate the positional parameters in each set with blanks and enclose each set in parentheses.

Specifying Report Characteristics

- Specify as many THRSH subparameters in the file as you want. Do not specify duplicate THRSH specifications.
- If you have only one threshold, you can omit one pair of parentheses from the format shown in the box on page 6-10. For example:

```
EXCPTN(YES THRSH(DISCTM GT 15))
```

Specifying Exception Thresholds in a File

You can define a set of exceptions in a file and then give the filespec of that file to Reporter, either with the EXCPFL parameter of the REPORT PERF subcommand or with the **Exception File Name** field of the SPECIFY EXCEPTION THRESHOLDS panel. The format of each specification in the file is:

```
THReSHoLds (exception operator threshold)  
or  
THReSHoLds ((exception operator threshold)...)
```

where:

- exception* Is a mnemonic for the report variable that you are specifying the exception for. See Appendix A, “Exception Thresholds” for these mnemonics and for the defaults.
- operator* Is the comparison to be made: either **LT** (less than), **GT** (greater than), or **NO**. **NO** specifies that there is to be no exception reporting for the variable specified by the *exception* variable.
- threshold* Is the value you are assigning for comparison with the subsystem values. If you specify the threshold value as an asterisk, Reporter uses the default threshold provided for that field.

Note: See the rules for specifying exceptions in “Specifying Exception Reporting by Subcommands” on page 6-10.

For example, create a file named **THRESH EXTHRESH A** and enter in the file:

```
THRSH ((ACCDEN GT 5) (DISCPCT GT 20))  
THRSH ((IOHITPCT GT 20)  
        (RDHITPCT LT 50)  
        (WRHITPCT GT 20)  
        (TRKOCC LT 40) (TRKOCC GT 25)  
        )
```

Now specify **REPORT PERF (EXCPFL(THRESH))** to initiate exception reporting.

These statement specify exception reporting when:

1. Access density is greater than 5
2. Disconnect time percentage is greater than 20
3. I/O hit percentage is greater than 20
4. The read hit percentage is less than 50
5. The write hit percentage is greater than 20

6. The tracks occupied are between 25 and 40 (even though there is a default value for **GT** of "N/A," a greater-than threshold can be specified for **TRKOCC**)

Specifying Exception Reporting on ISPF Panels

You can specify the same information about exception reporting on ISPF panels that you can by Reporter subcommands, except that you cannot specify that there is to be no reporting for an exception threshold. In fact, it is easier to use ISPF panels, because you do not have to look up the mnemonics for the variables you want to be reported.

Using the SPECIFY EXCEPTION THRESHOLDS panel, you can enter the thresholds in a file or you can enter the threshold values under the columns headed **LT** and **GT**. To exclude a variable from threshold reporting, leave the corresponding two fields blank.

Effect of SAS/C Rounding

As described above, exception reports indicate values that fall outside specified thresholds by printing an asterisk to the right of the values in the report. For example, if you specify **UTILPCT LT 40** and the calculated value is 41.37, then 41.4 appears in the report.

Note that SAS/C rounds values for printing in reports to the nearest tenth (one decimal place). This rounding can produce unexpected results in a printed report. For example, if you specify **UTILPCT LT 40** and the calculated value for UTILPCT is 39.97, SAS/C rounds this value to 40.0 and adds an asterisk in the report. The 39.97 value is thus flagged as exceeding the threshold, although in fact the calculated value is within the threshold (it is less than 40). The report can also include values of 40.0 without the asterisk.

For a similar reason, SAS/C can report a value of -0.0. In this case, the calculated value may have been a small negative number, such as -0.03, which SAS/C rounds to -0.0.

Specifying Multiple Reports

You can specify a number of reports with a single **REPORT PERF** subcommand or with the SPECIFY PERFORMANCE REPORTING panel. Individual reports are requested by report-category or report-type statements.

Sample SIBADMIN subcommand and parameters:

```
REPORT PERF (DEVPERF(YES) CAEFF(YES) SUMDAY(YES) SUMWK(YES) )
```

Running the SAS Program

To run the SAS program containing your report, specify the loadlib, either:

- In the CONFIG SAS file. For example:

```
SASLOAD = ' SIBSAS LOADLIB * '
```

- As an option on the SAS execution statement. For example:

```
SAS = sasname (SASLOAD = 'SIBSAS LOADLIB * ')
```

Chapter 7. Using the SVAA Panels

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Panels

This chapter describes how to use SVAA panels to:

- Set session profile options
- Control data collection
- Specify what data is to be presented in the reports
- Control extraction of data from the history file for downloading to workstation or personal computer.

You can also control reporting with interactive subcommands, as explained in Chapter 8, “SVAA Subcommands and Commands.”

Using the SVAA Panels

This section describes how to move among the SVAA panels. The SVAA panels use the terms “select” and “specify” as follows:

select	Choose one of the options on the menu and type its single-character identifier in the option field
specify	Type appropriate values in the fields on the panel

Specifying Options

On some SVAA panels, you can specify **0** in a field to request Reporter to display a panel on which you can specify options, such as times or dates for collection or reporting or options relating to a type of report. When you return to the original panel, **Y** appears in place of the **0**. If you want, you can cancel the options you have specified by changing the **Y** to **N**.

Entering Values on the Panels

Fields on the panels where “===>” follows the field name are data-entry fields, which appear in the figures as underscores, (the underscores do not appear on the actual panels). Fields on the panels whose names end with a colon are display-only fields—you cannot enter data in these fields.

This chapter shows sample entries in uppercase. You can also use lowercase or mixed case.

You can use two keys to move around the panels to make selections or to enter data:

Tab	Moves the cursor to the next field in which you can enter data. When an SVAA panel first appears, the cursor is on the first data-entry field. Use the Tab key to move to the next entry field.
Enter	Verifies that the values you have entered or options you have chosen on the current panel are allowable. Where appropriate, Reporter then displays the next panel.

Choosing from Tables

Some SVAA panels, such as the SELECT SUBSYSTEMS - LIST MAINTENANCE panel, displays tables of subsystem names, device addresses, or volume serial numbers. On these panels, you select the entries on which you want to act by typing **S** beside the entry. (You can press **Enter** at any time to request Reporter to validate your selection and the data supporting it.)

When you issue the **END** or **RETURN** command, the result depends on whether the data behind the entry is valid (for example, whether a device selection list exists for the entry you have selected).

If any of the data is invalid, Reporter cancels the action and returns you to the panel without saving any of your selections. If all the data you enter is valid, SVAA saves the data.

Using the Command or Option Field

In the command or option field, you can type:

- An SVAA panel command, such as **SUBMIT**.
- An option number on a menu.
- A CMS command.
- An SVAA subcommand (see below).
- An ISPF command. Some useful examples are:

KEYS	Enables you to set your own function key definitions.
PANELID	Causes the panel ID to appear in the upper-left corner of each panel during the current session.
PFSHOW	Displays your current function key definitions at the bottom of the panel. PFSHOW OFF turns off function key display. PFSHOW TAILOR lets you specify the number and arrangement of key definitions displayed.

See the ISPF documentation for the complete list of these commands and their explanations.

Entering SVAA Subcommands in the Command or Option Field

You can execute an SVAA subcommand from any SVAA panel by using a **SIBCMD** command (or simply **SIB**—the short form) followed by an SVAA subcommand, and pressing **Enter**. (See Chapter 8, “SVAA Subcommands and Commands” for detailed descriptions of the SVAA commands.) The response to subcommands entered in the command or option field depends on the number of lines of output:

- A one-line response appears on the current panel.
- A multi-line response appears on a separate browse panel.

Examples:

SIB SET ECAMDEV(123)

defines a functional device as eligible for privileged ECAM status.

SIB SET COLLECTION (COLLID(SPECIAL) SUSPEND)

suspends the collection run having the **SPECIAL** identifier.

SIB COLL ORD(COLLID(CT220))

requests data collection with the default values for all parameters. The collection identifier is to be **CT220**.

Note: If you enter **SIBCMD** or **SIB** without any subcommand parameter, SVAA displays a panel with a prompt at which you can enter one or more subcommands.

Using the Panel Commands or Function Keys

When you are using the SVAA panels, there are a number of panel commands that you can assign to function keys.

If there is no definition for a function key, SVAA does not allow you to use that key or the corresponding command on that panel. Unless you have tailored the function key definitions, the general default key definitions for the panel commands are as shown in Table 7-1.

Not all SVAA panel commands work on all panels. For a list of the commands that you can use with the current panel, enter ? in the command field.

Table 7-1. Panel commands for Reporter		
Command	Description	Default Key
ADD	Adds the device to the selection list.	F5
CANCEL	Cancel the operation of the current panel and return to the previous panel.	F15
REFRESH	Replace the values you have entered on the current panel with the values that are currently stored in SVAA.	F24
SUBMIT	Executes the function of the panel with the data you have entered on it. Pressing this key creates the SAS control statements.	F6

Using Line Commands

On some SVAA panels that display rows of data, you can enter certain one-letter commands called line commands to the left of any row. The line commands are:

I*nn* Insert *nn* blank lines below the current line
D*nn* Delete *nn* lines starting with the current line
R*nn* Replicate this line *nn* times and insert the replicated lines below the current line

Refreshing the Default Values

On any panel that displays information about SVA devices, you can press F24 to make sure that the information has not been changed since you first displayed the information. (For instance, the name of an SVA subsystem may have been changed from some other task.)

Help

Use the **HELP** command to display online help for any panel. Scroll up or down the help panels to find help for a particular field. Issue the **END** command to return to the panel for which you requested help.

On any help panel, use the **HELP** command for an explanation of the commands you can use to navigate the help panels.

Messages

SVAA displays brief messages in the upper-right corner of the screen. Issue the **HELP** command to display an expanded explanation.

Note: When displaying an error message, SVAA places the cursor under the field in which it finds the error.

File Names

You cannot use style prefixes on the SVAA panels.

SVAA Main Menu

To display the SVAA main menu, issue the **SIBMENU** command. (SIBMENU is a REXX EXEC supplied with SVAA.)

SVAA displays a copyright panel and then the Shared Virtual Array Administrator main menu, as shown in Figure 7-1.

```

SIBMM00          *** SHARED VIRTUAL ARRAY ADMINISTRATOR ***
OPTION  ===>

    0  SVAA PARMS   - Specify user parameters
    1  CONFIGURATION - Configure and administer SVA subsystems
    2  SELECTION    - Maintain device selection lists
    3  REPORT       - Perform subsystem data collection and reporting
    4  SNAPSHOT     - Snap minidisk and snap volume
    X  EXIT         - Terminate SVAA processing

Enter END command to terminate SVAA

```

Figure 7-1. SVAA main menu (SIBMM00)

This is the first panel you see for all SVAA functions. Select **0**, **2** or **3** on the panel to begin any of the activities described in this chapter.

- 0 SVAA PARMS.** Set parameters for your SVAA session. See “Session Administration” on page 7-6.
- 2 SELECTION.** Create, modify or delete lists of subsystems or devices. See “Maintaining Selection Lists” on page 7-9.
- 3 REPORT.** Control data collection and reporting for DASD subsystems. See “Data Collection and Reporting” on page 7-26.

Options **1** and **4** are documented in the *SVAA for VM Configuration and Administration* manual.

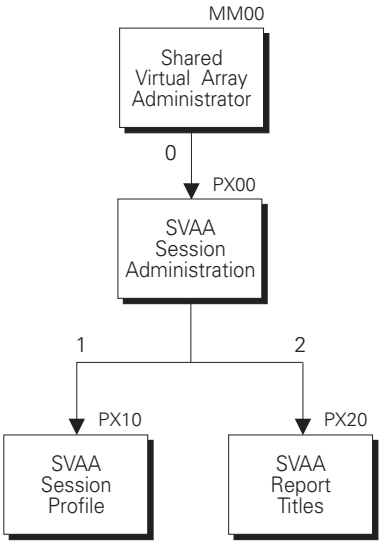
Enter **X** or issue the **END** command to terminate SVAA and return to CMS.

Each section in this chapter has a flow diagram of the panels you use to perform the task being described.

Note: Above each box in the flow diagram is a four-character label that identifies the panel. The seven-character panel ID consists of these four characters preceded by **SIB** (as shown in the figure captions for the panel examples). The panel ID appears on the screen when you issue the **PANELID** command.

Session Administration

Session administration consists of setting parameters for your SVAA session. Figure 7-2 shows the sequence of panels for SVAA session administration in VM systems.



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Figure 7-2. Panels used in session administration

When you choose option **0** on the SVAA main menu, SVAA displays the SVAA SESSION ADMINISTRATION menu, as shown in Figure 7-3. SVAA then displays panels that enable you to set options for your session profile and for report titles.

```
SIBPX00          *** SVAA SESSION ADMINISTRATION ***
OPTION ==>

1  PROFILE      - Specify user profile options
2  TITLES       - Specify report titles
```

Figure 7-3. SVAA Session Administration menu (SIBPX00)

To set session options, type a number in the OPTION field:

- 1. Type **1** and press **Enter** to set session profile options
Result: SVAA displays the SVAA SESSION PROFILE panel. See below.
- 2. Type **2** and press **Enter** to set report title options
Result: SVAA displays the SVAA REPORT TITLES panel. See “Specifying Report Titles” on page 7-8.

Setting Profile Options

The following panel appears after you enter **1** on the SVAA SESSION ADMINISTRATION menu.

SIBPX10 COMMAND==>		*** SVAA SESSION PROFILE ***			
Option		Permanent Value		Session Value	Source
-----		-----		-----	-----
Case	==>	MIXED	==>	MIXED	perm
Pagesize	==>	65	==>	65	profile
Profile	==>			PROFSIBA	default
SRP User	==>		==>	DASDADM3	default

Figure 7-4. SVAA Session Profile panel (SIBPX10)

Use this panel to change your profile options, either for the current session only (use the **Session Value** fields), or for the current and future sessions as well (use the **Permanent Value** fields).

Changing the permanent values changes the values for the current session. Changing the session values does not affect the permanent values.

Note: Values you enter on this panel override the corresponding values in your SIBADMIN profile. The panel displays a table with four columns:

Option	The name of the option to be set.								
Permanent Value	The option value that applies to all sessions. This column is initially blank although the default values are in effect for all options. Any allowable value you type in this column automatically appears in the Session Value column as well, unless you change the session value at the same time. This value applies for the rest of the current session and for all future sessions—until you enter a new value.								
Session Value	The option value that applies to the current session. To set a different value for the current session, type a new value in the field. (After you do so and press Enter , the value in the Source field changes to session .) The new session value does not affect the permanent value.								
Source	The source of the current values: <table> <tr> <td>default</td><td>The value is the SVAA default value (which was set during SVAA initialization).</td></tr> <tr> <td>session</td><td>The value was typed in the Session Value column or entered by the appropriate SET subcommand during the current session.</td></tr> <tr> <td>perm</td><td>The value was typed in the Permanent Value column during this session or a previous session.</td></tr> <tr> <td>profile</td><td>The value was set in the profile macro that was executed when you used SIBADMIN.</td></tr> </table>	default	The value is the SVAA default value (which was set during SVAA initialization).	session	The value was typed in the Session Value column or entered by the appropriate SET subcommand during the current session.	perm	The value was typed in the Permanent Value column during this session or a previous session.	profile	The value was set in the profile macro that was executed when you used SIBADMIN.
default	The value is the SVAA default value (which was set during SVAA initialization).								
session	The value was typed in the Session Value column or entered by the appropriate SET subcommand during the current session.								
perm	The value was typed in the Permanent Value column during this session or a previous session.								
profile	The value was set in the profile macro that was executed when you used SIBADMIN.								

Session Administration

To specify the profile options:

1. Use the **Case** option to specify whether SVAA is to translate to uppercase the parameter values you enter, or leave them in mixed case.
You can enter either **mixed** (or **m**), or **upper** (or **u**).
2. Use the **Pagesize** option to set the number of lines per page for SVAA reports.
You can enter a number from 40 to 99.
3. Use the **Profile** option to specify the SVAA profile to be executed whenever the SIBADMIN command is issued. (You cannot change the session value for the profile.)
4. Use the **SRP User** option to specify the user ID of the service virtual machine for the Data Collection Task.
5. Issue the **End** command to accept the new values.

Result: SVAA returns you to the SVAA SESSION ADMINISTRATION menu.

Specifying Report Titles

The following panel appears after you type **2** on the SVAA SESSION ADMINISTRATION menu and press **Enter**.

```
SIBPX20                      *** SVAA REPORT TITLES ***
COMMAND ==>

SOURCE: Title1- profile      Title2- profile      Title3- profile

SESSION:
Title1  ==> _
        ==>

Title2  ==>
        ==>

Title3  ==>
        ==>

PERMANENT:
Title1  ==>
        ==>

Title2  ==>
        ==>

Title3  ==>
        ==>
```

Figure 7-5. SVAA Report Titles panel (SIBPX20)

On this panel you can enter up to three title lines that are to appear at the top center of each page of your reports. The three **SOURCE** fields show the source of the current text for each title. The default is a blank line.

To specify titles for your reports:

1. Use the **Session Title1**, **Title2**, and **Title3** fields to specify titles for the current session. You can specify up to 127 characters for each title line.

2. Use the **Permanent Title1**, **Title2**, and **Title3** fields to specify titles for future sessions as well as the current session.
3. Issue the **END** command to accept the new values.

Result: SVAA returns you to the SVAA SESSION ADMINISTRATION menu.

Maintaining Selection Lists

Reporter maintains the names of devices in the subsystems in device selection lists. A *selection list* is a named list of one or more:

- Subsystems that are attached to the host in which Reporter is running
- Unit addresses of functional devices within the subsystems
- Volume serial numbers of functional devices within the subsystems

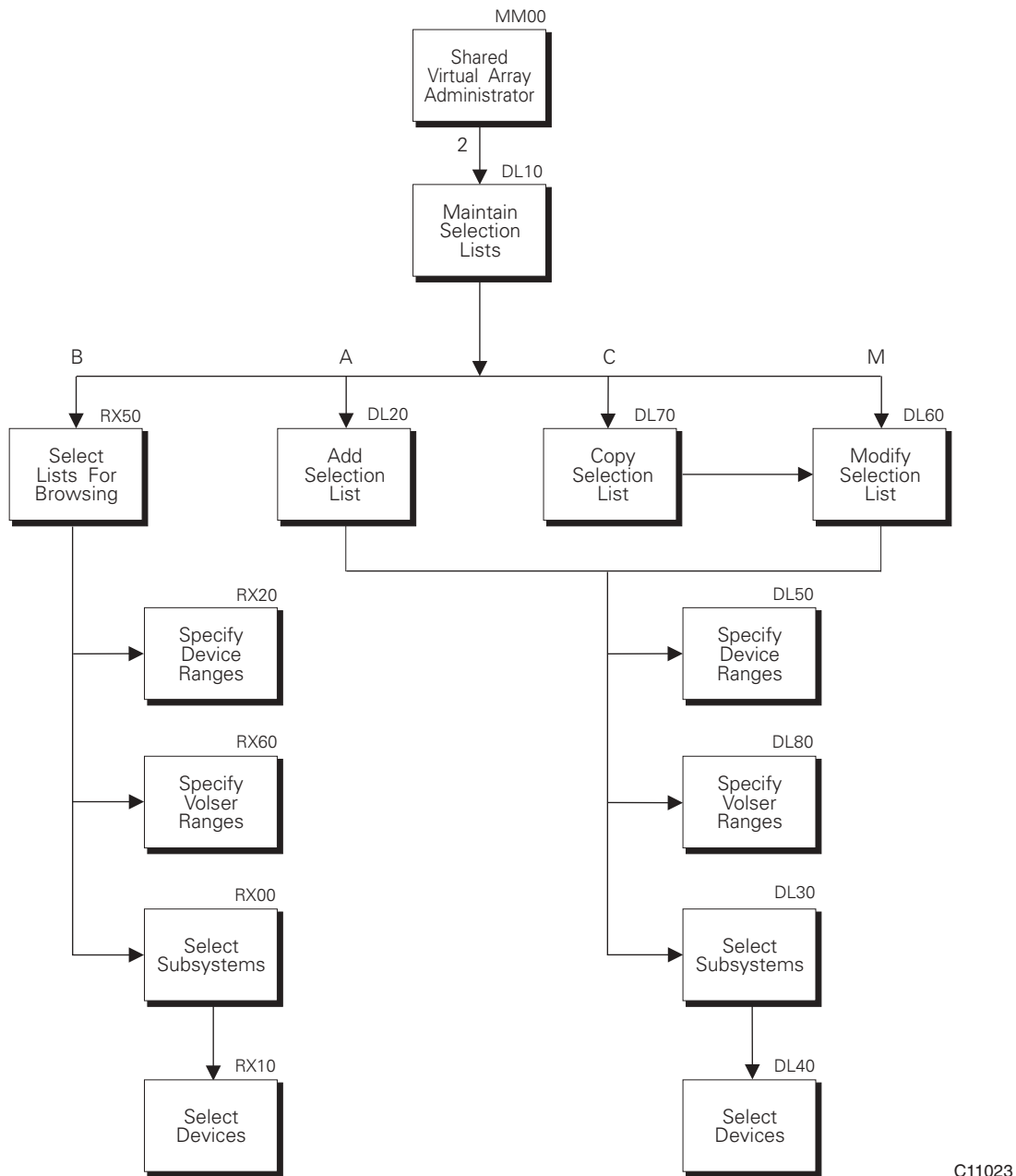
Another form of selection list is a combination of any the above types of selection lists for a single subsystem.

Use these selection lists to specify groups of devices for which you want data to be incorporated in a single report.

When you choose option **2** on the SVAA main menu, Reporter displays the **Device List Maintenance** panel. Reporter then displays a sequence of panels that allows you to add, delete, copy, modify, or browse device selection lists. In addition, whenever you choose an option on one of the SELECT LISTS panels, you can then choose to browse your selection lists.

Figure 7-6 on page 7-10 shows the panels to use to maintain selection lists.

Maintain Selection Lists



C11023

Figure 7-6. Panels used in maintaining selection lists

To work with selection lists:

1. Select option 2 on the SVAA main menu to browse, add, copy, delete, or modify a selection list.
2. Press **Enter**.

Result: The MAINTAIN SELECTION LISTS panel appears, as shown in Figure 7-7 on page 7-11.

```

*** MAINTAIN SELECTION LISTS ***
COMMAND===> _____ SCROLL ===> PAGE

To add a selection list, use the ADD command or PF key

List Commands:  B - (Browse)      C - (Copy)
                  D - (Delete)     M - (Modify)

LIST NAME      DESCRIPTION
-----
_ XSUBSS1      Collect data from subsystem 1
_ XSUBSS2      Collect data from subsystem 2
_ IDEVSS3      Include certain devices for subsystem 3
*****BOTTOM OF DATA*****

```

Figure 7-7. Maintain Selection Lists panel (SIBDL10)

On this panel, the **LIST NAME** column is a list of names of selection lists. To the left of each name is a field in which you type one of the list commands shown in the panel.

From this panel, you can either add a new selection list, or you can browse, copy, modify, or delete an existing selection list.

3. To add a device selection list, issue the **ADD** command. Go to “Adding a Selection List,” below.
4. Type **B**, **C**, **M**, or **D** beside the name of a selection list and press **Enter**. The following pages discuss these options.

Adding a Selection List

To add (create) a device selection list:

1. Issue the **ADD** command on the MAINTAIN SELECTION LISTS panel (Figure 7-7).

Result: The ADD SELECTION LIST panel appears, as shown in Figure 7-8 on page 7-11.

```

*** ADD SELECTION LIST ***
COMMAND===> _____

List Name  ===> _____
Description===> _____

Type S to select one or more options

_ Select Subsystems
_ Specify Device Ranges
_ Specify Volser Ranges

```

Figure 7-8. Add Selection List panel (SIBDL20)

2. Type at the top of the panel up to 7 characters for the name (required) and up to 49 characters for a description (optional) of the selection list you want to add.

Maintain Selection Lists

Note: List names cannot begin with **SIB**, which is reserved for internal use by SVAA.

3. Type **S** beside any of the types of selection list you are adding (subsystem, device range or volser range, or any combination of these) and then press **Enter**.

Result: One of the following panels appears, depending on your choice:

SELECT SUBSYSTEMS panel	Go to "Selecting Subsystems and Devices"
SPECIFY DEVICE RANGES panel	Go to "Specifying Device Ranges" on page 7-14
SPECIFY VOLSER RANGES panel	Go to "Specifying Volser Ranges" on page 7-15

Note: If you select more than one of the options, you see the appropriate panels in turn.

Selecting Subsystems and Devices

The following panel appears when you type **S** beside the **Select Subsystem** field on the ADD SELECTION LIST panel.

```
*** SELECT SUBSYSTEMS - LIST MAINTENANCE ***
COMMAND==> _____ SCROLL ==> PAGE

Selection List: XSUBSS1
Selection Mode ==> _ I = include, X = exclude

Type S to select subsystem
Type L to create device selection list (SVA subsystems only)
Type M to modify device selection list (SVA subsystems only)

_ Non-SVA Subsystems

If no subsystems are specifically marked, by default all existing
SVA subsystems will be included for collection/reporting.

_ ICESYS00 _ ICESYS01 _ ICESYS02 _ ICESYS03
_ ICESYS04 _ ICESYS05 _ ICESYS06 _ ICESYS07
_ ICESYS08 S ICESYS09 * _ ICESYS10 _ SVASYS15
_ SVASYS12 S SVASYS13 * _ SVASYS14 _ SVASYS17
_ SVASYS16 _ SVASYS17 _ SVASYS18 _ SVASYS21
_ SVASYS20 _ SVASYS21 L SVASYS22 * _ SVASYS23
_ SVASYS24 _ SVASYS25 _ SVASYS26 _ SVASYS29
*****BOTTOM OF DATA*****
```

Figure 7-9. Select Subsystems - List Maintenance panel (SIBDL30)

On this panel, the **Selection List** field shows the name of the selection list you are adding (the name you typed in the **List Name** field on the ADD SELECTION LIST panel).

If an ***** appears to the right of a subsystem name, the subsystem name no longer exists. To reduce confusion, blank out the **S** or **L**; when you do, a **D** replaces the **S** or **L** to indicate that the name has been deleted from the selection list.

1. In the **Selection Mode** field, enter **I** or **X**.

- I** Include the selected subsystems in the selection list
- X** Exclude the selected subsystems from the selection list (all subsystems not specifically excluded will be included)

2. Type **S**, **L**, or **M** (however, **M** is only valid if a device list exists) beside any of the subsystems listed on the panel (or type **S** beside the **Non-SVA Subsystems** field); then press **Enter**.

- S** Select the subsystem to add to the selection list.

Result: The SELECT SUBSYSTEMS panel remains displayed (Figure 7-9) so that you can make your next selection.

- L** Create a selection list for that subsystem.

Result: The SPECIFY DEVICES panel appears, as shown in Figure 7-10.

- M** Modify a selection list.

Result: The SPECIFY DEVICES panel appears, as shown in Figure 7-10.

COMMAND====> _____

*** SELECT DEVICES ***

ROW 1 OF 4
SCROLL ==> PAGE

Subsystem: IBMSYS08
 Selection List: XSUBSS1
 Selection Mode ==> _____ I = include, X = exclude, D = delete
 Type S to select device

DEV#	VOLSER	DEVICE TYPE	DEV#	VOLSER	DEVICE TYPE	DEV#	VOLSER	DEVICE TYPE
011A	DATA01	33903	0125	DATA05	33903	0102	VOL112	SCSIA
011B	DATA02	33903	0126	DATA06	33903	0103	VOL113	SCSIA
011C	DATA03	33903	0127	DATA07	33903	0104	VOL114	SCSIA
011D	DATA04	33903	0100	VOL110	SCSIA	0105	VOL115	SCSIA

Figure 7-10. Select Devices panel (SIBDL40)

On this panel, the **Subsystem** and **Selection List** fields show the names you selected earlier. Use this list whenever you want to see what devices are attached to a subsystem.

3. Type either **I**, **X**, or **D** in the **Selection Mode** field and then press **Enter**.

- I** Include the devices selected below in the selection list
- X** Exclude the devices selected below from the selection list
- D** Delete the device selection list for that subsystem

4. Type **S** beside any of the device addresses listed on the panel to select that device for inclusion or exclusion.

5. Issue the **END** command to return to the SELECT SUBSYSTEMS panel (Figure 7-9 on page 7-12), or issue the **RETURN** command to return to the SVAA main menu.

Maintain Selection Lists

Result: Reporter modifies or deletes the selection list; you return to the ADD SELECTION LIST panel (Figure 7-8 on page 7-11).

If you typed **S** beside **Specify Device Ranges** or **Specify Volser Ranges** on the ADD SELECTION LIST panel, Reporter handles each request in turn.

If you typed **L** beside one or more list names on the SELECT SUBSYSTEMS - LIST MAINTENANCE panel, Reporter handles each request in turn. Go to “Specifying Device Ranges” or “Specifying Volser Ranges” on page 7-15.

Specifying Device Ranges

The following panel appears when you type **S** beside **Specify Device Ranges** on the MODIFY SELECTION LIST panel.

*** SPECIFY DEVICE RANGES ***

COMMAND==> _____ SCROLL ==> PAGE

Selection List: XSUBSS1

Specify device ranges or FROM only for single device
To include range, type I under ACTION
To exclude range, type X under ACTION

	FROM	TO		FROM	TO		FROM	TO
ACTION	DEV#	DEV#	ACTION	DEV#	DEV#	ACTION	DEV#	DEV#
-----	----	----	-----	----	----	-----	----	----

*****BOTTOM OF DATA*****

Figure 7-11. Specify Device Ranges panel (SIBDL50)

On this panel, the **Selection List** field shows the name of the selection list you are creating. When you first see such a panel, only one of the entry lines appears; it is blank. Use this panel when you know the ranges of unit addresses of the devices you are interested in.

1. On the current entry line, type the device ranges you want, and type **I** in the **ACTION** column to include the range or **X** to exclude the range. Use the line commands shown above to simplify entering the ranges.

Notes:

- a. In typing device ranges, the **TO DEV#** field is optional. If you omit this field, the **FROM DEV#** field specifies a single unit address.
 - b. Do not enter duplicate or conflicting entries.
 - c. Do not specify both inclusion and exclusion of the same device.
 - d. You can only use wildcard characters if you specify only the **FROM DEV#** field.
2. In the field at the left of a line, enter any of the insert, delete, or replicate line commands (see “Using Line Commands” on page 7-4 for details).
 3. Press **Enter** cause the line commands to take effect.

4. Issue the **END** command to return to the previous panel, or issue the **RETURN** command to return to the SVAA main menu.

Result: Your selection list contains the device ranges you entered.

Specifying Volser Ranges

The following panel appears when you type **S** beside **Specify Volser Ranges** on the ADD SELECTION LIST panel.

```

*** SPECIFY VOLSER RANGES ***
COMMAND==> _____ SCROLL ==> PAGE

Selection List: XSUBSS1

Specify volsr ranges or FROM only for single volsr
To include range, type I under ACTION
To exclude range, type X under ACTION

      FROM      TO      FROM      TO      FROM      TO
ACTION VOLSER  VOLSER ACTION VOLSER  VOLSER ACTION VOLSER  VOLSER
-----
_____
*****BOTTOM OF DATA*****

```

Figure 7-12. *Specify Volser Ranges panel (SIBDL80)*

On this panel, the **Selection List** field shows the name of the selection list you are creating. When you first see such a panel, only one of the entry lines appears. Use this panel when you know the volume serial numbers of the devices you are interested in.

Note: When you enter a volser range in the **FROM VOLSER** and **TO VOLSER** fields, the right-most series of digits define the range and the remaining digits to the left must be the same in each field (example: **AB1001** to **AB1007**.)

1. On the current entry line, type the volser ranges you want, and type **I** in the **ACTION** field to include the range or **X** to exclude the range. Use the line commands to simplify entering the ranges.

Notes:

- a. In typing volser ranges, the **TO VOLSER** field is optional. If you omit this field, the **FROM VOLSER** field specifies a single volume.
 - b. Do not enter duplicate or conflicting entries.
 - c. Do not specify both inclusion and exclusion of the same device.
 - d. You can only use wildcard characters if you use only the **FROM VOLSER** field.
2. In the field at the left of each line, enter any of the insert, delete, or replicate line commands (see “Using Line Commands” on page 7-4 for details).
 3. Press **Enter** after using as many of these line commands as you need.
 4. Issue the **END** command to return to the panel appropriate for your next action, or issue the **RETURN** command to return to the SVAA main menu.

Maintain Selection Lists

Result: Your selection list contains the volser ranges you entered.

Copying a Selection List

Sometimes, you need to create a new selection list that is similar to one you already have defined. The easiest way to do this is by copying the existing list to one with a new name, then modifying the new list.

To copy a selection list:

1. Type **C** on the MAINTAIN SELECTION LISTS panel (Figure 7-7 on page 7-11) to the left of the list you want to copy; then press **Enter**.

Result: The COPY SELECTION LIST panel appears:

*** COPY SELECTION LIST ***

COMMAND===> _____

Source List Name: XSUBSS1

Target List Name ===> _____

Description ===> _____

Figure 7-13. Copy Selection List panel (SIBDL70)

On this panel, the **Source List Name** field contains the name of the list you selected for copying.

2. Type in the **Target List Name** field the name of the new selection list to which you want to copy the source list. This name is required.

Note: List names cannot begin with **SIB**, which is reserved for internal use by SVAA.

3. Type up to 49 characters as a description of the new list. This description will appear to the right of the list name on future selection-list maintenance panels. This description is optional.
4. Press **Enter** to make the copy.

Result: Reporter verifies the data you have entered.

5. Repeat steps 2, 3, and 4 to create any additional lists you need.
6. Issue the **END** command.

Result: After a successful copy, Reporter displays the MODIFY SELECTION LIST panel so that you can make the changes needed to make the copied lists unique. Go to step 4 on page 7-17 to modify the lists.

Modifying a Selection List

To modify a selection list:

1. Select option 2 on the SVAA main menu to display the MAINTAIN SELECTION LISTS panel.
2. Type **m** on that panel beside the name of any selection list you want to modify.

Result: The panel shown in Figure 7-14 on page 7-17 appears:

*** MODIFY SELECTION LIST ***

COMMAND==> _____

Selection List: XSUBSS1
 Description ==> Collect data from subsystem 1

Type S to select one or more lists
 Type D to delete one or more lists

- _ Select Subsystems
- _ Specify Device Ranges
- _ Specify Volser Ranges

Figure 7-14. *Modify Selection List panel (SIBDL60)*

3. Optionally, enter a new description for the selection list.
4. Type **S** beside any of the types of selection lists you want to modify (subsystems, device ranges, or volser ranges).
5. Press **Enter**.

Result: One of the following panels appears, depending on your choice:

SELECT SUBSYSTEMS panel	Go to "Selecting Subsystems and Devices" on page 7-18 below
SPECIFY DEVICE RANGES panel	Go to "Specifying Device Ranges" on page 7-20
SPECIFY VOLSER RANGES panel	Go to "Specifying Volser Ranges" on page 7-21

Selecting Subsystems and Devices

The following panel appears when you type **S** beside **Select Subsystems** on the MODIFY SELECTION LIST panel (Figure 7-14 on page 7-17).

```

*** SELECT SUBSYSTEMS - LIST MAINTENANCE ***
COMMAND==> _____ SCROLL ==> PAGE

Selection List: XSUBSS1
Selection Mode ==> _      I = include, X = exclude

Type S to select subsystem
Type L to create device selection list (SVA subsystems only)
Type M to modify device selection list (SVA subsystems only)

_ Non-SVA Subsystems

If no subsystems are specifically marked, by default all existing
SVA subsystems will be included for collection/reporting.

_ ICESYS00      _ ICESYS01      _ ICESYS02      _ ICESYS03
_ ICESYS04      _ ICESYS05      _ ICESYS06      _ ICESYS07
_ ICESYS08      S ICESYS09 *    _ ICESYS10      _ SVASYS15
_ SVASYS12      S SVASYS13 *    _ SVASYS14      _ SVASYS17
_ SVASYS16      _ SVASYS17      _ SVASYS18      _ SVASYS21
_ SVASYS20      _ SVASYS21      L SVASYS22 *    _ SVASYS23
_ SVASYS24      _ SVASYS25      _ SVASYS26      _ SVASYS29
*****BOTTOM OF DATA*****

```

Figure 7-15. *Select Subsystems - List Maintenance panel (SIBDL30)*

The **Selection Mode** field contains **I** or **X**, depending on how the list was created. The description field displays the description of that selection list.

To modify the selection list:

1. To delete the list of devices attached to a subsystem, blank the **L** to the left of the subsystem name.
2. In the **Selection Mode** field, type **I** or **X**:

- I** Include the selected subsystems in the selection list
- X** Exclude the selected subsystems from the selection list (all subsystems not specifically excluded will be included)

Note: An * appearing to the right of an entry indicates that the selected subsystem is no longer defined. Blank the entry before continuing with the next step. A **D** replaces the * to indicate that the entry has been deleted.

3. Type **S**, **L**, or **M** (however, **M** is only valid if a selection list exists) beside any of the subsystems listed on the panel (or type **S** for non-STK systems).

S Select the subsystem to add to the selection list.

Result: The MODIFY SELECTION LIST panel remains displayed (Figure 7-14) so that you can make your next selection.

- L** Create a device selection list.

Result: The SELECT DEVICES panel appears, as shown in Figure 7-16 on page 7-19.

- M** Modify a device selection list.

Result: The SELECT DEVICES panel appears, as shown in Figure 7-16.

COMMAND==> _____

*** SELECT DEVICES ***

ROW 1 OF 4
SCROLL ==> PAGE

Subsystem: IBMSYS08
 Selection List: XSUBSS1
 Selection Mode ==> _____ I = include, X = exclude, D = delete
 Type S to select device

DEV#	VOLSER	DEVICE TYPE	DEV#	VOLSER	DEVICE TYPE	DEV#	VOLSER	DEVICE TYPE
011A	DATA01	33903	0125	DATA05	33903	0102	VOL112	SCSIA
011B	DATA02	33903	0126	DATA06	33903	0103	VOL113	SCSIA
011C	DATA03	33903	0127	DATA07	33903	0104	VOL114	SCSIA
011D	DATA04	33903	0100	VOL110	SCSIA	0105	VOL115	SCSIA

Figure 7-16. Select Devices panel (SIBDL40)

On this panel, the **Subsystem** and **Selection List** fields show the names you selected earlier. Use this list whenever you want to see what devices are attached to a subsystem.

4. Type either **I**, **X**, or **D** in the **Selection Mode** field and press **Enter**.
 - I** Include the devices selected below in the selection list
 - X** Exclude the devices selected below from the selection list
 - D** Delete the selection list for that subsystem
5. Type **S** beside any of the device addresses listed on the panel to select that device for inclusion or exclusion.
6. Issue the **END** command to return to the SELECT SUBSYSTEMS panel (Figure 7-9 on page 7-12), or issue the **RETURN** command to return to the SVAA main menu.

Result: Reporter modifies or deletes the selection list; you return to the ADD SELECTION LIST panel (Figure 7-8 on page 7-11).

If you typed **S** beside **Specify Device Ranges** or **Specify Volser Ranges** on the ADD SELECTION LIST panel, Reporter handles each request in turn.

If you typed **L** beside one or more list names on the SELECT SUBSYSTEMS - LIST MAINTENANCE panel, Reporter handles each request in turn. Go to "Specifying Device Ranges" on page 7-20 or "Specifying Volser Ranges" on page 7-21.

Specifying Device Ranges

The following panel appears when you type **S** beside the **Specify Device Ranges** field on the MODIFY SELECTION LIST panel.

```
*** SPECIFY DEVICE RANGES ***
COMMAND==> _____ SCROLL ==> PAGE
Selection List: XSUBSS1
Specify device ranges or FROM only for single device
To include range, type I under ACTION
To exclude range, type X under ACTION

      FROM   TO      FROM   TO      FROM   TO
ACTION DEV# DEV# ACTION DEV# DEV# ACTION DEV# DEV#
-----
*****BOTTOM OF DATA*****
```

Figure 7-17. *Specify Device Ranges panel (SIBDL50)*

On this panel, the **Selection List** field shows the name of the selection list you are modifying. When you first see such a panel, only one of the entry lines appears, unless some device ranges have already been specified, as when you are copying a list for subsequent modification.

1. If you are modifying a copied list, enter any of the line commands in the field at the left of a line (see “Using Line Commands” on page 7-4 for more information).
2. Press **Enter** when you have specified the desired device ranges.
3. Use the **Tab** key to get to the field in which you want to enter or modify a device range, type the device range you want, and type **I** in the **ACTION** field to include the range or **X** to exclude the range. Use line commands to simplify entering the ranges. In typing device ranges, the **TO DEV#** field is optional. (If you omit this field, the **FROM DEV#** field specifies a single unit address.)
4. Issue the **END** command to return to the previous panel, or issue the **RETURN** command to return to the SVAA main menu.

Result: Your selection list contains the modified device ranges.

Specifying Volser Ranges

The following panel appears when you type **S** beside the **Specify Volser Ranges** field on the MODIFY SELECTION LIST panel.

```

*** SPECIFY VOLSER RANGES ***
COMMAND==> _____ SCROLL ==> PAGE

Selection List: XSUBSS1

Specify volser ranges or FROM only for single volser
To include range, type I under ACTION
To exclude range, type X under ACTION

      FROM      TO      FROM      TO      FROM      TO
ACTION VOLSER  VOLSER ACTION VOLSER  VOLSER ACTION VOLSER  VOLSER
-----
_____
*****BOTTOM OF DATA*****

```

Figure 7-18. *Specify Volser Ranges panel (SIBDL80)*

On this panel, the **Selection List** field shows the name of the selection list you are modifying. When you first see this panel, only one of the entry lines appears, unless some volser ranges have already been specified, as when you are copying a list for subsequent modification.

1. If you are modifying a copied list, enter any of the line commands in the field at the left of a line (for more information, see “Using Line Commands” on page 7-4).
2. Press **Enter** when you have specified the desired volser ranges.
3. Use the **Tab** key get to the field in which you want to enter or modify a volser range, type the volser range you want, and type **I** in the **ACTION** field to include the range or **X** to exclude the range. Use the line commands shown above to simplify entering the ranges.
4. Issue the **END** command to return to the previous panel, or issue the **RETURN** command to return to the SVAA main menu.

Result: Your selection list contains the modified volser ranges.

Maintain Selection Lists

Deleting a Selection List

To delete a selection list and all devices associated with the list:

1. Select option 2 on the SVAA main menu to display the MAINTAIN SELECTION LISTS panel.

```
*** MAINTAIN SELECTION LISTS ***
COMMAND==> _____ SCROLL ==> PAGE

To add a selection list, use the ADD command or PF key

List Commands:  B - (Browse)      C - (Copy)
                  D - (Delete)     M - (Modify)

LIST NAME      DESCRIPTION
-----
_ XSUBSS1      Collect data from subsystem 1
_ XSUBSS2      Collect data from subsystem 2
_ IDEVSS3      Include certain devices for subsystem 3
*****BOTTOM OF DATA*****
```

Figure 7-19. Maintain Selection Lists panel (SIBDL10)

On this panel, the **LIST NAME** column is a list of names of selection lists. To the left of each name is a field in which you type one of the list commands shown in the panel.

2. Type **D** beside the names of the selection lists you want to delete.

Result: Reporter deletes the list and displays a message to that effect near the upper-left corner of the panel.

3. Issue the **END** command to return to the previous panel, or issue the **RETURN** command to return to the SVAA main menu.

CAUTION:

There is no way to retrieve a selection list once it has been deleted.

Browsing a Selection List

To browse a selection list:

1. Select option 2 on the SVAA main menu to display the MAINTAIN SELECTION LISTS panel, as shown in Figure 7-19.
2. Type **B** on the MAINTAIN SELECTION LISTS panel (Figure 7-7 on page 7-11) to the left of the list you want to browse; then press **Enter**.

Result: THE SELECT LISTS - LIST MAINTENANCE panel appears, as shown in Figure 7-20 on page 7-23.

```

*** SELECT LISTS - LIST MAINTENANCE ***
COMMAND==> _____
BROWSE

Selection List: XSUBSS1

Type S to select one or more options

  _ Select Subsystems
  _ Specify Device Ranges
  _ Specify Volser Ranges

```

Figure 7-20. *Select Lists - List Maintenance panel (SIBRX50)*

Note that **BROWSE** appears in the upper-left corner. You cannot enter data on panels with **BROWSE** present, but you can enter letters to select options.

3. Type **S** beside one or more of the device list types you want to browse (subsystem, device range, or volser range). Press **Enter**.

Result: One of the following panels appears, depending on your choice:

SELECT SUBSYSTEMS panel	Go to “Selecting Subsystems and Devices”
SPECIFY DEVICE RANGES panel	Go to “Specifying Device Ranges” on page 7-25
SPECIFY VOLSER RANGES panel	Go to “Specifying Volser Ranges” on page 7-25

Selecting Subsystems and Devices

The following panel appears when you type **S** beside the **Select Subsystem** field on the SELECT LISTS - LIST MAINTENANCE panel.

```

*** SELECT SUBSYSTEMS - LIST MAINTENANCE ***
COMMAND==> _____ SCROLL ==> PAGE
BROWSE

Selection List: XSUBSS1
Selection Mode: X          I = include, X = exclude

Type B over L to browse device selection list (SVA subsystems only)

Non-SVA Subsystems

If no subsystems are specifically marked, by default all existing
SVA subsystems will be included for collection/reporting.

S  SVASYS00      SVASYS01      SVASYS02      SVASYS03
   SVASYS04      SVASYS05      SVASYS06      SVASYS07
L  SVASYS08      SVASYS09      SVASYS10      SVASYS15
   SVASYS12      SVASYS13      S  SVASYS14      SVASYS17
   SVASYS16      SVASYS17      SVASYS18      SVASYS21
   SVASYS20      SVASYS21      SVASYS22      SVASYS25
   SVASYS24      S  SVASYS25      SVASYS26      SVASYS29

```

Figure 7-21. *Select Subsystems - List Maintenance panel (SIBRX00)*. This panel shows the names of all subsystems named in the selection list.

Maintain Selection Lists

An L beside a subsystem name indicates that you have created a selection list for that subsystem. If an * appears to the right of a name beside which there is an L, the subsystem name cannot be found. An S indicates that the subsystem is included in or excluded from the selection list named at the top of the panel.

1. Type **B** over the L beside any of the existing selection lists you wish to browse.
2. Issue the **END** command.

Result: The SELECT DEVICES - LIST MAINTENANCE panel appears, as shown in Figure 7-22.

```
*** SELECT DEVICES - LIST MAINTENANCE ***
COMMAND==> _____ SCROLL ==> PAGE
BROWSE

Subsystem: SVASYS08
Selection List: XSUBSS1
Selection Mode: X          I = include, X = exclude
```

	DEV#	VOLSER	DEVICE TYPE		DEV#	VOLSER	DEVICE TYPE		DEV#	VOLSER	DEVICE TYPE
	----	-----	-----		----	-----	-----		----	-----	-----
S	011A	DATA01	33903		0125	DATA15	33903		0104	VOLMAY	SCSIA
	011B	DATA02	33903		0126	DATA16	33903		0105	VOLJUN	SCSIA
	011C	DATA03	33903		0127	DATA17	33903		0106	VOLJUL	SCSIA
S	011D	DATA04	33903		0100	VOLJAN	SCSIA		0107	VOLAUG	SCSIA
	011E	DATA05	33903		0101	VOLFEB	SCSIA		0108	VOLSEP	SCSIA
	011F	DATA06	33903	S	0102	VOLMAR	SCSIA		0109	VOL OCT	SCSIA
	012A	DATA11	33903		0103	VOLAPR	SCSIA		0110	VOLNOV	SCSIA

Figure 7-22. Select Devices - List Maintenance panel (SIBRX10)

This panel shows you the list of functional devices in all the selection lists you selected. An S indicates that the functional device is included in or excluded from the selection list named at the top of the panel. An * appearing to the right of a list indicates that the selected functional device no longer exists in the subsystem. You should delete the entry when you next modify the list.

3. Issue the **END** command to return to the panel appropriate for your next action, or issue the **RETURN** command to return to the SVAA main menu.

Specifying Device Ranges

The following panel appears when you type **S** beside **Specify Device Ranges** on the SELECT LISTS - LIST MAINTENANCE panel (Figure 7-20).

```

*** SPECIFY DEVICE RANGES - LIST MAINTENANCE ***
COMMAND==> _____ SCROLL ==> PAGE
BROWSE

Selection List: XSUBSS1

      I = include range      X = exclude range

      FROM   TO      FROM   TO      FROM   TO
ACTION DEV# DEV# ACTION DEV# DEV# ACTION DEV# DEV#
-----
      I  011A 011F      I  0127 012A      X  0112 0118

```

Figure 7-23. Specify Device Ranges - List Maintenance panel (SIBRX20)

This panel displays the ranges of unit addresses selected for the subsystem.

1. For each range, **I** indicates the range is included; **X** indicates it is excluded.
2. Issue the **END** command to return to the panel appropriate for your next action, or issue the **RETURN** command to return to the SVAA main menu.

Specifying Volser Ranges

The following panel appears when you type **S** beside **Specify Volser Ranges** on the SELECT LISTS - LIST MAINTENANCE panel (Figure 7-20).

```

*** SPECIFY VOLSER RANGES - LIST MAINTENANCE ***
COMMAND==> _____ SCROLL ==> PAGE
BROWSE

Selection List: XSUBSS1

      I = include range      X = exclude range

      FROM   TO      FROM   TO      FROM   TO
ACTION VOLSER VOLSER ACTION VOLSER VOLSER ACTION VOLSER VOLSER
-----
      I  DIV100 DIV199      X  DIV175 DIV179      I  DIV300 DIV399
      I  DIV450 DIV599      I  DIV750      I  DIV755
      I  DIV800 DIV999      X  DIV890 DIV899      X  DIV920 DIV924

```

Figure 7-24. Specify Volser Ranges - List Maintenance panel (SIBRX60)

This panel displays the ranges of volume serial numbers you have selected for this subsystem.

1. For each range, **I** indicates the range is included; **X** indicates it is excluded.
2. Issue the **END** command to return to the panel appropriate for your next action, or issue the **RETURN** command to return to the SVAA main menu.

Data Collection and Reporting

To select Subsystem Reporting:

1. Select option 3 from the SVAA main menu.

Result: The SVAA SUBSYSTEM REPORTING panel appears, as shown in Figure 7-25.

```
SIBDL00          *** SVAA SUBSYSTEM REPORTING ***
OPTION ==>

  1 PT DATA      - Collect Performance Tracking (PT) data
  2 OR DATA      - Collect On Request (OR) data
  3 PERFORMANCE  - Report subsystem performance
  4 UTILIZATION   - Report subsystem space utilization
  5 EXTRACTION    - Create SAS extraction program
```

Figure 7-25. SVAA Subsystem Reporting menu (SIBDL00)

2. On this panel, type a number in the OPTION field:

- 1 Collect Performance Tracking (PT) data (see below)
- 2 Collect On Request (OR) data (see page 7-30)
- 3 Report performance (see page 7-34)
- 4 Report space utilization (see page 7-45)
- 5 Extract history data (see page 7-47)

3. Press **Enter**.

Result: See the indicated page in this chapter.

4. Issue the **END** command to return to the SVAA main menu.

Collecting Performance Tracking (PT) Data

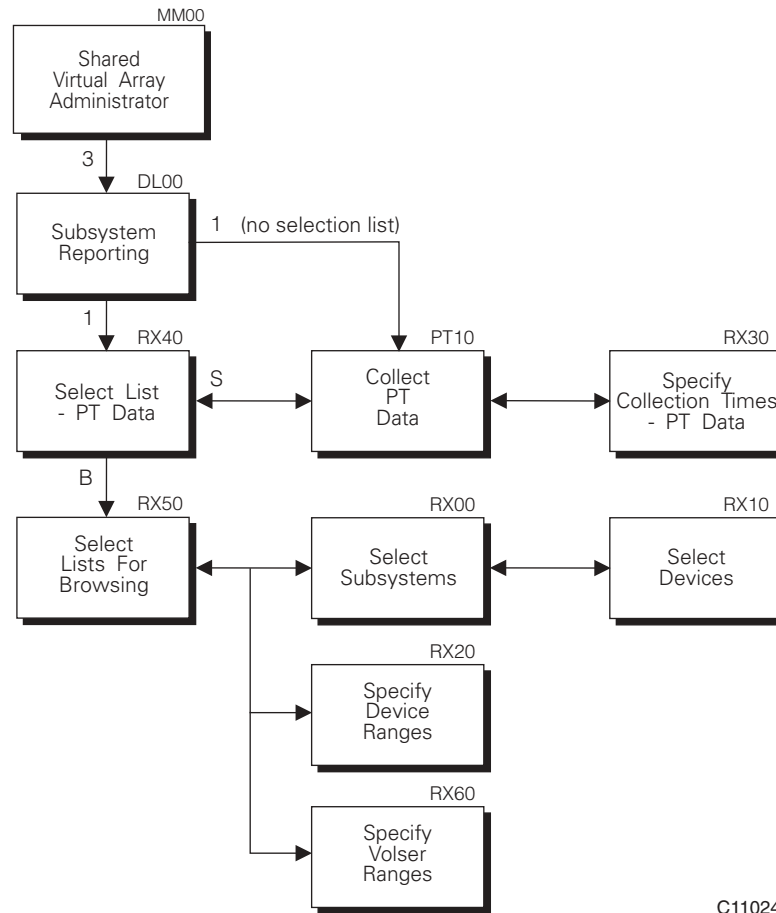
This section explains how to use the SVAA panels to control Performance Tracking (PT) data collection. Read “Collecting Subsystem Data” on page 2-2 before using this section. (Chapter 8, “SVAA Subcommands and Commands” explains how to use subcommands and batch programs for the same purpose.)

This section describes how to specify:

- The devices for which Reporter is to collect data
- The time periods for collection
- The intervals for collection, and how collection is to be synchronized
- Whether device performance or cache effectiveness data (or both) are to be collected

Note: Collected data is stored in the logging files, as specified during SIBSRP initialization with the INIT MAIN subcommand.

Figure 7-26 on page 7-27 shows the panels you use to control PT data collection.



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Figure 7-26. Panels used in specifying PT data collection

To specify PT data collection:

1. Select 1 from the SVAA SUBSYSTEM REPORTING panel (see Figure 7-25 on page 7-26).

Result: If there are no selection lists defined, Reporter displays the COLLECT PT DATA panel (Figure 7-28 on page 7-28). If any selection lists exist, Reporter displays the SELECT LIST - COLLECT PT DATA panel, as shown in Figure 7-27 on page 7-28.

```

*** SELECT LIST - PT DATA ***
COMMAND==> _____ SCROLL ==> PAGE

Press Enter to bypass list selection or type the
following list commands and then press Enter.

List Commands:  B - (Browse)      S - (Select)

LIST NAME      DESCRIPTION
-----
_XSUBSS1      Subsystem1 data will not be collected
_XSUBSS2      Subsystem2 data will not be collected
_IDEVSS3      Include certain devices for subsystem 3

```

Figure 7-27. Select List - PT Data panel (SIBRX40)

- If you do not want to select a device selection list, then press **Enter**.

Result: Reporter is to collect data for all SVA subsystems. The COLLECT PT DATA panel appears (go to step 6 on page 7-29).

- Enter either **B** or **S** beside one or more of the list names.

B Displays the names of the functional devices in the list. See “Browsing a Selection List” on page 7-22 for more information.

Note: You can only browse (view) selection lists while in this mode.

S Selects the subsystem for which data is to be collected.

- Press **Enter**.

Result: If you typed **B**, Figure 7-27 reappears when you have finished browsing.

If you typed **S**, the COLLECT PT DATA panel appears:

```

*** COLLECT PT DATA ***
COMMAND==> _____

Selection List: XSUBSS1

Times      ==> N      (Type 0 for time options)

Collection Interval (select one of the following)
Minutes ==> 0020      Hours ==> ____

Synchronization Time ==> N0 minutes

Device Performance      ==> Y
Cache Effectiveness     ==> Y
Modify                  ==> N

```

Figure 7-28. Collect PT Data panel (SIBPT10)

This panel appears when a selection list was chosen on the SELECT LIST- PT DATA panel, or when there are no selection lists. This panel appears with default values for the fields, as shown in Figure 7-28.

- To specify up to 16 pairs of starting and ending times for collection, change the N in the **Times** field to O. When you press **Enter**, Reporter displays the SPECIFY COLLECTION TIMES - PT DATA panel for you to enter the time ranges. If you leave this field containing N, collection starts immediately and continues indefinitely. On return from the SPECIFY COLLECTION TIMES - PT DATA panel, Reporter sets this field to Y (provided you specify valid data there).

- Change any of the default values to select the data you want. The following table shows the values you can specify for each field.

Collection Interval Minutes	Enter a number 1 to 1440
Collection Interval Hours	Enter a number 1 to 24
Synchronization Time	Enter a number 0 to 59, or NO
Device Performance	Enter Y or N
Cache Effectiveness	Enter Y or N

- Change the **Modify** field to Y to change an existing collection run. (See "Starting Data Collection" on page 4-2 for more information.)

- Press **Enter**.

Result: If you Typed O in the **Times** field, SPECIFY COLLECTION TIMES panel appears, as shown in Figure 7-33 on page 7-33.

*** SPECIFY COLLECTION TIMES - PT DATA ***

COMMAND==> _____

Specify one or more starting-time/ending-time pairs for collection

Start Time	To	End Time	Start Time	To	End Time
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:

Figure 7-29. Specify Collection Times - PT Data panel (SIBRX30)

- Enter the starting and ending times of up to 16 time ranges that you want collection to cover (see page 6-6 for information about time ranges). Use two digits for the hour and two digits for the minutes after the hour that collection is to start. Use leading zeroes, if necessary (for example, 0330). Do not overlap time ranges. Starting times must be between 0000 and 2359; ending times must be between 0001 and 2400.

- Issue the **END** command.

Result: The COLLECT PT DATA panel appears again, as in Figure 7-28 on page 7-28.

- On that panel, issue the **SUBMIT** command to start the collection run.

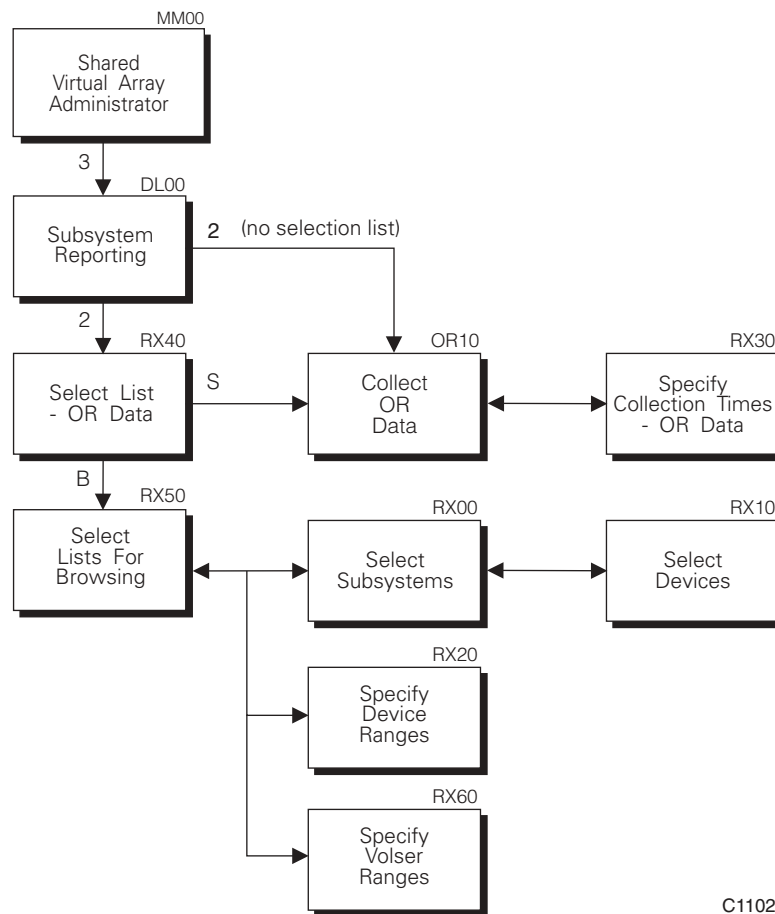
OR Data Collection

12. If you entered **S** beside other list names on the SELECT LIST - PT DATA panel, Reporter displays the COLLECT PT DATA panel again for you to specify collection for each of those lists.
13. Otherwise, issue the **END** command again to return to the SELECT LIST panel, and issue the **END** command once more to return to the SVAA SUBSYSTEM REPORTING panel.

Collecting On Request (OR) Data

This section explains how to use the SVAA panels to control On Request (OR) data collection. Read “Collecting Subsystem Data” on page 2-2 before using this section. (Chapter 8, “SVAA Subcommands and Commands” explains how to use subcommands or a batch program to control data collection).

Figure 7-30 shows the panels you use to specify the data to be collected.



C11025

Figure 7-30. Panels used in specifying OR data collection

To specify OR data collection:

1. Select **2** from the SVAA SUBSYSTEM REPORTING panel (see Figure 7-25 on page 7-26).

Result: If there are no selection lists defined, Reporter displays the COLLECT OR DATA panel (Figure 7-32 on page 7-32).

If any selection lists exist, Reporter displays the SELECT LIST - OR DATA panel, as shown in Figure 7-31.

```

*** SELECT LIST - OR DATA ***
COMMAND==> _____ SCROLL ==> PAGE

Press Enter to bypass list selection or type the
following list commands and then press Enter.

List Commands   B - (Browse)   S - (Select)

LIST NAME       DESCRIPTION
-----
- XSUBSS1       Subsystem1 data will not be collected
- XSUBSS2       Subsystem2 data will not be collected
- IDEVSS3       Include certain devices for subsystem 3
  
```

Figure 7-31. Select List - OR Data panel (SIBRX40)

2. If you do not want to use a device selection list, press **Enter**.

Result: Reporter collects data for all the SVA functional devices and subsystems available to it. The COLLECT OR DATA panel appears with the message “**NO LIST SELECTED**” in the **Selection List** field (go to step 5 on page 7-32).

3. Type either **B** or **S** beside one or more of the list names.

B Displays the names of the devices in the list. See “Browsing a Selection List” on page 7-22 for more information.

Note: You can only browse (view) selection lists while in this mode.

S Selects the subsystem for which data is to be collected.

4. When all values are entered, press **Enter**.

Result: If you typed **B**, the panel shown in Figure 7-31 reappears when you have finished browsing.

If you typed **S**, the COLLECT OR DATA panel appears in turn for each list beside which you entered **S**.

```

*** COLLECT OR DATA ***
COMMAND==> _____

Selection List: XSUBSS1
Collection Identifier ==> _____

Select OUTMAIN (Y/N) or Primary OR Output File. Default is OUTMAIN = Y.
OUTMAIN ==> Y
Primary OR Output File    ==> _____
Alternate OR Output File ==> _____

Select one of the following; otherwise duration is from now until midnight
Times    ==> N    (Type 0 for time range options)
Duration    Minutes ==> _____ or Hours ==> _____

Collection Interval (Select one of the following)
Minutes ==> 0015    Hours ==> _____

Synchronization Time ==> NO Minutes

Device Performance    ==> Y
Cache Effectiveness   ==> Y
Modify                ==> N (If Modify = Y, file specification is ignored)

```

Figure 7-32. *Collect OR Data panel (SIBOR10).* This panel appears with default values for the fields.

This panel appears when a selection list was chosen on the SELECT LIST - OR DATA panel, or when there are no selection lists. The selection list you chose appears in the **Selection List** field. If you did not specify a list on the previous panel, this field contains "No list selected" when the panel appears and Reporter collects data for all devices.

- Specify the collection identifier, a name for this on-request collection run. Use up to 16 characters, a-z, A-Z, 0-9, and \$, @, #, -, +, _, &, ., or /; do not use **PERFORMANCE TRACK**.

Note: If you are specifying a new collection run, (by **MODIFY=N** on this panel), Reporter stores your collection identifier, with the case set according to the current setting of the SET CASE subcommand, converting the identifier to uppercase if appropriate.

If you are modifying an existing collection run (by **MODIFY=Y** on this panel), use the exact uppercase and lowercase characters that you entered when you defined the collection run you are modifying. In these circumstances, Reporter ignores the setting of the SET CASE subcommand.

- Specify the output files for this collection run, either with a Y in the **OUTMAIN** field to specify the main logging file, or with a file name in one of the **OR Output File** fields. If you leave both fields blank, Reporter uses the main logging file. The primary OR output file and the alternate OR output file should not both be on the same minidisk.
- Specify a value in either the **Times** or **Duration** field. Change the **Times** field to 0 to request a panel on which you can specify up to 16 time ranges for collection. Or, for a duration of collection, specify up to 9999 in either the **Minutes** or **Hours** field.

If you leave both fields blank, the collection duration is from the time of this request until midnight.

8. Change any of the default values in the remaining fields to select the report you want. The following table shows the values you can specify for each field and shows where you can get more information.

Collection Interval Minutes	Enter 1 to 1440.
Collection Interval Hours	Enter 1 to 24.
Synchronization Time	Enter 0 to 59, or N0.
Device Performance	Enter Y or N.
Cache Effectiveness	Enter Y or N.

9. Change the **Modify** field to Y to change an existing collection run. If you specify MODIFY Y, Reporter ignores all file specifications on this panel. (See "Starting Data Collection" on page 4-2 for more information.)
10. If you do not want to specify time ranges for data collection, go to step 13.
11. Press **Enter**.

Result: The SPECIFY COLLECTION TIMES - OR DATA panel appears, as shown in Figure 7-33.

*** SPECIFY COLLECTION TIMES - OR DATA ***

COMMAND==> _____

Specify one or more starting-time/ending-time pairs for collection

Start Time	To	End Time	Start Time	To	End Time
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:
::		_:_:	_:_:		_:_:

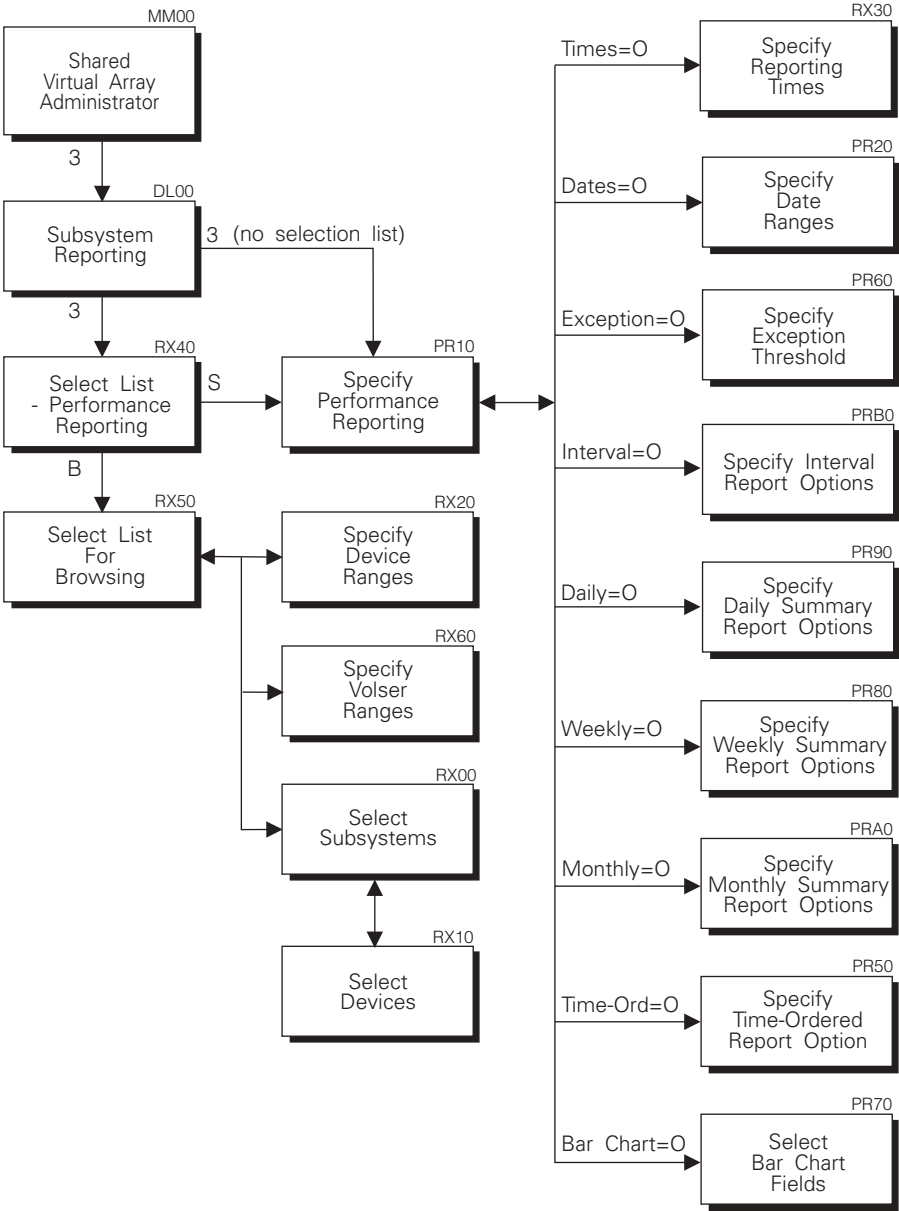
Figure 7-33. Specify Collection Times - OR Data panel (SIBRX30)

12. Enter the starting and ending times of up to 16 time ranges that you want collection to cover (see page 6-6 for information about time ranges). Use two digits for the hour and two digits for the minutes after the hour that collection is to start. Use leading zeroes, if necessary (for example, 0330). Do not overlap time ranges. Starting times must be between 0000 and 2359; ending times must be between 0001 and 2400.
 13. Issue the **END** command.
- Result: The COLLECT OR DATA panel appears again, as in Figure 7-32 on page 7-32.
14. On that panel, issue the **SUBMIT** command to start the collection run.
 15. If you entered S beside other list names on the SELECT LIST - OR DATA panel, Reporter displays the COLLECT OR DATA panel again for you to specify collection for each of those lists.

16. Otherwise, issue the **END** command again to return to the SELECT LIST - OR DATA panel, and issue the **END** command once more to return to the SVAA SUBSYSTEM REPORTING panel.

Specifying Performance Reporting

Figure 7-34 shows the panels you use to specify performance reporting:



C11026

Figure 7-34. Panels used in specifying performance reporting

To request performance reporting:

1. Choose option 3 on the SVAA SUBSYSTEM REPORTING panel.

Result: If no selection lists are defined, Reporter displays the SPECIFY PERFORMANCE REPORTING panel (Figure 7-36 on page 7-36).

If any selection lists exist, Reporter displays the SELECT LIST- PERFORMANCE REPORTING panel, as shown in Figure 7-35:

*** SELECT LIST - PERFORMANCE REPORTING ***

COMMAND==> _____ SCROLL ==> PAGE

Press Enter to bypass List Selection or select the following list commands and then press enter.

List Commands: B - (Browse) S - (Select)

LIST NAME	DESCRIPTION
- XSUBSS1	Subsystem1 data will not be reported
- XSUBSS2	Subsystem2 data will not be reported
- IDEVSS3	Include certain devices for subsystem 3

Figure 7-35. Select List - Performance Reporting panel (SIBRX40)

2. Optionally, type **B** to browse the selection lists. You can browse the lists before selecting them, to make sure that they list the subsystems and functional devices that you want to include in the report.

Result: Reporter displays the SELECT LISTS - LIST MAINTENANCE panel (Figure 7-20 on page 7-23). Go to the sequence of steps beginning after that figure.

3. Either:

- Press **Enter** without selecting a list name to specify that reporting is for all subsystems.
- or
- Type **S** beside the selection list for which you want performance reporting; then press **Enter**.

Result: Reporter displays the SPECIFY PERFORMANCE REPORTING panel, as shown in Figure 7-36 on page 7-36.

```

*** SPECIFY PERFORMANCE REPORTING ***
COMMAND==> _____
Selection List: XSUBSS1

Input File Name          ==> _____
or SAS File ID           ==> * STKPERF *
SAS Program Name         ==> SIBSRP SAS A
Collection Identifier     ==> PERFORMANCETRACK

Report Interval Minutes  ==> 120      or Hours ==> ____

Device Details           ==> N      SVAA SMF Number ==> ____ Suppress Print ==> N
Device Performance      ==> Y      Cache Effectiveness ==> Y

Type 0 for options:
Times ==> N      Dates ==> N

Report Types:           (Type Y to select report, 0 for report options)

Exception ==> N      Overall ==> Y      Interval ==> N      Daily ==> N
Weekly ==> N      Monthly ==> N      Time-Ordered ==> N      Bar Chart ==> N

```

Figure 7-36. *Specify Performance Reporting panel (SIBPR10)*. If you are displaying 24 PF4 keys, the last two lines of this panel are not visible. Use a PFSHOW OFF command to access these fields.

4. Enter up to 20 characters for either:

- A name for the input file (probably the main logging file or a copy of it) that contains the raw collected data on which the report is to be based (enter the name in the **Input File Name** field).
- A name for the SAS file containing the summarized history data. Use the **SAS File ID** field to enter the filename, filetype, and filemode.

Note: You can use wildcard characters in the filespec.

5. Specify a name in the **SAS Program Name** field.

Default: SIBSRP SAS A.

Result: Reporter creates a SAS program that you can execute any time after leaving ISPF.

6. If the report is based on on-request data collection, change the ID in the **Collection Identifier** field to the appropriate collection-run identifier.

7. Specify a value, either 1 to 1440 in the **Report Interval - Minutes** or 1 to 24 in the **Report Interval - Hours** field.

Default: 120 minutes.

8. To obtain a detailed report for the devices in the list, change the Device Details value to Y.

Default: No device details (overall report only).

9. Optionally, enter the SVAA SMF number 128 to 255. (This is normally not required.)

Default: None

10. To prevent the report from being printed, change the **Suppress Print** value to Y. You can use the Reporter output later to create SAS/GRAPH displays.

Note: You must also specify a name in the **SAS Device Detail File** and the **SAS Subsystem Totals File** fields (or both) on the options panel appropriate for the report. This saves the report output for SAS; it is used as input to the graphic reports.

11. If you do not want device performance reports, change the **Device Performance** field to N.
12. If you do not want cache effectiveness reports, change the **Cache Effectiveness** field to N.

Note: For each field, in steps 13 through 15, Reporter displays the panel on which you can specify your choices for that option. Issue the **END** command after specifying the options on each panel. Reporter then displays the next panel for you to specify options, and, after the last, displays the SPECIFY PERFORMANCE REPORTING panel.

13. To enter time ranges, change the **Times** field value to the letter **0**. Then press **Enter** to display the SPECIFY REPORTING TIMES - PERFORMANCE REPORTING panel (Figure 7-37 on page 7-38). Go to step 1 below that panel.

Default: Reporter reports on all the data in the file.

14. To specify dates for which data is to be reported, change the **Dates** field to **0**. Then press **Enter** to display the SPECIFY DATES panel (Figure 7-38 on page 7-39). Go to "Specifying Date Ranges" on page 7-39.

Default: Report all data.

15. Select the report types for which you want to specify options by changing the **N** value to **0** near the bottom of the SPECIFY PERFORMANCE REPORTING panel (except for the **Overall** field). If you want a particular report but do not want to modify its options, change the corresponding **N** value to Y.

Result: Reporter displays in turn panels on which you specify the options:

Options for	Go to
Exception	"Specifying Exception Thresholds" on page 7-40
Overall	N/A
Interval	"Specifying Interval Report Options" on page 7-41
Daily	"Specifying Summary Report Options" on page 7-42
Weekly	"Specifying Summary Report Options" on page 7-42
Monthly	"Specifying Summary Report Options" on page 7-42
Time-ordered	"Specifying Time-Ordered Report Options" on page 7-43
Bar chart	"Specifying Bar-Chart Values" on page 7-44

Note: If you select any of these reports except Bar Chart, you must also select either Device Performance or Cache Effectiveness.

16. After specifying the options on each panel, issue the **END** command.

Result: Reporter displays the next panel for which you have requested to specify options.

Note: If you specify **0** in the **Overall** field, Reporter places the cursor under that field and displays the error message, **Valid selection options are Y or N**.

Performance Reporting

17. After the last of the options panels, Reporter displays the SPECIFY PERFORMANCE REPORTING panel again. Notice that Reporter has changed the **0** characters that you used to indicate that you wanted to specify options to **Y** (Reporter assumes that because you specified options for a particular report, then you want that report). If you did not specify options, then Reporter changes the character back to **N**.

At this time, you can change any of the fields to **0** again to verify that your options are as you want them or to change the options to other values.

18. When you are satisfied that you have correctly specified all the options, select the report types you want by the changing the appropriate **N** values to **Y** near the bottom of the SPECIFY PERFORMANCE REPORTING panel, and issue the **SUBMIT** command.

Result: The message "Request report" appears in the upper-right corner of the panel to indicate that Reporter has accepted your request. Reporter creates the SAS program file mentioned in step 5 on page 7-36.

19. Issue the **END** command to return to the main panel.

Result: The SVAA main panel reappears and you can either choose another option or exit from Reporter panels.

Specifying Reporting Times

The following panel appears when you type **0** in the **Times** field on the SPECIFY PERFORMANCE REPORTING panel.

*** SPECIFY REPORTING TIMES - PERFORMANCE REPORTING ***

COMMAND==>

Specify one or more starting-time/ending-time pairs for reporting

Start Time	To	End Time	Start Time	To	End Time
—:—		—:—	—:—		—:—
—:—		—:—	—:—		—:—
—:—		—:—	—:—		—:—
—:—		—:—	—:—		—:—
—:—		—:—	—:—		—:—
—:—		—:—	—:—		—:—
—:—		—:—	—:—		—:—
—:—		—:—	—:—		—:—
—:—		—:—	—:—		—:—

Figure 7-37. Specify Reporting Times panel (SIBRX30)

1. Enter the starting and ending times of up to 16 time ranges that you want reporting to cover (see “Specifying Time Ranges for Collection” on page 4-5 for more information). Use two digits for the hour and two digits for the minutes after the hour that collection is to start. Use leading zeroes, if necessary (for example, 0330). Do not overlap time ranges. Starting times must be between **0000** and **2359**; ending times must be between **0001** and **2400**.

2. Issue the **END** command.

Result: The SPECIFY PERFORMANCE REPORTING panel appears again, as in Figure 7-36 on page 7-36.

- Go to step 16 on page 7-37.

Specifying Date Ranges

The panel in Figure 7-38 appears when you type **0** in the **Dates** field on the SPECIFY PERFORMANCE REPORTING panel.

*** SPECIFY DATE RANGES ***

COMMAND==>

Selection Mode: I I = include, X = exclude

Type "S" next to selected days.

==> MON TUE WED THU FRI SAT SUN

Enter one or more start-stop date pairs for inclusion or exclusion.
(From and to dates are specified in the format DDMMYYYY).

From-Date Day Mon Year	To-Date Day Mon Year	From-Date Day Mon Year	To-Date Day Mon Year
01JAN2000	31MAY2000		
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Figure 7-38. Specify Date Ranges panel (SIBPR20)

Use this panel either to include or to exclude reporting dates for all reports. For some reports, you can override these general dates with dates for those reports only.

If you specify exclusion, the reports will cover all days and dates in the collected data except those days or dates you specify here.

- Type **X** or **I** in the **Selection Mode** field to exclude or include the date ranges that you will enter in step 3. (For general information, see “Choosing Report Dates or Date Ranges” on page 6-8.)
- Type **S** next to the days of the week that you want to include in or exclude from reporting. (You can either exclude or include days on any one panel—you cannot do both.)
- Enter up to 16 date ranges for which you want reports. Starting and ending dates are inclusive.

Specify dates in the form *ddmmmyyyy* (for example, **04DEC2000**). Alternatively, use **-n** to indicate a number of days previous to the current date; use **0** to indicate the current date. Future days are allowed.

Default: All data in the input file.

- Issue the **END** command.

Performance Reporting

Result: The SPECIFY PERFORMANCE REPORTING panel appears again, as in Figure 7-36 on page 7-36.

5. Go to step 16 on page 7-37.

Specifying Exception Thresholds

The following panel appears when you type **0** in the **Exception** field on the SPECIFY PERFORMANCE REPORTING panel.

*** SPECIFY EXCEPTION THRESHOLDS ***

COMMAND====> _____

Enter partition (all, production, test) ====> PRODUCTION

Exception File Name ====> _____ (or)

Enter threshold value or "*" for default threshold.

VALUE TO COMPARE	THRESHOLD		VALUE TO COMPARE	THRESHOLD	
	LT	GT		LT	GT
I/O Rate (device)	_____	_____	I/O rate (subsystem)	_____	_____
Device Available %	_____	_____	I/O Hit %	_____	_____
Drive Mod Coeff Var	_____	_____	Read Hit %	_____	_____
Access Density	_____	_____	Write Hit %	_____	_____
I/O Service Time	_____	_____	DASD Fast Write	_____	_____
Disconnect Time	_____	_____	Constraint (device)	_____	_____
Device Utilization %	_____	_____	DASD Fast Write	_____	_____
Disconnect Time %	_____	_____	Constraint (subsystem)	_____	_____
Channel I/O Rate	_____	_____	State Rate (device)	_____	_____
% Active on Channel	_____	_____	Stage Rate (subsystem)	_____	_____
Drive Module Util *	_____	_____	Tracks Occupied	_____	_____
Net Capacity Load %	_____	_____	Hits per Stage	_____	_____
			(xx.x or xxxx)		

Figure 7-39. Specify Exception Thresholds panel (SIBPR60)

On this panel you specify exception thresholds. (For general information, see "Specifying Exception Thresholds" on page 6-10.)

1. Specify the partitions for which you want reporting in the **Enter Partition** field.
2. Specify the name of any exception thresholds file (for information, see "Specifying Exception Thresholds in a File" on page 6-12).
3. Enter the exception thresholds you wish to have reported; the values you specify here will override those in the thresholds file for the same variable. Enter an * to accept the default value for a threshold. (For default threshold values, see Appendix A, "Exception Thresholds.")
4. Issue the **END** command.

Result: The SPECIFY PERFORMANCE REPORTING panel appears again, as in Figure 7-36 on page 7-36.

5. Go to step 16 on page 7-37.

Specifying Interval Report Options

The following panels appears when you type **0** in the **Interval** field on the SPECIFY PERFORMANCE REPORTING panel.

```

*** SPECIFY INTERVAL REPORT OPTIONS ***
COMMAND==> _____

SVAA Graphics Files:

  SAS Device Details File
    SAS File ID    ==> _____

  Generations to Keep ==> 5

  SAS Subsystem Totals File
    SAS File ID    ==> _____

  Generations to Keep ==> 5

```

Figure 7-40. *Specify Interval Report Options panel (SIBPRB0)*

1. Specify the names of the files that are to contain input to SAS/GRAPH reports. You can specify files for device details, or subsystem totals, or both. If you omit this information, Reporter does not save data for graphics display.

Enter up to 22 characters in the **SAS File ID** field for the name of the SAS file.

2. For each file, specify the number of generations of SAS data to keep (0 to 999). This enables you to keep several versions of the output.
3. Issue the **END** command.

Result: The SPECIFY PERFORMANCE REPORTING panel appears again, as in Figure 7-36 on page 7-36.

4. Go to step 16 on page 7-37.

Specifying Summary Report Options

If you typed **0** in the **Daily**, **Weekly**, or **Monthly** field on the SPECIFY PERFORMANCE REPORTING panel, the SPECIFY DAILY SUMMARY REPORT OPTIONS panel appears, or the corresponding WEEKLY or MONTHLY report options panel, as shown in figref refid=pr82v..

*** SPECIFY DAILY SUMMARY REPORT OPTIONS ***

COMMAND==>

Report Overrides

Include dates (Enter one or more start/end date pairs for inclusion in report)

From-Date

To-Date

Day Mon Year

Day Mon Year

From-Date

To-Date

Day Mon Year

Day Mon Year

SVAA Graphics Files:

SAS Device Details File:

SAS File ID ==>

Generations To Keep ==> 5

SAS Subsystem Totals File:

SAS File ID ==>

Generations To Keep ==> 5

Figure 7-41. Specify Daily Summary Report Options panel (SIBPR90). With the exception of the title line at the top of the panels, the panels for specifying weekly and monthly summaries are identical to this panel.

1. Specify the ranges of dates that you want the report to include. You can specify only four date ranges on this panel. For this report only, these dates take the place of the dates on the SPECIFY DATE RANGES panel.

Default: Reporting is for all dates for which data exists.
2. Specify the names of the files that are to contain input to SAS/GRAPH reports. You can specify files for device details or for subsystem totals, or both.

Enter up to 22 characters in the **SAS File ID** field for the name of the SAS file.
3. For each file, specify the number of generations of SAS data to keep. You can specify a number from 0 to 999 inclusive.
4. Issue the **END** command.

Result: The SPECIFY PERFORMANCE REPORTING panel appears again, as in Figure 7-36 on page 7-36.
5. Go to step 16 on page 7-37.

Specifying Time-Ordered Report Options

The following panel appears when you type **0** in the **Time-Ordered** field on the SPECIFY PERFORMANCE REPORTING panel.

```

*** SPECIFY TIME-ORDERED REPORT OPTIONS ***

COMMAND===> _____

SVAA Graphics Files:

  SAS Device Details File:
    SAS File ID      ===> _____

  Generations to Keep ===> 2

SAS Subsystem Totals File:
  SAS File ID      ===> _____

  Generations to Keep ===> 2
  
```

Figure 7-42. *Specify Time-Ordered Report Options pane (SIBPR50)*

1. Specify the names of the files that are to contain input to SAS/GRAPH reports. You can specify files for device details, subsystem totals, or both.

Enter up to 22 characters in the **SAS File ID** field for the name of the SAS file.

2. For each file, specify the number of generations of SAS data to keep.
3. Issue the **END** command.

Result: The SPECIFY PERFORMANCE REPORTING panel appears again, as in Figure 7-36 on page 7-36.

4. Go to step 16 on page 7-37.

Specifying Bar-Chart Values

The following panel appears when you type **0** in the **Bar Chart** field on the SPECIFY PERFORMANCE REPORTING panel.

```
*** SELECT BAR CHART FIELDS ***  
COMMAND==> _____  
  
Type S to select bar chart fields:  
  
- Device Available %           - Drive Module Utilization %  
- I/O Rate                     - Drive Module Coeff of Var  
- Access Density               - I/O Hit %  
- Kilobytes per Second         - Read Hit %  
- I/O Service Time             - Write Hit %  
- Disconnect Time              - DASD Fast Write Constraint  
- Device Utilization %         - Stage Rate  
- Disconnect Time %            - Hits per Stage  
- Free Space Collection Load   - Tracks Occupied  
- Net Capacity Load %
```

Figure 7-43. *Select Bar Chart Fields panel (SIBPR70)*. The fields on this panel are explained in Appendix B, “Variables for Bar Chart Reports.”

1. Choose reporting values for which you want bar-chart reports by typing an **S** beside the name of the value. For more information about bar charts, see Appendix B, “Variables for Bar Chart Reports.”

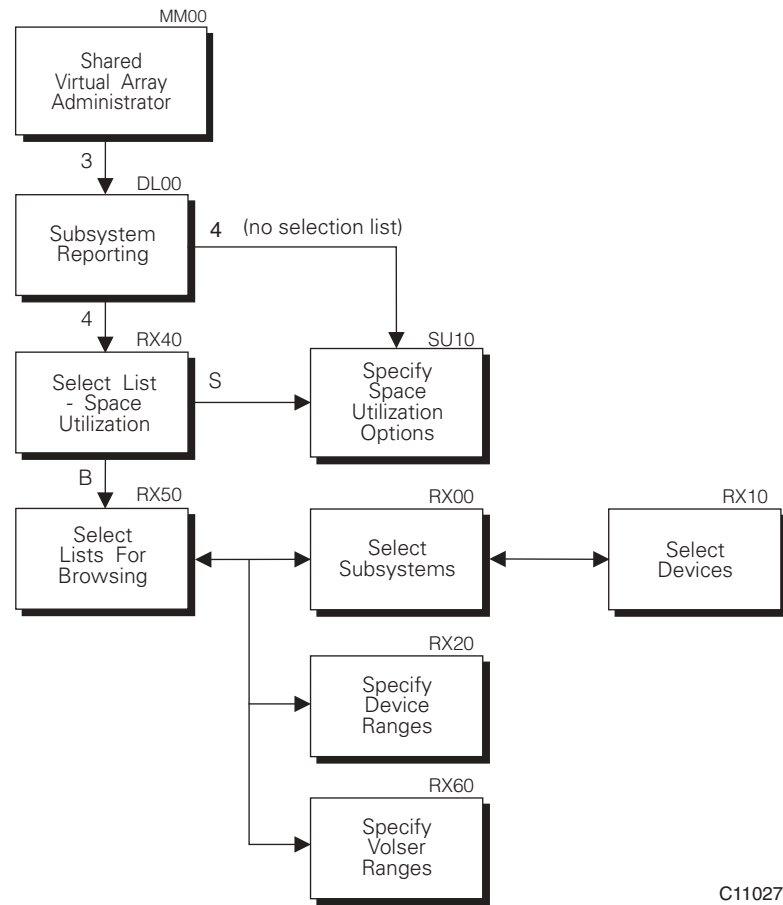
2. Issue the **END** command.

Result: The SPECIFY PERFORMANCE REPORTING panel appears again, as in Figure 7-36 on page 7-36.

3. Go to step 16 on page 7-37.

Specifying Space Utilization Reporting

Figure 7-44 shows the panels you use to specify the data to be collected in a report:



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Figure 7-44. Panels used in specifying space utilization reporting

To request Space Utilization reporting:

1. Choose option 4 on the SVAA SUBSYSTEM REPORTING panel (Figure 7-25 on page 7-26).

Result: If there are no selection lists defined, Reporter displays the SELECTION LIST - SPACE UTILIZATION REPORTING panel, as shown in Figure 7-46 on page 7-46 (instead of a name in the **Selection List** field, that panel displays **“NO LIST WAS SELECTED”** in the field).

If any selection lists exist, Reporter displays the SELECT LIST - PERFORMANCE REPORTING panel, as shown in Figure 7-35 on page 7-35.

Space Utilization Reporting

```
*** SELECT LIST - SPACE UTILIZATION ***
COMMAND==> _____ SCROLL ==> PAGE

Press enter to bypass device list selection or type the
following list commands and then press Enter.

List Commands:  B - (Browse)      S - (Select)

LIST NAME      DESCRIPTION
- XSUBSS1      Subsystem1 data will not be collected
- XSUBSS2      Subsystem2 data will not be collected
- IDEVSS3      Include certain devices for subsystem 3
```

Figure 7-45. Select List - Space Utilization panel (SIBRX40)

2. Optionally, you can browse a list before selecting it, to make sure that the list contains the subsystems and functional devices that you want to include in the report.

Result: Reporter displays the SELECT LISTS - LIST MAINTENANCE panel (Figure 7-20 on page 7-23). Go to the sequence of steps beginning after that figure.

3. Either:

- Press **Enter** without selecting a list name to specify that reporting is for all SVA subsystems,
or
- Type **S** beside the selection lists for which you want Space Utilization reporting. Then press **Enter**.

Result: Reporter displays the SPACE UTILIZATION REPORTING panel, as shown in Figure 7-46.

```
*** SPECIFY SPACE UTILIZATION REPORTING ***
COMMAND==> _____

Selection List: XSUBSS1

To submit, use the SUBMIT command or PF key

SAS Program Name ==> SIBSPACE SAS A
```

Figure 7-46. Specify Space Utilization Reporting panel (SIBSU10)

4. Change the **SAS Program Name** if you wish.

Default: SIBSPACE SAS A

5. Issue the **SUBMIT** command to request the report.
6. When the “submitted” message appears in the upper-right corner, issue the **END** command to return to select another device for Space Utilization reporting, or

issue the **RETURN** command to return to the SVAA SUBSYSTEM REPORTING panel.

Extracting Summarized History Data

This section explains how to use the SVAA panels to control data extraction from the summarized history file. Read “Extracting History Data for Graphing” on page 5-6 before using this section. You cannot use subcommands or a batch program to tailor data extraction.

Figure 7-47 on page 7-48 shows the panels you use to specify data extraction.

Note: For non-SVA subsystems, only cache-effectiveness data is available in the summarize history file. Statistics not available for these subsystems appear as zeroes in the extracted data file.

To specify data extraction:

1. Select 5 from the SVAA SUBSYSTEM REPORTING panel (see Figure 7-25 on page 7-26).

Result: If no selection lists are defined, Reporter displays the CREATE SAS EXTRACTION PROGRAM panel (Figure 7-49 on page 7-49). Go to step 5 on page 7-49.

If any selection lists exist, Reporter displays the SELECT LIST - DATA EXTRACTION panel, as shown in Figure 7-48.

```

SIBRX40          *** SELECT LIST - DATA EXTRACTION ***          ROW 1 OF 8
COMMAND==>                                           SCROLL ==> PAGE

Press Enter to bypass list selection or type the
following list commands and then press Enter.

List Commands:   B - (Browse)           S - (Select)

LIST NAME      DESCRIPTION
-----
A
B
C
D
***** BOTTOM OF DATA *****

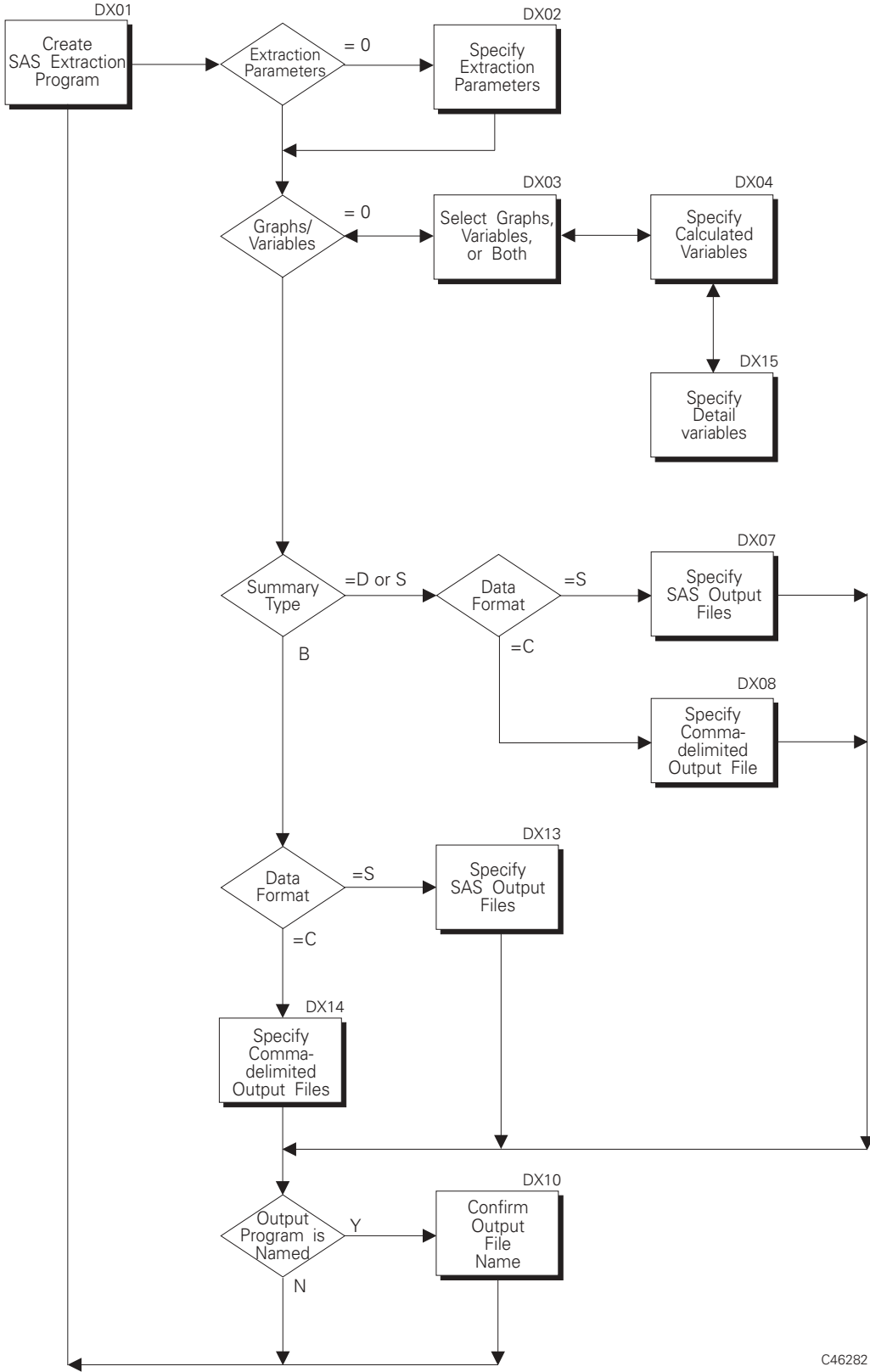
```

Figure 7-48. *Select List - Data Extraction panel (SIBRX40)*

2. If you decide that you do not want to use a device selection list, press **Enter**.

Result: Reporter extracts data for all the SVA functional devices and subsystems available to it. The CREATE SAS EXTRACTION PROGRAM panel appears with the message “**NO LIST SELECTED**” in the **Selection List** field (go to step 5 on page 7-49).

Data Extraction



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Figure 7-47. Panels used in specifying data extraction

- To browse or select selection lists, type either **B** or **S** beside one or more of the list names.

B Displays the names of the devices in the list. See “Browsing a Selection List” on page 7-22 for more information.

Note: You can only browse (view) selection lists while in this mode.

S Selects the list of devices for which data is to be extracted.

- When you have entered all the values, press **Enter**.

Result: If you typed **B**, the panel shown in Figure 7-48 on page 7-47 reappears when you have finished browsing.

If you typed **S** to select a list, the CREATE SAS EXTRACTION PROGRAM panel (Figure 7-49) appears.

```

SIBDX01          *** CREATE SAS EXTRACTION PROGRAM ***
COMMAND===>

Selection List: No list selected

Input history file      ===> HISTORY STKPERF A1
Output program file     ===> SIBDATA SAS A
Extraction parameters  ===>      (0=Options/D=Display parameters)
Graphs and/or variables ===>      (0=Options/D=Display selections)
Summary type           ===> B      (D=Device/S=Subsystem/B=Both)
Extracted data format   ===>      (C=Comma-delimited/S=SAS)
                        SAS format specified

```

Figure 7-49. *Create SAS Extraction Program panel (SIBDX01).* The message below the last field appears only when you return to this panel after executing all the secondary panels; it indicates your selection for the **Extracted data format** field.

The panel in Figure 7-49 appears when a selection list was chosen on the SELECT LIST - DATA EXTRACTION panel, or when there are no selection lists. The first selection list you chose, if any, appears in the **Selection List** field. If you did not specify a list on the previous panel, this field contains **No list selected** when the panel appears and Reporter extracts data for all devices.

Note: You can press **Enter** after entering your choices in any of the fields on this panel. Alternatively, you can fill in all the choices and then press **Enter**. Whichever procedure you choose, SVAA displays the appropriate panels for you to complete your specification of data extraction, and then returns you to the CREATE SAS EXTRACTION PROGRAM panel. (The following directions assume that you press **Enter** after filling in all the fields.)

- Enter the name of the history file from which data is to be extracted.

Default: **HISTORY STKPERF A1**

- Enter the name of the file that is to contain the output program.

Default: **SIBDATA SAS A1**

Data Extraction

7. In the **Extraction parameters** field, specify one of:

- O** Specifies that you wish to define the options for this choice.
- D** Displays the currently selected parameters.

Result: SVAA displays the information at the bottom of the panel.

8. In the **Graphs and/or variables** field, specify one of:

- O** Specifies that you wish to define the options for this choice.
- D** Displays the currently selected types of graphs and variables.

Result: SVAA displays the information at the bottom of the panel.

9. In the **Summary type** field, specify the type of summary you want by entering one of:

- D** Extracts data for each functional device.
- S** Extracts data for each subsystem. This is the default.
- B** Extracts data for both functional devices and subsystems.

10. In the **Extracted data format** field, specify the format in which you want the extracted data to be stored:

- C** SVAA stores the data in comma-delimited format for processing with a suitable program, such as Microsoft Excel, Borland Paradox, or Lotus 1-2-3.
- S** SVAA stores the data in SAS format for processing with SAS or SAS/GRAPH.

11. Press **Enter**

Result: SVAA displays secondary panels for the fields on which you have not already pressed **Enter**, as in the following steps.

12. When you select a summary:

- By **either** device or subsystem (step 9) and
- With output in **comma-delimited** files (step 10),

SVAA enables you to specify the names of the output files. If you do not make a selection, SVAA writes the output to the same files that you specified the last time you used this panel. (If you did not do so, go to step 13 on page 7-51.) Figure 7-50 appears.

SIBDX08

*** SPECIFY COMMA-DELIMITED OUTPUT FILE ***

COMMAND===>

Extracted data file ===>

Figure 7-50. *Specify Comma-Delimited Output File panel (subsystem or device) (SIBDX08)*

- a. On this panel, specify the name of the file to be used for the extracted data.

Default: The filetype and filemode are COMMADLM A1 (you must supply a file name)

b. Press **Enter**.

Result: SVAA proceeds to the next step (below).

13. When you select a summary:

- By **either** device or subsystem (step 9 on page 7-50) and
- With output in **SAS** files (step 10 on page 7-50),

SVAA enables you to specify the names of the output files. Figure 7-51 appears. (If you did not make such a selection, go to step 14.)

```

SIBDX07                *** SPECIFY SAS OUTPUT FILES ***
COMMAND===>

Specify one or both:

SAS extracted data file ===>

SAS transport file      ===>

```

Figure 7-51. *Specify SAS Output Files panel (subsystem or device) (SIBDX07)*

Specify either or both of the SAS extracted data file and the SAS transport file (neither is required):

a. Specify the name of the SAS extracted data file.

Default: None, but if you specify only a file name, **EXTRACT A1** is used for the filetype and filemode.

b. Specify the name of the SAS transport file.

Default: None, but if you specify only a file name, **EXPORT A1** is used for the filetype and filemode.

c. Press **Enter**.

Result: SVAA proceeds to the step below.

14. When you select a summary:

- By **both** device and subsystem (step 9 on page 7-50) and
- With output in **comma-delimited** files (step 10 on page 7-50),

SVAA displays a panel for you to specify the names of the output files. Figure 7-52 appears. (If you did not make such a selection, go to step 15 on page 7-52.)

```
SIBDX14          *** SPECIFY COMMA-DELIMITED OUTPUT FILES ***
COMMAND===>

Specify fileids:

Device detail    ===>

Subsystem totals ===>
```

Figure 7-52. *Specify Comma-Delimited Files (subsystem and detail) panel (SIBDX14)*

- a. Specify the name you want for the device-detail data.

Default: The filetype and filemode are COMMADLM A1 (you must supply a file name).

- b. Specify the name you want for the subsystem-totals data.

Default: The filetype and filemode are COMMADLM A1 (you must supply a file name).

- c. Press **Enter**.

Result: SVAA proceeds to the step below.

15. When you select a summary:

- By **both** device or subsystem (step 9 on page 7-50) and
- With output in **SAS** files (step 10 on page 7-50),

SVAA enables you to specify the names of the output files. Figure 7-53 appears. (If you did not make such a selection, go to step 16 on page 7-53.)

```
SIBDX13          *** SPECIFY SAS OUTPUT FILES ***
COMMAND===>

Specify fileids:

Device detail:
  Extracted data file ===>
  SAS transport file ===>

Subsystem totals:
  Extracted data file ===>
  SAS transport file ===>
```

Figure 7-53. *Specify SAS Output Files panel (subsystem and detail) (SIBDX13)*

Specify either or both of the extracted data file and the SAS transport file for device details and subsystem totals:

- a. On this panel, specify for both devices and subsystems the names of the output files.

Default for extracted data: None, but if you specify only a file name, **EXTRACT A1** is used for the filetype and filemode.

Default for the SAS transport file: None, but if you specify only a file name, **EXPORT A1** is used for the filetype and filemode.

- Specify the names of the SAS transport files to be used.
- Press **Enter**.

Result: SVAA proceeds to the next step below.

16. If you specified **0** in the **Extraction parameters** field of the **Create SAS Extraction Program** panel, SVAA displays the following panel:

```

SIBDX02                *** SPECIFY EXTRACTION PARAMETERS ***
COMMAND==>

Start Date      ==> -7           Stop Date  ==> -1
Start Time      ==>      :       Stop Time  ==>      :

Summarization Interval (To modify, enter one of the following)
Minutes         ==> 120
Hours           ==>

Partition       ==> P           (0=Overall/P=Production/T=Test)

```

Figure 7-54. *Specify Extraction Parameters panel (SIBDX02)*

- a. Enter the ranges of dates for which you want data to be extracted.

Default: -7:-1 (that is, the previous week, not including today)

- b. Enter the ranges of times for which you want data to be extracted.

Default: All times in the history file.

- c. Enter the summarization interval in either the **Minutes** or the **Hours** field (the default is 120 minutes).

Note: The interval you specify must be a multiple of the interval in the history file and must be a factor of 1440 (if you specify minutes) or of 24 (if you specify hours).

- d. Specify the partitions for which data extraction is to apply by entering one of:

0 Extract overall data for all partitions.

P Extract data for the Production partition. This is the default.

T Extract data for the Test partition.

- e. Press **Enter**.

Result: SVAA proceeds to the next step below.

17. If you specified **0** in the **Graphs and/or variables** field, the following panel appears:

```

SIBDX03          *** SELECT GRAPHS, VARIABLES OR BOTH ***
COMMAND===>

Select StorageTek-supplied graphs:      (Y=Yes/N=No)
  Avg service time and avg transfer size      ==> Y
  Avg service time and cache hit percent      ==> Y
  Avg service time and data throughput        ==> Y
  Avg service time and I/O rate               ==> Y
  Avg service time for top 25 functional devices ==> Y
  I/O service time at max I/O rate            ==> Y
  SVA free space analysis                     ==> Y

Select custom variables:      (0=Options/X=Exclude custom selection)
  Channel                      ==>
  Cache Effectiveness          ==>
  Device Performance           ==>

Estimated workstation space requirement:

```

Figure 7-55. Specify Graph Types, Variables or Both panel (SIBDX03)

- a. Enter Y beside any of the supplied graphs you wish to specify.

Table 7-2 shows the graphs you can select.

Note: If you select a type of graph, you do not need to specify the variables needed—SVAA does that automatically.

Table 7-2 (Page 1 of 2). Supplied sample graphs		
Name of graph	Description	Variables used
Average service time and average transfer size	Shows, over time: <ul style="list-style-type: none"> Average connect times per I/O Average disconnect times per I/O Average I/O transfer sizes 	iostdisc, iostconn, kbperio, enddate, endtime, subsname, partmemb
Average service time and cache hit %	Shows, over time: <ul style="list-style-type: none"> Average connect time per I/O Average disconnect time per I/O Cache hit percentages 	iostdisc, iostconn, iohit, enddate, endtime, subsname, partmemb
Average service time and data throughput	Shows, over time: <ul style="list-style-type: none"> Average connect time per I/O Average disconnect time per I/O Kilobytes per second 	kbytesec, iostconn, iostdisc, enddate, endtime, subsname, partmemb
Average service time and I/O rate	Shows, over time: <ul style="list-style-type: none"> Average connect time per I/O Average disconnect time per I/O Average I/O rate 	iorate, iostconn, iostdisc, enddate, endtime, subsname, partmemb

Table 7-2 (Page 2 of 2). <i>Supplied sample graphs</i>		
Name of graph	Description	Variables used
Average service time for top 25 functional devices (those that have the most I/O)	Shows, for the 25 busiest functional devices: <ul style="list-style-type: none"> Average connect time per I/O Average disconnect time per I/O Percentage of I/Os for the volume to the total I/Os 	subdurat, devutlti, conntime, devactiv, enddate, endtime, subsname, volser, partmemb
I/O service time at maximum I/O rate	Shows, over time: <ul style="list-style-type: none"> Average connect time per I/O at maximum I/O rate Average disconnect time per I/O at maximum I/O rate Maximum I/O rate for the period 	maxiort, maxconn, maxdisc, enddate, endtime, subsname, partmemb
SVA free space analysis	Shows, over time: <ul style="list-style-type: none"> Net capacity load percentage Uncollected free space percentage Total physical capacity 	ncapldp, totbecp, puncfsp, enddate, endtime, subsname, partmemb

b. In the **Select custom variables** fields:

- Type **0** beside any type of variable to see a list of the variables of that type that you can include.
- Type **X** beside any type of variable you had previously selected but no longer want.

If you leave the entry field blank, SVAA assumes you want that type of variable if **Selected** appears to the right of the field (this indicates that you previously selected that type of variable).

c. Press **Enter**.

Result: If you specify any of the supplied graphs, SVAA creates programs to extract data for the graphs you specify.

18. If you specify any types of custom variables, SVAA displays the following panels, in order corresponding to the types of variables you specify in the **Select Custom Variables** insert. See Appendix D, "Using Data Extraction" for descriptions of all the variable names.

Note: These panels list all the calculated variables, as well as those of the detail variables that you are most likely to need, such as those that identify the data in some way. Only the first few variables are shown in the following panel examples.

SIBDX04
COMMAND===>

*** CHANNEL VARIABLES ***

ROW 1 OF 20
SCROLL ===> PAGE

Select from detail list ===> Selected (0=Options/X=Exclude detail)

=====

Commands: R - (Remove) S - (Select)

Variable	Description	Message
-----	-----	-----
- actvchnl	% subsys active on channel	
- chansped	Channel speed in MB per second	
- ciorate	Channel I/O rate	

***** BOTTOM OF DATA *****

Figure 7-56. Channel Variables panel (SIBDX04)

SIBDX04
COMMAND===>

*** CACHE-EFFECTIVENESS VARIABLES ***

ROW 1 OF 39
SCROLL ===> PAGE

Select from detail list ===> Selected (0=Options/X=Exclude detail)

=====

Commands: R - (Remove) S - (Select)

Variable	Description	Message
-----	-----	-----
- collid	Collection identifier	
- cpuid	ID of CPU performing data collection	
- devnum	Functional device number as known to host	
:		

Figure 7-57. Cache-Effectiveness Variables panel (SIBDX04)

SIBDX04
COMMAND===>

*** DEVICE-PERFORMANCE VARIABLES ***

ROW 1 OF 40
SCROLL ===> PAGE

Select from detail list ===> Selected (0=Options/X=Exclude detail)

=====

Commands: R - (Remove) S - (Select)

Variable	Description	Message
-----	-----	-----
- accden	I/O per second per GB functional	
- capacity	Functional device capacity in GB	
- coeffvr	% drive module coeff of variation (production)	
:		

Figure 7-58. Device-Performance Variables panel (SIBDX04)

- a. As each of these panels appear, indicate that you want to specify variables by entering in the **Detail variables** field one of:

0 Specify detail variables for the corresponding type of custom variables.

Result: SVAA displays the corresponding detail variables panel (see step 19). When you return from the detail variables panel, **Selected** appears to the right of the **Detail variables** field, if any detail variables were selected.

X Exclude detail variables from the output.

Note: The variables you have selected on the detail variables panels remain selected even though they are to be excluded from the current extraction program.

- b. Select the calculated variables or identification variables to be included in the extracted data by entering beside the variable names one of:

S Include the calculated variable or identification variable in data extraction.

Result: If you press **Enter** at this point, **Selected** appears to the right of each variable name you selected.

R Remove an earlier selection of the calculated variable.

- c. When you have finished specifying variables, press **Enter**.

Result: SVAA displays the panels on which you can specify the detail variables you have requested.

19. If you specify **0** in the **Detail variables** field of any of the custom variables panels, SVAA displays the following panels in order corresponding to the custom variables panels. See Appendix D, "Using Data Extraction" for descriptions of all the variable names.

```

SIBDX15          *** DETAIL CHANNEL VARIABLES ***          ROW 1 OF 2
COMMAND==>                                SCROLL ==> PAGE

Commands:   R - (Remove)   S - (Select)

      Variable      Description                                Message
      -----
_   numberio        # of end-of-chain events at channel interface
_   ticobuch         Time control unit busy at channel (ms)
***** BOTTOM OF DATA *****

```

Figure 7-59. Detail Channel Variables panel (SIBDX15)

```

SIBDX15          *** DETAIL CACHE-EFFECTIVENESS VARIABLES ***      ROW 1 OF 30
COMMAND===>                                           SCROLL ==> PAGE

Commands:   R - (Remove)    S - (Select)

      Variable      Description      Message
      -----      -
      - bypcareq      Bypass cache request
      - cacsegct      Number of device cache utilization segments
      - cadasdxf      Cache to DASD transfer (destages)
      :
      ***** BOTTOM OF DATA *****

```

Figure 7-60. Detail Cache-Effectiveness Variables panel (SIBDX15)

```

SIBDX15          *** DETAIL DEVICE-PERFORMANCE VARIABLES ***      ROW 1 OF 20
COMMAND===>                                           SCROLL ==> PAGE

Commands:   R - (Remove)    S - (Select)

      Variable      Description      Message
      -----      -
      - availtim      Device available time (ms)
      - busytime      Total physical device utilization (ms)
      - bytetrak      Bytes per track
      :

```

Figure 7-61. Detail Device-Performance Variables panel (SIBDX15)

- a. As each of the detail variables panels appear, select the detail variables to be included in the extracted data by entering beside the variable names one of:
 - S** Includes the detail variable in data extraction.

Result: If you press **Enter** at this point, **Selected** appears to the right of the variable name you selected.
 - R** Removes an earlier selection of the detail variable.
 - b. Press **Enter**.

Result: After displaying all the detail variables panels, SVAA returns to the calculated variables panels.
 - c. On the calculated variables panels, issue the **END** command.

Result: SVAA proceeds to the next step below.
20. Use the **END** command to return to the SELECT GRAPHS, VARIABLES, OR BOTH panel. On this panel, note that SVAA has inserted an estimated workstation space requirement. This is the number of bytes of storage that SVAA estimates will be needed to store the data for the variables you have specified. If you judge this amount to be too great, go back to step 7 on page 7-50 and type **0** in the **Extraction parameters** field and then repeat steps 16 through 19, specifying smaller time and date ranges or a greater summarization interval.

21. If you are satisfied with the estimated space requirement, use the **END** command to return to the CREATE SAS EXTRACTION PROGRAM panel. Note that there is a message below the **Extracted data format** field that indicates the format you selected.
22. On that panel (Figure 7-49 on page 7-49) use the **SUBMIT** command.
23. If the SAS program you specified in step 6 on page 7-49 does not already exist, go to step 25.
24. If the SAS program you specified in step 6 on page 7-49 already exists, specifying this name causes SVAA to use the same name, thus replacing the previous program. To make sure that this is what you want to do, SVAA displays Figure 7-62.

```

SIBDX10                                *** CONFIRM OUTPUT FILE ***
COMMAND===>

The following file already exists:
  SIBDATA SAS A
Do you wish to replace it?      (Y=Yes/N=No)

```

Figure 7-62. *Confirm Output File Name panel (SIBDX10)*

On this panel, SVAA asks whether you wish to replace the previous program. Enter one of:

Y Specifies that you wish to change the name of the SAS program.

Result: SVAA returns to the CREATE SAS EXTRACTION PROGRAM panel for you to specify a new program name.

N Use the same program name, causing the previous program to be overwritten.

Result: SVAA proceeds to the next step.

25. SVAA prepares the output program.

Note: You must run the SAS program at a later time. Use the **END** command.

Result: SVAA returns you to the SUBSYSTEM REPORTING menu.

Data Extraction

Chapter 8. SVAA Subcommands and Commands

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Subcommands of SIBADMIN

You can issue SVAA subcommands through SIBADMIN and in the SIBSRP initialization routine.

The general form of SVAA subcommands is shown in the following diagram (the conventions used in the syntax diagrams in this book are explained on page xii):

▶—*subcommand*—(—*parameter*—(—*values*—)—)—*destination*—▶◀

where:

subcommand is a subcommand described in this chapter.

parameter is the name of a parameter described in this chapter. (More than one parameter, together with its values, may be included in the subcommand.)

values is one or more of the acceptable values for the specified parameter.

destination is a destination for the output of this particular subcommand to override the destination currently in effect for all SVAA subcommands. For more information, see “Redirecting Subcommand Output” on page 8-8.

Note: You can include a *destination* for output at the end of any SVAA subcommand. However, because you would generally not use it, the destination option is not shown in the subcommand syntax diagrams in this chapter.

Executing Commands from SIBADMIN

In the CMS environment, you can:

- Enter **SIBADMIN** followed by any SVAA subcommand (press **Enter**).
- Enter only **SIBADMIN** and press **Enter**. This establishes the “**SIB**” environment; SVAA returns the **SIB:** prompt, at which you can:
 - Enter an SVAA subcommand. SVAA executes the subcommand and again displays the **SIB:** prompt. Enter another subcommand, or
 - Enter **end** to return to the CMS environment.

See “Issuing Subcommands Interactively” on page 3-6 for more detail.

Executing Macros from SIBADMIN and SIBSRP

In SIBADMIN and SIBSRP, you can invoke an SVAA macro to execute a frequently used series of commands, which may include SVAA subcommands. Creating a macro eliminates the task of entering the commands individually. To execute a macro, either:

- Enter **MACRO** *macroname*, where *macroname* is the name of the file that contains the macro (see “MACRO Subcommand” on page 8-30)
- If IMPEX is set on, simply enter the name of the macro in the appropriate environment

Rules

Include comments in an SVAA macro following the rules of the environment.

Rules for Entering Subcommands and Parameters

Follow these rules when entering SVAA subcommands and their parameters:

- Enter each parameter name only once—SVAA does not allow duplicate parameters.
- Follow each parameter name by the values for that parameter and enclose the set of values in a single pair of parentheses. You must enter a value between the parentheses—for example, `DEVPERF()` and `DEVPERF()` are not allowed.
- Enter each parameter value only once where multiple values are allowed—SVAA ignores duplicate values.
- Arrange the whole set of parameters in any order.
- Enclose the whole set of parameters within parentheses.
- The `SEND` subcommands require that the subcommand you are sending (within the parentheses) be enclosed in quotes. If the enclosed subcommand *also* contains quotation marks (that is, nested quotation marks), the outer set of quotes must be different from the inner set. For example: `SEND SRP("D COLLTN(COLLID('daily'))")`
- Optionally, for ease of reading, start each new parameter on a new line (you can add additional spaces or use new lines anywhere you want).

Note: In SIB prompt mode on **VM**, before entering the `#` character in a parameter value (`#` is acceptable in certain names and task identifiers), make sure that `#` is not defined as the line-end character for your terminal. (If `#` is the line-end character, use the appropriate escape character for your terminal or turn terminal line-end off.) The same restrictions apply to all of the terminal-control characters you have defined.

Case

You can enter subcommands and parameters in either uppercase or lowercase, but SVAA treats both as uppercase. However, the *values* you enter for certain parameter variables are case sensitive; i.e., `"a"` and `"A"` are interpreted as different characters.

Whether uppercase and lowercase characters are actually interpreted differently for case-sensitive values is determined by the current setting of the `SET CASE` subcommand (see “`SET CASE`” on page 8-63). If you have issued the `SET CASE(MIXED)` subcommand, case is preserved; that is, uppercase and lowercase characters are interpreted differently. However, if `SET CASE(UPPER)`, the default, is in effect, SVAA interprets all lowercase input as uppercase.

The values you assign to SVA subsystem names, device names and collection identifiers are all case sensitive. A reminder of this fact appears below the “Values:” line wherever one of these parameters is described in this chapter.

To ensure that SVAA correctly interprets the lowercase characters you use for a case-sensitive name, regardless of the current setting of the `SET CASE` subcommand, enclose the name in matching quotation marks, either single quotes or double quotes. For example: `'subsysA'` and `"Task123"`. However, in a `SEND`

subcommand, which may involve nested sets of quotation marks, use double quotes for one set and single quotes for the other.

All other parameter values—i.e., those without a note regarding case—are not case sensitive. Such parameters include device addresses and volsers. For example, **3A0** and **3a0** are the same unit address.

Wildcard Characters

Wildcard characters (***** and **?**) provide a way for you to specify multiple values for a parameter without typing all of the values individually. You use wildcard characters to indicate positions within a parameter value at which legitimate alphanumeric characters can be substituted according to the following rules:

- The asterisk (*****) is the generic wildcard character; it can be replaced by any number of alphanumeric characters or special characters that are acceptable for the specific variable.

You can separate multiple generic wildcard characters by any number of alphanumeric characters. For example:

VOLUME(*ROLL*)

Any volser containing the character sequence **ROLL** is included. Examples are: **PYROLL** and **ROLLFW**

- The question mark (**?**) is the specific wildcard character; it can be replaced by exactly one alphanumeric character. For example:

VOLUME(PR?D*) Includes all volumes that start with **PR** and have a **D** in the fourth position.

VOLUME(PR??D*) Includes all volumes that start with **PR** and have a **D** in the fifth position.

Leading zeros are not significant in matching wildcard specification of device addresses. For example, if you specify **3***, in a device address, devices **3000** to **3FFF**, **300** to **3FF**, **30** to **3F**, and **3** match that specification. However, if you specify **03*** in a device address, only devices **300** to **3FF**, **30** to **3F**, and **3** match that specification.

Ranges

A *range* is a set of sequential values that is defined by the first and last values in the set. Range specifications must adhere to these rules:

- The two values must be of the same data type but have different values.
- The two values must be separated by a colon.
- Except in ranges of units, the two values must contain the same number of characters. Use leading zeroes if necessary.
- Except in unit ranges, both values must contain at least one numeric (decimal) character and the numerics must be in the same position in each value. (Numerics are not required in unit ranges, so **AAA:FFF** is a valid range of units.)
- The values can be times, single unit addresses, volume serial numbers, or subsystem names. However, it is not necessary for all the values to represent addresses, volsers, or units, or names that exist.

Rules

For example, you can enter a pair of volume serial numbers (volser), each consisting of 1 to 6 alphanumeric characters, such as:

P001:P009

- Except in time ranges, the first value must be less than the second.
- Elements in a range cannot contain wildcard characters.
- Multiple ranges within the same parameter must be separated by spaces.
- In time and date ranges, multiple ranges cannot overlap.
- Between two values, only the right-most numeric sequences can differ. All other characters must match.

Note: In ranges of volser or device names, hexadecimal “digits” are not considered to be numeric. For example, **SYS000:SYS0FF** is not a valid range. Also, **SYS009:SYS015** is a valid range, but does not include **SYS00A** through **SYS00F**.

Examples of valid ranges:

Range	Volser Defined
A00B0:A00B8	A00B0, A00B1, ... , A00B8
A3B2C5:A3B2C7	A3B2C5, A3B2C6, A3B2C7
2VM31C:2VM49C	2VM31C, 2VM32C, 2VM33C, ... 2VM49C
005:009	005 to 009

Examples of invalid ranges:

Range	Reason Invalid
A20B30:A29B30	The varying sequence (20 ... 29) is not the right-most numeric sequence.
A20B1:A20B99	The elements have differing numbers of digits.
SYS1A:SYSA2	The numerics are not in the same position and the non-numeric portions do not match.

Lists

A *list* consists of two or more parameter values or ranges separated by spaces. The entire list must be enclosed in parentheses. For example:

SUBSYS(SUBSYS1 SUBSYS3:SUBSYS6 SUBSYS9)

You can use wildcard characters (* and ?) within lists—if the parameter is one for which wildcard characters are allowed. For example:

EXCLUDEVOLUME(ABC000 ABC* TST??s TST5*)

Subcommand Continuation

Because many of the SVAA subcommands are longer than the typical line or record, you may need to continue a subcommand across several records. The method of continuation depends on the facilities of the execution environment:

- Under REXX in CMS, use the REXX method of continuation.
- Within a REXX EXEC, there is a limitation of 512 characters for a statement. You can overcome the limitation by building your command in a series of concatenated clauses.

The examples in this chapter use hyphens to show continuation.

Using the Style Prefix

In general,¹ you can qualify all file names in Reporter subcommands with an optional *style* subparameter, as follows:

[style:]filespec

There can be one or more blanks between *style:* and *filespec*.

In VM, the only allowed *style* is CMS and the specification of *style* is not required.

filespec specifies a CMS file in either the form

filename filetype filemode

or the form

filename.filetype.filemode

where:

- *filename* and *filetype* consist of one to eight characters in the set A-Z a-z 0-9 \$ @ # - _ + (SVAA converts lowercase to uppercase).

Notes:

1. You can specify only up to 7 characters for the filename in the RPTINSAS parameter of the REPORT PERFORMANCE subcommand and the HISTIN and HISTOUT parameters of the SUMMARIZE HISTORYDATA subcommand.
 2. The 8-character limit on the filenames you specify in the SASDEVICEFILE and SASSUBSYSTEMFILE subparameters of the REPORT PERFORMANCE subcommand is reduced by the number of digits in the *gens* value. (See the descriptions of those subparameters.)
- *filemode* is one alphabetic character, optionally followed by a second character in the set 0-6 (be aware of the CMS limitations on these values).

For input files, the filename, filetype and filemode can include wildcard characters.

The default filemode is **A1** for output files and ***** for input files.

The filemode is optional. If you specify the filemode, Reporter generates a SAS LIBNAME statement of the form: The filename defaults to ***** if you omit it.

LIBNAME *ddname* 'ft fm'

This allows SAS files to be read from a specific minidisk.

SVAA always converts file names to uppercase, regardless of the case you use.

¹ Exceptions are SAS file names.

Specifying SAS Files

The following parameters specify SAS files:

- HISTIN and HISTOUT parameters of the SUMM HIST subcommand
- RPTSAS, SASDFL, and SASSFL parameters of the REPORT PERF subcommand

Never specify the *style* prefix for SAS files. Specify SAS file IDs in exactly the same manner as other CMS files (*filename filetype filemode* or *filename.filetype.filemode*). Use the SAS data library name for the filetype and the SAS file name for the filename.

SAS names you specify must meet these requirements:

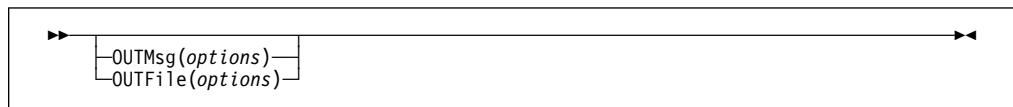
- They can be up to 8 characters long.
- The first character must be a letter (A, B, C, ...) or underscore (_). Subsequent characters can be letters, numeric digits (0, 1, ..., 9), or underscores. (SAS converts all names to uppercase during processing.)
- Do not use blanks within a SAS name.
- Do not use special characters, except for the underscore. The \$, #, and @ characters are allowed only in filerefs. Wildcard characters are not allowed.
- Do not use variable names that are SAS automatic variables or variable list names (for example, _N_, _ERROR_, _NUMERIC_, _ALL_).
- Do not use the names that SAS reserves for particular libraries, including LIBRARY, SASCAT, SASHELP, SASMSG, SASUSER, USER, WORK). Do not use the reserved SAS file names _NULL_, _DATA_, and _LAST_.

Note: In those parameters of REPORT PERF that have a *gens* value, the 8-character limitation on the length of the SAS file name must be reduced by the number of digits in the number of generations. (For example, if 15 generations are specified, the SAS file name is limited to 6 characters.)

Redirecting Subcommand Output

SVAA sends the output of SVAA subcommands to the destination specified in the most recent SET DESTINATION subcommand. For any specific subcommand, you can override this destination by specifying a *destination* at the end of the subcommand (as shown on page 8-3).

The syntax for the *destination* is:



where *options* are any of the subparameters allowed for the OUTFILE or OUTMSG parameters of the SET DESTINATION subcommand (that is, any of *filespec*, DEFAULT, OFF, TERMINAL, or VARIABLE). See “SET DESTINATION” on page 8-64 for explanations of these subparameters.

Subcommand Descriptions

The SVAA subcommands are presented in alphabetical order beginning on page 8-10. At the beginning of each subcommand description, the subcommand is identified as a “**Subcommand of SIBADMIN**” or as a “**System Operator command**”—or both.

The description of each subcommand consists of:

- An explanation of the command's purpose
- A syntax diagram
- Descriptions of all parameters
- Examples using the subcommand

Parameter Descriptions

Immediately under each parameter name, the parameter is identified as either “**Required**”, “**Optional**”, or “**Conditional**”. The term **Conditional** means that the parameter is neither required nor completely optional but that its use is related to other parameters. An associated statement explains the conditions for its use.

After a brief description of the parameter's purpose, some or all of the following types of information may appear:

Abbreviation: The uppercase portion of the parameter name as shown in the syntax box.

Values: A description of valid input, with any restrictions.

Default value: The default value, if one exists, or “None,” if there is no default.

Examples: Some valid examples of parameter entries.

COLLECT ORDATA Subcommand

* *Subcommand of SIBADMIN*

This subcommand defines the collection parameters for on-request (OR) data collection. See “Collecting On-Request Data” on page 2-3 for more information about OR data.

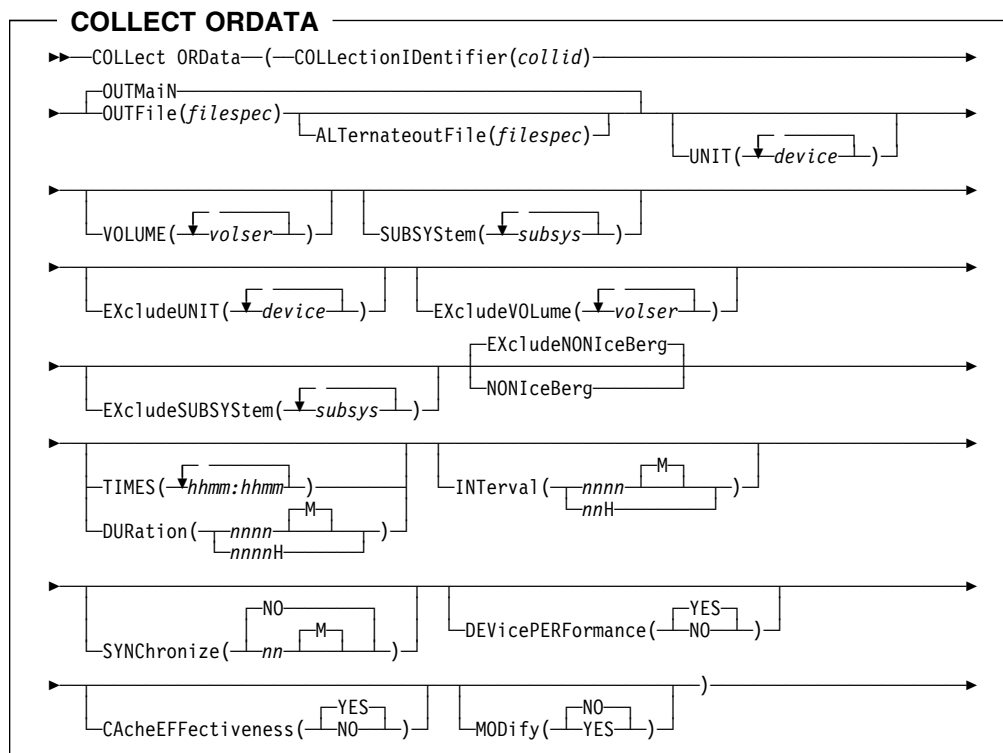
Any number of OR data-collection runs can be active at any given time. Each OR data-collection run is identified by a unique run identifier that you supply. The run identifier must be used when you modify previously submitted COLLECT ORDATA subcommands.

Notes:

1. Performance data is not collected for Power PPRC Bridge devices.
2. PAV Alias devices are excluded from all data collection; thus, performance data is not reported for Aliases.

For OR data collection you can specify:

- A unique identifier for this collection run (COLLECTIONIDENTIFIER parameter).
- Where the collected data is to be stored (OUTMAIN, OUTFILE, and ALTERNATEOUTFILE parameters).
- The devices, volumes, and subsystems for which data is to be collected (UNIT, VOLUME, or SUBSYSTEM parameters).
- The devices, volumes, and subsystems for which data is not to be collected (EXCLUDEUNIT, EXCLUDEVOLUME, or EXCLUDESUBSYSTEM parameters).
- Whether data is to be collected from non-SVA subsystems (NONICEBERG parameter) or not (EXCLUDENONICEBERG parameter).
- Either the ranges of times over which data is to be collected (TIMES parameter), or the length (beginning immediately) of the data collection period (DURATION parameter).
- The length of time between collection instances (INTERVAL parameter).
- The number of minutes after the start of the hour that a collection instance is to occur (SYNCHRONIZE parameter).
- Whether device-performance data is to be collected (DEVICEPERFORMANCE parameter).
- Whether cache-effectiveness data is to be collected (CACHEEFFECTIVENESS parameter).
- Whether this subcommand modifies (replaces) the current data collection parameters (MODIFY parameter).



See page 8-18 for examples of coding the parameters.

Parameters

The parameters of the COLL ORD subcommand follow, in alphabetical order.

ALTERNATEOUTFILE (*filespec*)

Optional. If you use this parameter, you must also enter the OUTFILE parameter and you *cannot* enter the OUTMAIN parameter.

This parameter specifies the alternate OR output file for this collection run. If you specify both OUTF and ALTF, the Reporter Data Collection Task can switch to the *alternate output* file if the current minidisk becomes full.

Abbreviation: ALTF

Values: *filespec* specifies the alternate output file. You can use the CMS: prefix. See “Using the Style Prefix” on page 8-7 for more information.

Default value: The filemode defaults to A1. If you specify only the filename, the filetype defaults to ORDATA and the filemode A1.

If you omit this parameter, there is no alternate OR output file for this collection run.

Notes:

1. If you specify MOD(YES), Reporter ignores the ALTF parameter.
2. You cannot specify the same *filespec* for both OUTF and ALTF.
3. OUTF and ALTF should not both be on the same minidisk, in case one should become full.

CACHEEFFECTIVENESS (YES | NO)***Optional***

This parameter specifies whether SVAA is to collect cache-effectiveness data.

Abbreviation: CAEFF

Values: YES specifies that cache-effectiveness data is to be collected.

NO specifies that cache-effectiveness data is not to be collected.

Default value: YES

Note: If you are specifying collection from a non-SVA subsystem, you cannot specify this parameter as CAEFF(NO), because cache-effectiveness data is the only data collected for non-SVA systems.

COLLECTIONIDENTIFIER (collid)***Required***

Specifies a unique name for this collection run. This name enables you to have a single output file shared by any number of OR collection runs.

Abbreviation: COLLID

Values: *collid* is the name for this collection run. Use up to 16 characters, including a-z, A-Z, 0-9, \$, @, #, &, -, +, _, ., or /.

Note: Do not use the character that is defined as the line-end character for your terminal.

If you use lowercase alphabetic characters and SET CASE(UPPER) is in effect, you must enclose the identifier in matching quotes.

Note: You cannot use a value of **PERFORMANCETRACK**.

Default value: None. You must specify a value.

DEVICEPERFORMANCE (YES | NO)***Optional***

This parameter specifies whether Reporter is to collect device-performance data.

Abbreviation: DEVPERF

Values: YES specifies that performance data is to be collected.

NO specifies that performance data is not to be collected.

Default value: YES

Note: Reporter never collects device-performance data for non-SVA devices.

DURATION (nnnn[M] | nnnnH)

Optional. If you enter this parameter, you cannot enter the TIMES parameter.

This parameter specifies that data collection start immediately and last for the specified duration.

Abbreviation: DUR

Values: *nnnn[M]* specifies a duration of *nnnn* minutes, where *nnnn* can be 1 to 9999. (Leading zeros are optional.) Entering M (the default) is optional.

nnnnH specifies a duration of *nnnn* hours, where *nnnn* can be 1 to 9999. (Leading zeros are optional.)

Default value: If you specify neither the DUR nor the TIMES parameter, collection begins immediately and ends at midnight. If you omit the unit (**M** or **H**), it defaults to **M** (minutes).

EXCLUDENONICEBERG

Optional. If you enter this parameter, you cannot enter the NONIB parameter.

This parameter specifies that Reporter is not to collect data from non-SVA disk subsystems. This parameter is the default; Reporter only collects data for non-SVA subsystems if you specify the NONIB parameter, or if the UNIT or VOLUME parameter identifies a non-SVA device.

Abbreviation: EXNONIB

Values: None

Default value: EXNONIB

EXCLUDESUBSYSTEM (subsys)

Optional

This parameter specifies the subsystems to be excluded from data collection.

Abbreviation: EXSUBSYS

Values: *subsys* specifies the names of up to 32 installed SVA subsystems to be excluded. Use exactly the same uppercase or lowercase characters as defined for the subsystem name.

You can use wildcard characters and ranges.

If a subsystem name contains lowercase characters and SET CASE(UPPER) is in effect, you must enclose the name in matching quotes.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

EXCLUDEUNIT (device)

Optional

This parameter specifies devices (as they are defined to the host operating system) to be excluded from data collection. You can specify up to 4096 devices on the V2X or up to 1024 on earlier SVAs. Devices to be excluded modify and override the list of devices to be included.

Abbreviation: EXUNIT

Values: *device* specifies host device numbers (1 to 4 hexadecimal digits per device). You can pad to the left with zeros. Reporter treats lowercase the same as uppercase.

You can use wildcard characters and ranges.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

EXCLUDEVOLUME (volser)

Optional

This parameter specifies the volume serial numbers of devices to be excluded from data collection. You can specify up to 4096 volsers on the V2X or up to 1024 on earlier SVAs. Volumes to be excluded modify and override the list of volumes to be included.

Abbreviation: EXVOL

Values: *volser* specifies volume serial numbers of devices to be excluded. SVAA converts all alphabets in volsers to uppercase.

You can use wildcard characters and ranges.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

INTERVAL (nnnnM | nnH)

Optional.

This parameter specifies the length of time between data-collection instances.

Abbreviation: INT

Values: *nnnnM* specifies the number of minutes in the collection interval. *nnnn* can be specified as 1 to 1440 minutes (one to four digits, including leading zeros, which are optional). The number must be exactly divisible into 1440 so that collection instances occur at the same times every day. Entering *M*, the default, is optional.

nnH specifies the number of hours in the collection interval. *nn* can be specified as 1 to 24 hours (one to two digits, including a leading zero, which is optional). The number must be exactly divisible into 24 so that collection instances occur at the same times every day.

Default value: 15M (15 minutes)

Note: If you specify both the INT and SYNCH parameters, the value of the INTERVAL parameter must be evenly divisible into 60.

For example, you can specify:

INT(20) SYNCH(19)

but you cannot specify:

INT(18) SYNCH(20) or INT(2H) SYNCH(20)

MODIFY (YES I NO)***Optional***

This parameter specifies whether this subcommand is a request to modify existing OR data-collection runs specified by the COLLID parameter.

Abbreviation: MOD

Values: YES is a request to modify an existing data-collection run. Reporter ignores any *filespec* you specify for the OUTF and ALTF parameters.

NO is a request to start a new data-collection run.

Default value: NO

Example: See Example 9 on page 4-13.

Note: If you specify MOD(YES), SVAA changes only the values for the parameters you specify in this COLL ORD subcommand, with one exception: If you include any device-selection parameters (subsystems, units, or volumes), their values override and replace the values of the corresponding parameters in the original subcommand.

NONICEBERG

Optional. If you enter this parameter, you cannot enter the EXNONIB parameter.

This parameter specifies that Reporter is to collect data from non-SVA disk subsystems, except for devices excluded by EXUNIT or EXVOL. Only cache statistics available from the 3990 Read Subsystem Data command are produced. There is no non-SVA device selection provided at the control unit or SSID level.

Abbreviation: NONIB

Values: None

Default value: EXNONIB

Notes:

1. Performance data is not collected for Power PPRC Bridge devices. If you specify a Power PPRC Bridge device as a non-SVA device using a SET NONIB subcommand, you will receive a SIB1814E message and no data will be collected.
2. PAV Alias devices are excluded from all data collection; thus, performance data is not reported for Aliases.

OUTFILE (filespec)

Optional. If you enter this parameter, you cannot enter the OUTMAIN parameter.

This parameter specifies the primary OR output file for this data-collection run. This file is to be used if data is not to be written to the main logging file.

Abbreviation: OUTF

Values: *filespec* identifies the output file. You can use the CMS: prefix. See "Using the Style Prefix" on page 8-7 for more information.

Default value: If you don't enter the OUTFILE parameter, OUTMAIN is the default.

You must specify at least the filename. If you specify only the filename, the filetype defaults to ORDATA and the filemode A1.

Example: &DAYDATE SRP A

Notes:

1. If you specify both OUTF and ALTF, the Reporter Data Collection Task can switch to the *alternate output* file if the current minidisk fills up. (You cannot specify the same *filespec* for both OUTF and ALTF.)
2. If you specify MOD(YES), Reporter ignores the OUTF parameter.

OUTMAIN

Optional. If you enter this parameter, you cannot enter the OUTFILE parameter or ALTF parameter.

This parameter specifies that the output for this collection run is to be directed to the main logging file specified by the OUTF parameter of the INIT MAIN subcommand.

Abbreviation: OUTMN

Values: None (keyword parameter only)

Default value: If you enter neither the OUTMAIN parameter nor the OUTFILE parameter, OUTMAIN is the default.

Reporter ignores this parameter if you also specify MOD(YES). This means that you cannot modify the destination for the OR data being collected.

SUBSYSTEM (subsys)

Optional

This parameter specifies one or more SVA subsystem names.

Abbreviation: SUBSYS

Values: *subsys* specifies the names of up to 32 installed SVA subsystems. Use exactly the same uppercase and lowercase characters as defined for the subsystem name.

You can use wildcard characters and ranges.

If a subsystem name contains lowercase characters and SET CASE(UPPER) is in effect, you must enclose the name in matching quotes.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

SYNCHRONIZE (nn[M] | NO)

Optional.

This parameter specifies the minute on which a data-collection instance is to occur. Other instances are synchronized to this instance by the value specified for the collection interval. This parameter has the effect of causing all the collection instances to be offset from the beginning of the time range.

Abbreviation: SYNC

Values: *nn*[M] specifies data collection is to start *nn* minutes after the hour. *nn* can be one or two digits, 0 to 59. You can use a leading zero.

NO specifies there should be no synchronization of the collection interval. This is equivalent to synchronizing to the start of the next time range, as specified by the TIMES parameter. If you execute SYNC(NO) during a time range, collection starts immediately.

Default value: NO

Note: If you specify a value that does not coincide with the beginning of an interval, Reporter offsets the collection interval from the start of a time range so that a collection interval begins at a synchronization time. See the example in “Controlling Intervals” on page 2-5.

TIMES (hhmm:hhmm)

Optional. If you enter this parameter, you cannot enter the DURATION parameter.

This parameter specifies the start-stop time-range pairs for data collection. On-request data collection occurs for the 24 hours following the subcommand being issued and during the time ranges specified.

Values: *hhmm:hhmm* specifies up to 16 pairs of times for which data collection is to be started and stopped (in hours and minutes, using the 24-hour clock). The first value in the pair is the starting time and must be between 0000 and 2359; the second is the stopping time and must be between 0001 and 2400. Separate the two times by a colon; separate multiple ranges by spaces. If the stopping time is earlier than the starting time, collection spans midnight. You cannot specify overlapping time-range pairs. You can specify ranges in any order.

Default value: If you do not specify the TIMES or DUR parameters, Reporter collects data all day. Specifying 0000:2400 also results in all-day data collection.

Note: See “Specifying Time Ranges for Collection” on page 4-5 for examples and more information.

UNIT (device)

Optional

This parameter specifies devices (as they are defined to the host operating system) for which data is to be collected. You can specify up to 4096 devices on the V2X or up to 1024 on earlier SVAs.

Values: *device* specifies host device numbers (1 to 4 hexadecimal digits per device). You can pad to the left with zeros. Reporter treats lowercase the same as uppercase.

You can use wildcard characters and ranges.

Examples: **UNIT(2D4 2D5 3A0:3BF)** requests data collection for devices 2D4, 2D5 and all devices with addresses in the range 3A0 to 3BF.

UNIT(3*) requests data collection for all devices with the first digit of the address equal to 3.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

VOLUME (volser)
Optional

This parameter specifies the volume serial numbers of devices for which data is to be collected. You can specify up to 4096 volsers on the V2X or up to 1024 on earlier SVAs.

Abbreviation: VOL

Values: *volser* specifies volume serial numbers of devices to be included. SVAA converts all alphabets in volsers to uppercase.

You can use wildcard characters and ranges.

Example: **VOL(PROD01:PROD25)** requests data collection for all devices with volume serial number **PROD01** through **PROD25**.

VOL(PR*) requests data collection for all devices with volume serial numbers starting with **PR**, while **VOL(PR?D*)** requests inclusion of all devices with volume serial numbers starting with **PR** and with a fourth byte of **D**.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

Examples of COLLECT ORDATA

Example 1. Starting on-request data collection

COLL ORD (COLLID(COLLCT220))

Reporter requests on-request data collection with the default values for all parameters. The collection identifier is to be **COLLCT220**. Data is collected for all subsystems and devices from the time the subcommand is issued until midnight, without any synchronization of the collection interval. Both device-performance and cache-effectiveness data is collected. Data is directed to the main logging file.

Example 2. Specifying collection times for specific functional devices

COLL ORD (-
 collid(collct220)-
 Times(1030:1115)-
 Unit(220 222 223)-
 Int(5M)-
 Sync(N0))

Data is to be collected from 10:30 a.m. until 11:15 a.m., for units 220, 222, and 223. Data is collected at five-minute intervals during the specified times. Both device

performance and cache effectiveness data is collected. The collection run terminates at 11:15. Data is directed to the main logging file.

Example 3. Specifying a duration and a logging file

```
COLL ORD (-
  COLLID(COLLECTA)-
  DUR(2H)-
  OUTF(OUTFL DATA)-
  INT(20M)-
  SYNC(10M)-
  SUBSYS(SUBSYSA SUBSYSB) )
```

Data is to be collected starting immediately and for the next two hours. The collection identifier is **COLLECTA**; output records are marked with that identifier. Data is written to a sequential logging file called **OUTFL DATA**. Data is to be collected for all devices in subsystems **SUBSYSA** and **SUBSYSB**. The collection interval is 20 minutes and the intervals start at ten minutes, thirty minutes, and fifty minutes after the hour.

COLLECT PTDATA Subcommand

* *Subcommand of SIBADMIN*

The COLLECT PTDATA subcommand defines performance-tracking (PT) data collection. The abbreviation is COLL PT. PT data is not collected unless you use this subcommand.

Only one PT data-collection run can be active at any given time for a subsystem.

Notes:

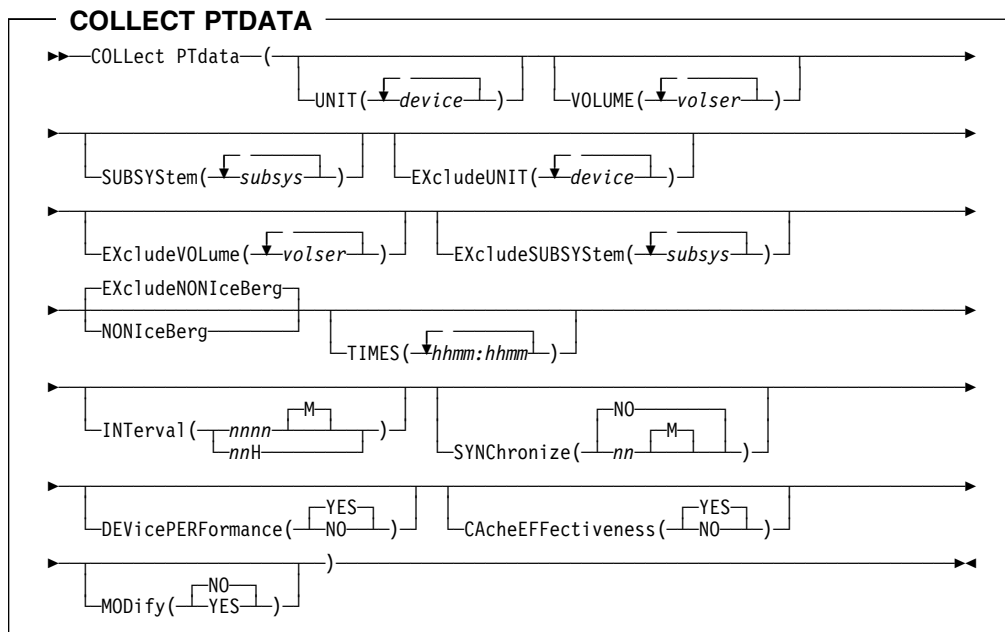
1. Performance data is not collected for Power PPRC Bridge devices.
2. PAV Alias devices are excluded from all data collection; thus, performance data is not reported for Aliases.

For PT data collection you can specify:

- The devices, volumes, and subsystems for which data is to be collected (UNIT, VOLUME, or SUBSYSTEM parameters).
- The devices, volumes, and subsystems for which data is not to be collected (EXCLUDEUNIT, EXCLUDEVOLUME, or EXCLUDESUBSYSTEM parameters).
- Whether data is to be collected from non-SVA subsystems (NONICEBERG parameter) or not (EXCLUDENONICEBERG parameter).
- The ranges of times over which data is to be collected (TIMES parameter).
- The length of time between collection instances (INTERVAL parameter).
- The number of minutes after the start of a time range that a collection instance is to occur (SYNCHRONIZE parameter).
- Whether device-performance data is to be collected (DEVICEPERFORMANCE parameter).
- Whether cache-effectiveness data is to be collected (CACHEEFFECTIVENESS parameter).

- Whether this subcommand modifies (replaces) the current data collection parameters (MODIFY parameter).

Note: SVAA collects PT data in the logging files defined with the INIT MAIN subcommand.



Parameters

All of the parameters of the COLL PT subcommand are optional. See page 8-26 for examples of coding the parameters. The parameters are in alphabetical order.

If you omit all the parameters, all the default values are used (see Example 1 on page 8-26.)

CACHEEFFECTIVENESS (YES | NO)

Optional

This parameter specifies whether SVAA is to collect cache-effectiveness data.

Abbreviation: CAEFF

Values: YES specifies that cache-effectiveness data is to be collected.

NO specifies that cache-effectiveness data is not to be collected.

Default value: YES

Note: If you are specifying collection from a non-SVA subsystem, you cannot specify this parameter as CAEFF(NO), because cache-effectiveness data is the only data collected for non-SVA systems.

DEVICEPERFORMANCE (YES | NO)

Optional

This parameter specifies whether Reporter is to collect device-performance data.

Abbreviation: DEVPERF

Values: YES specifies that device-performance data is to be collected.
 NO specifies that device-performance data is not to be collected.

Default value: YES

Note: Reporter never collects device-performance data for non-SVA devices.

EXCLUDENONICEBERG

Optional. If you enter this parameter, you cannot enter the NONIB parameter.

This parameter specifies that Reporter is not to collect data from non-SVA disk subsystems. This parameter is the default; Reporter only collects data for non-SVA subsystems if you specify the NONIB parameter, or if the UNIT or VOLUME parameter identifies a non-SVA device.

Abbreviation: EXNONIB

Values: None

Default value: EXNONIB

EXCLUDESUBSYSTEM (subsys)

Optional

This parameter specifies the subsystems to be excluded from data collection.

Abbreviation: EXSUBSYS

Values: *subsys* specifies the names of up to 32 installed SVA subsystems to be excluded. Use exactly the same uppercase or lowercase characters as defined for the subsystem name.

You can use wildcard characters and ranges.

If a subsystem name contains lowercase characters and SET CASE(UPPER) is in effect, you must enclose the name in matching quotes.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

EXCLUDEUNIT (device)

Optional

This parameter specifies devices (as they are defined to the host operating system) to be excluded from data collection. You can specify up to 4096 devices on the V2X or up to 1024 on earlier SVAs. Devices to be excluded modify and override the list of devices to be included.

Abbreviation: EXUNIT

Values: *device* specifies host device numbers (1 to 4 hexadecimal digits per device). You can pad to the left with zeros. Reporter treats lowercase the same as uppercase.

You can use wildcard characters and ranges.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

EXCLUDEVOLUME (volser)***Optional***

This parameter specifies the volume serial numbers of devices to be excluded from data collection. You can specify up to 4096 volsers on the V2X or up to 1024 on earlier SVAs. Volumes to be excluded modify and override the list of volumes to be included.

Abbreviation: EXVOL

Values: *volser* specifies volume serial numbers of devices to be excluded. SVAA converts all alphabets in volsers to uppercase.

You can use wildcard characters and ranges.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

INTERVAL (nnnnM | nnH)***Optional.***

This parameter specifies the length of time between data-collection instances.

Abbreviation: INT

Values: *nnnnM* specifies the number of minutes in the collection interval.

nnnn can be specified as 1 to 1440 minutes (one to four digits, including leading zeros, which are optional). The number must be exactly divisible into 1440 so that collection instances occur at the same times every day. Entering *M*, the default, is optional.

nnH specifies the number of hours in the collection interval. *nn* can be specified as 1 to 24 hours (one to two digits, including a leading zero, which is optional). The number must be exactly divisible into 24 so that collection instances occur at the same times every day.

Default value: 15M (15 minutes)

Note: If you specify both the INT and SYNCH parameters, the value of the INTERVAL parameter must be evenly divisible into 60.

For example, you can specify:

INT(20) SYNCH(19)

but you cannot specify:

INT(18) SYNCH(20) or INT(2H) SYNCH(20)

MODIFY (YES I NO)***Optional***

This parameter specifies whether the current PT collection run is to be modified.

Abbreviation: MOD

Values: YES is a request to modify an existing data-collection run.

NO is a request to start a new data-collection run.

Default value: NO

Example: See Example 9 on page 4-13.

Note: If you specify **MOD(YES)**, SVAA changes only the values of the parameters you specify in this COLL PT subcommand, with one exception: If you include any device-selection parameters (subsystems, units, or volumes), their values override and replace the values of the corresponding parameters in the original subcommand.

NONICEBERG

Optional. If you enter this parameter, you cannot enter the EXNONIB parameter.

This parameter specifies that Reporter is to collect data from non-SVA disk subsystems, except for devices excluded by EXUNIT or EXVOL. Only cache statistics available from the 3990 Read Subsystem Data command are produced. There is no non-SVA device selection provided at the control unit or SSID level.

Abbreviation: NONIB

Values: None

Default value: EXNONIB

Notes:

Performance data is not collected for Power PPRC Bridge devices. If you specify a Power PPRC Bridge device as a non-SVA device using a SET NONIB subcommand, you will receive a SIB1814E message and no data will be collected.

1. PAV Alias devices are excluded from all data collection; thus, performance data is not reported for Aliases.

SUBSYSTEM (subsys)***Optional***

This parameter specifies one or more SVA subsystem names.

Abbreviation: SUBSYS

Values: *subsys* specifies the names of up to 32 installed SVA subsystems. Use exactly the same uppercase and lowercase characters as defined for the subsystem name.

You can use wildcard characters and ranges.

If a subsystem name contains lowercase characters and SET CASE(UPPER) is in effect, you must enclose the name in matching quotes.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

SYNCHRONIZE (nn[M] | NO)***Optional.***

This parameter specifies the minute on which a data-collection instance is to occur. Other instances are synchronized to this instance by the value specified for the collection interval. This parameter has the effect of causing all the collection instances to be offset from the beginning of the time range.

Abbreviation: SYNC

Values: *nn[M]* specifies data collection is to start *nn* minutes after the hour. *nn* can be one or two digits, 0 to 59. You can use a leading zero.

NO specifies there should be no synchronization of the collection interval. This is equivalent to synchronizing to the start of the next time range, as specified by the TIMES parameter. If you execute SYNC(NO) during a time range, collection starts immediately.

Default value: NO

Note: If you specify a value that does not coincide with the beginning of an interval, Reporter offsets the collection interval from the start of a time range so that a collection interval begins at a synchronization time. See the example in "Controlling Intervals" on page 2-5.

TIMES (hhmm:hhmm)***Optional***

This parameter specifies the start-stop time-range pairs for data collection. SVAA collects data every day during the specified times, until collection is stopped, modified, or suspended.

Values: *hhmm:hhmm* specifies up to 16 pairs of times for which data collection is to be started and stopped (in hours and minutes, using the 24-hour clock). The first value in the pair is the starting time and must be between 0000 and 2359; the second is the stopping time and must be between 0001 and 2400. Separate the two times by a colon; separate multiple ranges by spaces. If the stopping time is earlier than the starting time, collection spans midnight. You cannot specify overlapping time-range pairs. You can specify ranges in any order.

Default value: If you do not specify the TIMES parameter, Reporter collects data all day. Specifying 0000:2400 also results in all-day collection.

Note: See "Specifying Time Ranges for Collection" on page 4-5 for examples and more information.

UNIT (device)***Optional***

This parameter specifies devices (as they are defined to the host operating system) for which data is to be collected. You can specify up to 4096 devices on the V2X or up to 1024 on earlier SVAs.

Values: *device* specifies host device numbers (1 to 4 hexadecimal digits per device). You can pad to the left with zeros. Reporter treats lowercase the same as uppercase.

You can use wildcard characters and ranges.

Examples: **UNIT(2D4 2D5 3A0:3BF)** requests data collection for devices **2D4**, **2D5** and all devices with addresses in the range **3A0** to **3BF**.

UNIT(3*) requests data collection for all devices with the first digit of the address equal to 3.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

VOLUME (volser)***Optional***

This parameter specifies the volume serial numbers of devices for which data is to be collected. You can specify up to 4096 volsers on the V2X or up to 1024 on earlier SVAs.

Abbreviation: VOL

Values: *volser* specifies volume serial numbers of devices to be included. SVAA converts all alphabets in volsers to uppercase.

You can use wildcard characters and ranges.

Example: **VOL(PROD01:PROD25)** requests data collection for all devices with volume serial number **PROD01** through **PROD25**.

VOL(PR*) requests data collection for all devices with volume serial numbers starting with **PR**, while **VOL(PR?D*)** requests inclusion of all devices with volume serial numbers starting with **PR** and with a fourth byte of **D**.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter collects data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

DISPLAY COLLECTION

Examples of COLLECT PTDATA

Example 1. Collecting PT data with all defaults for all subsystems

COLL PT

PT data is to be collected from the time the subcommand is issued until midnight for all devices in all SVA subsystems. Reporter collects data for both device performance and cache effectiveness data. The collection interval is 15 minutes, and collection is not synchronized.

Example 2. Collecting performance data from a specific subsystem.

COLL PT-

```
(-  
  SUBSYS(SUBSYSA) -  
  CAEFF(NO) -  
)
```

PT data is to be collected from the time the subcommand is issued until midnight for all devices in subsystem SUBSYSA and no other devices. Only device performance data is collected.

Example 3. Collecting data for specific subsystems during certain time ranges

COLL PT-

```
(-  
  (TIMES(0800:1200 1300:1800) -  
  SUBSYS(SUBSYSA SUBSYSB) -  
  SYNC(0M) -  
  EXVOL(VOL001) -  
  EXUNIT(321 322 328) -  
)
```

PT data is to be collected from 8 a.m. until noon, and from 1 p.m. until 6 p.m. each day. Data is to be collected for all devices in subsystems SUBSYSA and SUBSYSB, except for volume **VOL001** and devices with addresses **321**, **322**, and **328**. The collection interval is 15 minutes, and collection is synchronized on the hour.

DISPLAY COLLECTION Subcommand

** Subcommand of SIBADMIN*

You use the DISPLAY COLLECTION subcommand to display information about all current collection runs or about a specific run.

DISPLAY COLLECTION

►►Display COLLeCTioN—(—COLLectionIDentifier(*collid*)—)◄◄

Parameters

COLLECTIONIDENTIFIER (*collid*)

Optional

Specifies the unique name of a single collection run to be displayed.

Abbreviation: COLLID

Values: For OR data collection, *collid* is the name specified by the COLLID parameter of the COLL ORD subcommand that created the run. For PT data, the *collid* value is always PERFORMANCETRACK.

Default: Reporter displays an abbreviated listing of all collection runs.

Examples of DISPLAY COLLECTION

Example 1. (no collection ID specified)

D COLLTN

Result:

```
Logging Collection ID  PERFORMANCETRACK  START:  08JUN2000 00:00:00
Collection Type:      PT                  SUSPEND: 12JUN2000 00:00:00
```

Two lines are generated for each collection run. In this case, the only active collection run was a PT run.

Example 2. (with collection ID specified)

D COLLTN (COLLID (MONDAYMORN))

Result:

```
SRP Collection ID  MONDAYMORN          START:    26Jun2000 21:24:39
Collection Type:   OR
Output to:         TH990626 VM120W A1  (MAINLOG)
Alternate File:    TH990626 VM120W C1
Collection Intrval: 0002M   Synchronize: NO      RMF synchronization: NO
Collection Data:   DEVICEPERFORMANCE  CACHEEFFECTIVENESS
Record count:     000000259  Next Collect Time: 26Jun2000 21:28:00
Collection Times:  00:00-24:00
Subsystems:       IXFP1ST
```

Reporter displays additional lines when you specify the COLLID parameter. In general, the display includes the names of the subsystems, volumes, and units from which SVAA collected the data, as specified with the COLL ORD or COLL PT subcommand that created the collection run.

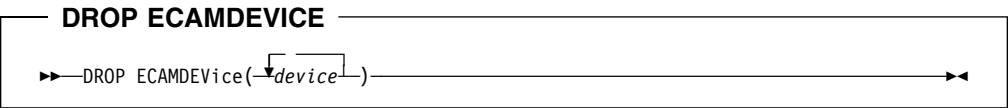
DROP Subcommands

The DROP subcommands release devices that are being used by the host operating system to communicate with either an SVA subsystem or a non-SVA subsystem.

DROP ECAMDEVICE

** Subcommand of SIBADMINor SIBSRP*

This subcommand specifies devices (as defined to the host) to be dropped from the list of active ECAM devices.



Abbreviation: DROP ECAMDEV

Values: *device* is a virtual device address (1 to 4 hexadecimal digits) that is defined to the virtual machine executing the SVAA subcommand.
You can use ranges and lists, but not wildcard characters.

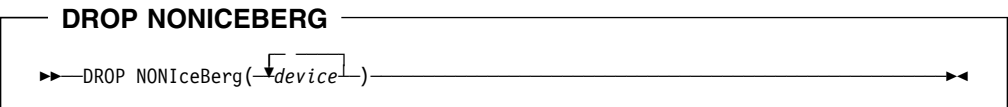
Default value: None

Example: DROP ECAMDEV(2AE 730 1D)

DROP NONICEBERG

** Subcommand of SIBADMINor SIBSRP*

This subcommand specifies devices (as defined to the host) to be dropped from the list of active non-SVA communication devices (that is, devices over which statistics are obtained from non-SVA subsystems).



Abbreviation: DROP NONIB

Values: *device* is a virtual device address (1 to 4 hexadecimal digits) that is defined to the virtual machine executing the SVAA subcommand.
You can use ranges and lists, but not wildcard characters.

Default value: None

Example: DROP NONIB(720 1ED)

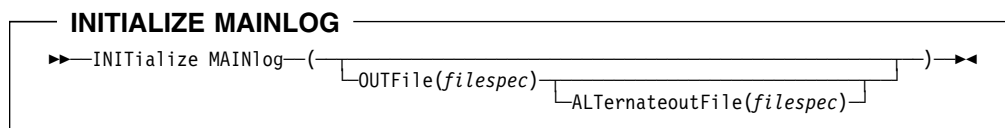
INITIALIZE MAINLOG Subcommand

* Subcommand of SIBADMIN or SIBSRP

Use the INITIALIZE MAINLOG subcommand to initialize the Reporter Data Collection Task. The abbreviation is INIT MAIN. This subcommand should be among the first Reporter subcommands in the PROFSIBS macro.

In initializing the data collection task, you can specify:

- The primary file where the collected data is to be stored (OUTFILE parameter).
- An alternative file where collected data is to be stored (ALTERNATEOUTFILE parameter).



Parameters

ALTERNATEOUTFILE (filespec)

Optional. Do not specify this parameter without also specifying the OUTFILE parameter.

This parameter specifies the alternate logging file for collected PT data. If you specify both OUTF and ALTF, the Reporter Data Collection Task can switch to the *alternate output* file if the current minidisk fills up.

Abbreviation: ALTF

Value: *filespec* specifies the alternate logging file. You can use the *style* prefix (see “Using the Style Prefix” on page 8-7 for more information).

Default value: No alternate logging file is available.

Notes:

1. OUTF and ALTF should not both be on the same minidisk, in case one should become full.
2. You cannot specify the same *filespec* for both OUTF and ALTF.

OUTFILE (filespec)

Optional.

This parameter specifies the name of the main logging file for collected PT data. If you specify both OUTF and ALTF, the Reporter Data Collection Task can switch to the *alternate output* file if the current minidisk fills up.

Abbreviation: OUTF

Value: *filespec* specifies the primary logging file. You can use the *style* prefix (see “Using the Style Prefix” on page 8-7 for more information).

MACRO

Default value: `&DAYDATE MAINLOG A1` (the primary logging file)

See “Specifying Where to Send Output” on page 4-2 for more information about using `&DAYDATE` for the filename.

If you specify only the filename, the filetype defaults to **MAINLOG** and the filemode to **A1**.

Note: You cannot specify the same *filespec* for both OUTF and ALTF.

Examples of INIT MAIN

Example 1. Output is to a single logging file

```
INIT MAIN(OUTF(PROD0703 MAINLOG B))
```

Reporter is to write output to a single CMS file called **MAINLOG PERF A1**.

Example 2. Output is to a single logging file by date

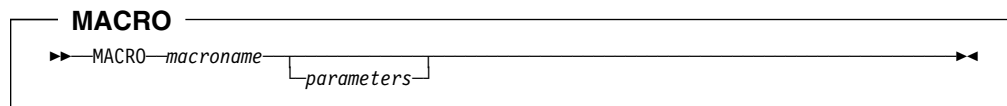
```
INIT MAIN(OUTF(&DAYDATE))
```

Reporter is to write output each day to a single CMS file called *wwyymmdd* **MAINLOG A1**.

MACRO Subcommand

*** Subcommand of SIBADMINor SIBSRP**

The MACRO subcommand executes an SVAA macro.



The *macroname* parameter specifies the name of the macro to be invoked.

In CMS, the macro is an EXEC2 or REXX exec with a file name of *macroname* and a file type of **SIB**. Within the macro, the default addressing environment is **SIB**.

QUERY Subcommands

QUERY subcommands request the display of information about SVAA.

You use some QUERY subcommands to query a value set by a SET subcommand, by a profile during initialization, or by default. SVAA responds to these QUERY subcommands with a statement of the source of the setting, followed by the current value of the setting. SVAA responds to other QUERY subcommands with data in numbered SVAA messages.

QUERY CASE

*** Subcommand of SIBADMIN or SIBSRP**

This subcommand asks whether values of parameters that normally allow lowercase characters are automatically translated to uppercase.

QUERY CASE —————
 ►►Query CASE◄◄

Abbreviation: Q CASE

Response: CASE last set by *source*: UPPER or MIXED
 where *source* is one of **profile**, **subcommand**, or **default**.

QUERY CHECK

*** Subcommand of SIBADMIN or SIBSRP**

This subcommand asks whether SVAA subcommand syntax-checking or simulation—or neither—is being performed.

QUERY CHECK —————
 ►►Query CHECK◄◄

Abbreviation: Q CHECK

Response: CHECK last set by *source*: NONE or SCAN or SIMU
 where *source* is one of **profile**, **subcommand**, or **default**,
NONE indicates that neither syntax-checking nor simulation is in effect.
SCAN indicates that syntax-checking is in effect.
SIMU indicates that simulation is in effect.

QUERY CMDECHO

*** Subcommand of SIBADMIN or SIBSRP**

This subcommand asks whether SVAA subcommands are displayed at the destination specified by **SET DEST OUTMSG** before being executed.

QUERY CMDECHO —————
 ►►Query CMDEcho◄◄

QUERY DESTINATION

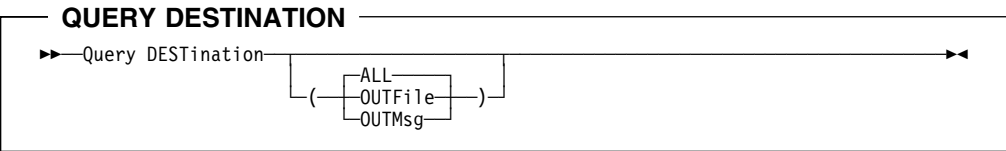
Abbreviation: Q CMDE

Response: CMDECHO last set by *source*: ON or OFF
where *source* is one of **profile**, **subcommand**, or **default**.

QUERY DESTINATION

*** Subcommand of SIBADMIN or SIBSRP**

This subcommand asks for the current destination for reports and messages, as set by default during SVAA initialization, by execution of a profile, or by a SET DESTINATION subcommand.



Abbreviation: Q DEST

Values: ALL asks for the destinations for both report and message output.

OUTF asks for the destination for configuration reports (for example, LISTCFG subcommand output).

OUTM asks for the destination for message output.

Default value: ALL

Response: OUTMSG last set by *source*: *destination*
OUTFILE last set by *source*: *destination*

where *source* is one of **profile**, **subcommand**, or **default**, and *destination* is one of:

TERMINAL—output goes to the user's terminal.

filename filetype—the name of a file to which report or message output is being sent.

EXEC VARIABLES—output is directed to EXEC stem variables

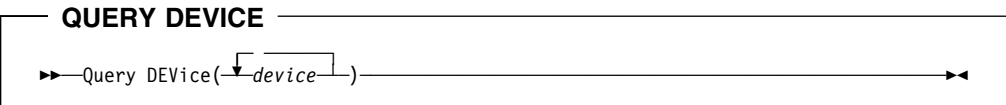
NULL DESTINATION—output is suppressed

QUERY DEVICE

*** Subcommand of SIBADMIN or SIBSRP**

This subcommand asks for SVA subsystem information about a host device.

Note: You cannot use this subcommand to display information about PAV Alias devices or Power PPRC Bridge devices. Use the DISPLAY DEVICE or LISTCFG DEVICE subcommands instead.



Abbreviation: Q DEV

QUERY ECAMDEVICE

Values: *device* is a virtual device address (1 to 4 hexadecimal digits) that is defined to the virtual machine executing the SVAA subcommand.

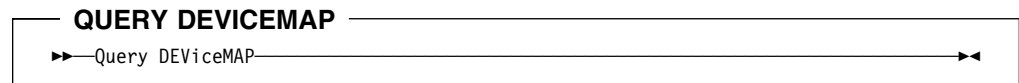
You can indicate devices with both lists and ranges.

Response: SVAA messages SIB1868I and SIB1869I.

QUERY DEVICEMAP

* Subcommand of SIBADMIN or SIBSRP

This subcommand asks whether a system-to-host device mapping algorithm is in effect.



Abbreviation: Q DEVMAP

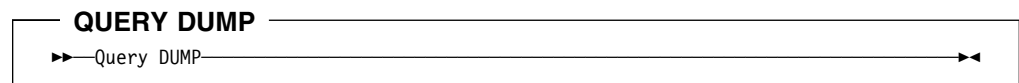
Response: DEVICEMAP last set by *source*: ON or OFF

where *source* is one of **profile**, **subcommand**, or **default**.

QUERY DUMP

* Subcommand of SIBADMIN or SIBSRP

This subcommand asks whether a dump is to be created if SVAA terminates abnormally, and, if so, the ID of the VM user to be notified.



Abbreviation: Q DUMP

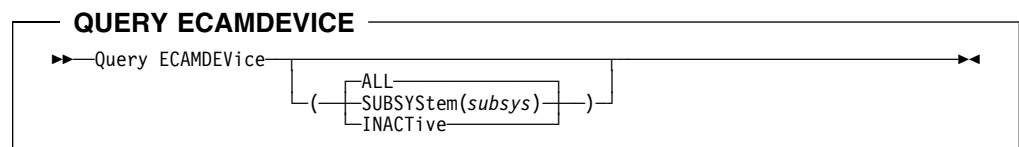
Response: DUMP last set by *source*: ON or OFF DUMPID=* or id

where *source* is one of **profile**, **subcommand**, or **default**.

QUERY ECAMDEVICE

* Subcommand of SIBADMIN or SIBSRP

This subcommand asks for the addresses of the ECAM devices defined for the specified subsystems (or all subsystems), or for the addresses of devices *not* currently active as ECAM communications devices.



Abbreviation: Q ECAMDEV

Values: **ALL** asks for the addresses of *all* devices defined as ECAM communications devices on *all* SVA subsystems.

SUBSYS(*subsys*) asks for the addresses of all ECAM communications devices for subsystem *subsys*.

QUERY IMPEX

INACT asks for the addresses of devices for which a SET ECAMDEVICE subcommand was issued when the device was offline.

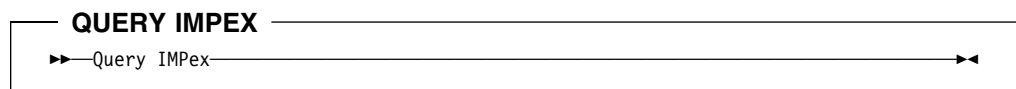
Default value: ALL

Response: SVAA messages SIB1820I and SIB1821I.

QUERY IMPEX

* **Subcommand of SIBADMIN or SIBSRP**

This subcommand asks for the status for executing SVAA macros. If IMPEX is on, SVAA macros are executed (if they exist) before treating the subcommand as an SVAA subcommand.



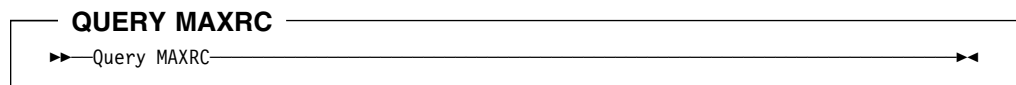
Abbreviation: Q IMP

Response: IMPEX last set by *source*: ON or OFF
where *source* is one of **profile**, **subcommand**, or **default**.

QUERY MAXRC

* **Subcommand of SIBADMIN or SIBSRP**

This subcommand asks for the current MAXRC value (the maximum severity return code).



Abbreviation: Q MAXRC

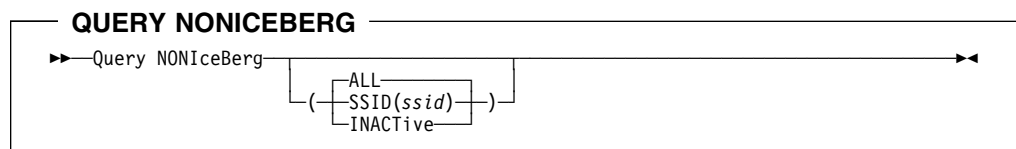
Response: MAXRC last set by *source*: *nn*

where *source* is one of **profile**, **subcommand**, or **default** and *nn* is the maximum return code.

QUERY NONICEBERG

* **Subcommand of SIBADMIN or SIBSRP**

This subcommand asks for the addresses of devices over which non-SVA subsystem statistics are obtained.



Abbreviation: Q NONIB

Values: **ALL** asks for the addresses of *all* devices over which statistics are obtained for non-SVA subsystems.

SSID(ssid) asks for the addresses of all devices on subsystem *ssid*.

INACT asks for the addresses of devices that were offline when the SET NONICEBERG subcommand was issued.

Default value: **ALL**

Response: SVAA messages SIB1822I and SIB1823I.

QUERY PAGESIZE

* **Subcommand of SIBADMIN or SIBSRP**

This subcommand asks for the currently specified number of lines per page for SVAA reports.

QUERY PAGESIZE

►►Query PaGeSiZe◄◄

Abbreviation: **Q PGSZ**

Response: PAGESIZE last set by *source*: *nn*

where *source* is one of **profile**, **subcommand**, or **default**, and *nn* is the number of lines per page.

QUERY PROFILE

* **Subcommand of SIBADMIN or SIBSRP**

This subcommand asks for the name of the SVAA profile macro.

QUERY PROFILE

►►Query PRoFiLe◄◄

Abbreviation: **Q PROF**

Response: PROFILE last set by *source*

where *source* is either **PROFSIBA** or a *filename*.

QUERY SRPUSER

* **Subcommand of SIBADMIN**

This subcommand asks for the user ID of the Reporter Service Virtual Machine.

QUERY SRPUSER

►►Query SRPUser◄◄

Abbreviation: **Q SRPU**

Response: SRPUSER last set by *source*: *userid*

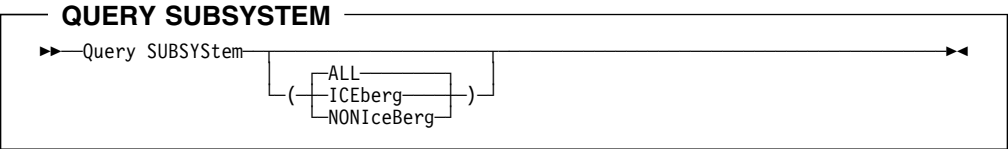
where *source* is one of **profile**, **subcommand**, or **default**.

QUERY SUBSYSTEM

QUERY SUBSYSTEM

* **Subcommand of SIBADMIN or SIBSRP**

This subcommand asks for information about SVA and non-SVA subsystems.



Abbreviation: Q SUBSYS

Values: **ALL** asks for information about all SVA and non-SVA subsystems.
ICE asks for information about SVA subsystems only.
NONIB asks for information about non-SVA subsystems only.

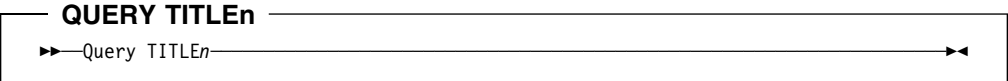
Default value: ALL

Response: SVA *subsys* **serial#** *serial* **has** *numdev* **ECAM devices.**
where *subsys* is the subsystem name, *serial* is the serial number of the subsystem, and *numdev* is the number of ECAM devices defined for the SVA subsystem.

QUERY TITLEn

* **Subcommand of SIBADMIN**

This subcommand asks for the text of a report title line—either **Title1** (line 1), **Title2** (line 2), or **Title3** (line 3).



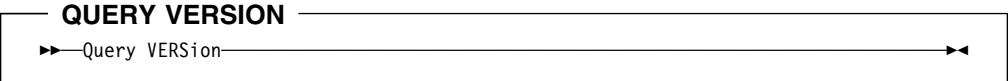
Abbreviation: Q TITLEn (where *n* is 1, 2, or 3)

Response: TITLEn last set by *source: text*
where *source* is one of **profile**, **subcommand**, or **default**, and *text* is the text of the title.

QUERY VERSION

* **Subcommand of SIBADMIN or SIBSRP**

This subcommand asks for the version level of the SVAA software.



Abbreviation: Q VERS

Response: VERSION last set by *source*: Shared Virtual Array Administrator *v.r.m.*
where *source* is one of **profile**, **subcommand**, or **default**, *v.r.m* is the version, release, and level of SVAA installed at your location.

REPORT PERFORMANCE Subcommand

* *Subcommand of SIBADMIN*

This subcommand defines the parameters that control performance reporting. The abbreviation is REPORT PERF. You can select one or more reports. See Chapter 9, “Understanding the SVAA Reports” for the layout of performance reports.

Notes:

1. Performance data is not collected for Power PPRC Bridge devices.
2. PAV Alias devices are excluded from all data collection; thus, performance data is not reported for Aliases.

For Device Performance and Cache Effectiveness reports you can specify:

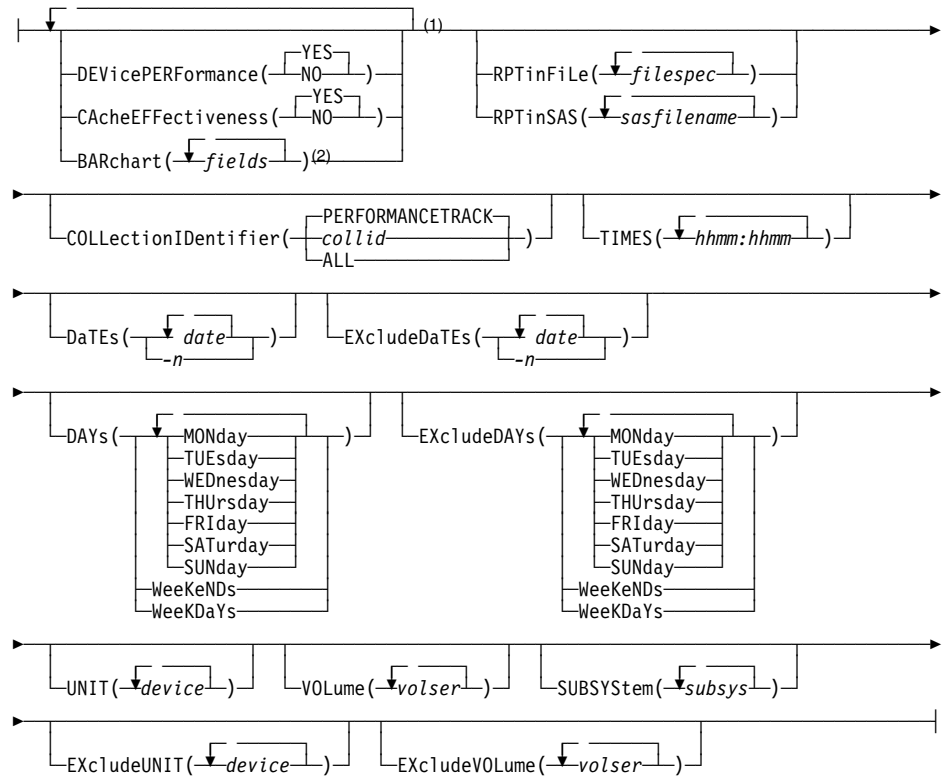
- Whether input for the report is in a SAS file or in an SMF- or user-managed file (RPTINFILE or RPTINSAS file parameter).
- The collection run from which data is to be reported (COLLECTIONIDENTIFIER parameter).
- The devices, volumes, and subsystems for which data is to be reported (UNIT, VOLUME, and SUBSYSTEM parameters).
- The devices, volumes, and subsystems for which data is not to be reported (EXCLUDEUNIT, EXCLUDEVOLUME, and EXCLUDESUBSYSTEM parameters).
- Whether data is to be reported for non-SVA subsystems (NONICEBERG parameter) or not (EXCLUDENONICEBERG parameter).
- The ranges of times of day for which data is to be reported (TIMES parameter).
- The individual dates or ranges of dates for which data is to be reported (DATES parameter).
- The individual dates or ranges of dates for which data excluded from reporting (EXCLUDEDATES parameter).
- The days of the week for which data is to be reported (DAYS parameter).
- The days of the week for which data is to be excluded from reporting (EXCLUDEDAYS parameter).
- Whether the report is to include device-performance data (DEVICEPERFORMANCE parameter).
- Whether the report is to include cache-effectiveness data (CACHEEFFECTIVENESS parameter).
- Whether the report is to include details for each functional device (DEVICEDetail parameter).
- Whether the reports are to be printed or produced in SAS form (SUPPRESSPRINT parameter).
- The SMF record type for your collection records (SMFNUMBER parameter).
- The name of the SAS program to be run later to produce the actual report output (SASPGMNAME parameter).

REPORT PERF

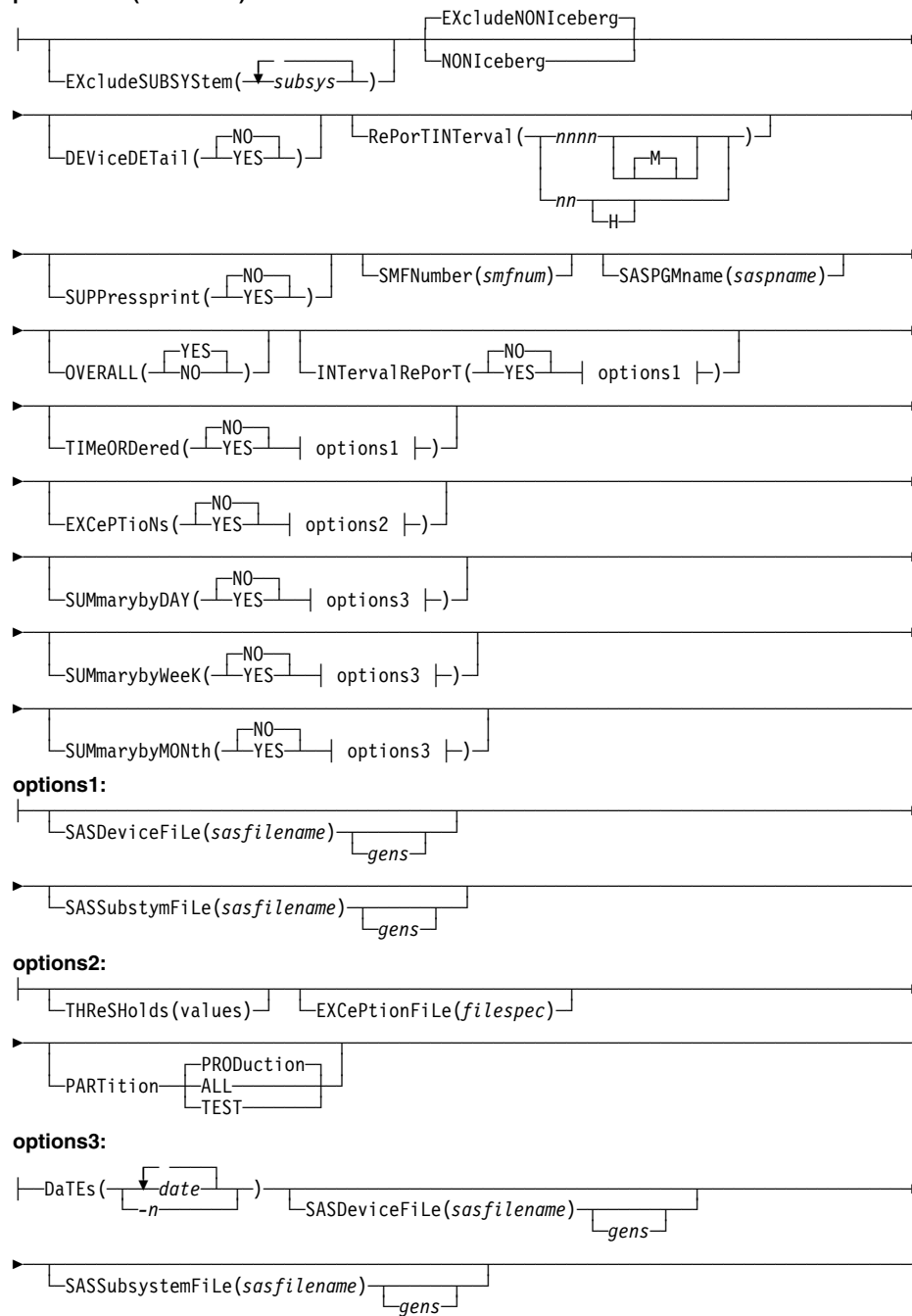
- Whether an overall summary report is to be produced for the input data (OVERALL parameter).
- Whether an interval report is to be produced for the input data (INTERVALREPORT parameter).
- Whether a time-ordered report is to be produced for the input data (TIME-ORDERED parameter).
- Whether an exception report is to be produced for the input data (EXCEPTION parameter).
- Whether a summary by day, week, or month report is to be produced for the input data (SUMMARYBYDAY, SUMMARYBYWEEK, or SUMMARYBYMONTH parameters).
- Whether a bar-chart report is to be produced for the input data (BARCHART parameter).
- The names of the SAS device-detail files and subsystem totals files to be created for each day, week, or month as input to SAS/GRAPH for the interval, time-ordered, and summary reports (SASDEVICEFILE and SASSUBSYSTEM subparameters), and how many generations of these files are to be kept (GENS subparameter).
- The values to be flagged in an exception report (THRESHOLD, EXCEPTIONFILE, and PARTITION subparameters).

REPORT PERFORMANCE

► REPORT PERFORMANCE (parameters) ►

parameters:**Notes:**

- ¹ You cannot specify DEVPERF(NO), CAEFF(NO), and also omit the BARCHART parameter. At least one type of report must be generated—by specifying YES for one of the first two parameters, by omitting at least one the first two parameters so that it defaults to YES, or by including the BARCHART parameter.
- ² To obtain only a barchart report, specify the BARCHART parameter as well as specifying DEVPERF(NO), CAEFF(NO), and OVERALL(NO).

parameters (continued):

Parameters and Subparameters

All the parameters and subparameters are optional. This section describes the parameters in alphabetical order. See page 8-56 for coding examples.

BARChart (fields)

Optional. However, you must enter (or default) at least one of the BARChart, DEVICEPERFORMANCE, or CACHEEFFECTIVENESS parameters.

This parameter requests reports in the form of histograms or bar charts. Refer to “Bar Charts” on page 9-12 for the bar-chart report layout. If you omit this parameter, you must use either the CAEFF or DEVPERF parameter.

Abbreviation: BAR

Values: *fields* specifies up to 19 names of fields for which bar charts are to be produced. Fields to be charted must be selected explicitly; there are no defaults.

You cannot use ranges or wildcard characters.

Refer to Appendix B, “Variables for Bar Chart Reports” for the field names that can be specified for producing bar charts.

Example: BAR(IOHITPCT IOSVCTM IORTE)

CACHEEFFECTIVENESS (YES | NO)

Optional. However, you must enter (or default) at least one of the BARChart, DEVICEPERFORMANCE, or CACHEEFFECTIVENESS parameters.

This parameter specifies whether cache-effectiveness data is to be reported. Refer to Chapter 9, “Understanding the SVAA Reports” for report layouts. If you omit this parameter, you must use either the BAR or DEVPERF parameter.

Abbreviation: CAEFF

Values: YES specifies that cache-effectiveness data is to be reported

NO specifies that cache-effectiveness data is not to be reported

Default value: YES

Notes:

1. If you are specifying reporting for a non-SVA subsystem, you cannot specify this parameter as CAEFF(NO), because that is the only data reported for non-SVA subsystems.
2. If you specify CAEFF(YES) but there are no cache-effectiveness data in the files, Reporter prints the report header and an error message.

COLLECTIONIDENTIFIER (PERFORMANCE TRACK | collid | ALL)

Required for OR data, optional for PT data

This parameter specifies the name assigned to the collection run on which this report is to be based. To produce a report for a specific OR collection run, use the collection identifier assigned to that collection. If you want the report to include statistics from all runs in the input file, specify the ALL value. Note, however, that if data was collected for the same devices during the same time period in more than one run, the resulting reports will be incorrect.

Abbreviation: COLLID

REPORT PERF

Values: *collid* specifies the unique name for the collection run to be reported.

Note: If you use lowercase characters and SET CASE(UPPER) is in effect, you must enclose the identifier in matching quotes.

ALL produces a report including the statistics from all runs in the input file.

PERFORMANCETRACK is a reserved identifier that specifies that the report is to be of PT data.

Default value: **PERFORMANCETRACK**

Example **COLLID(ORCOLLID)** specifies that the collection identifier for this OR collection run is **ORCOLLID**.

DATES (dates | -n)

Optional

This parameter or subparameter specifies start-stop date ranges for reporting to cover. (You can specify the dates for all reports with the DATES parameter or the dates for specific summary reports with the DATES subparameter of the SUMDAY, SUMWK, or SUMMON parameters.) Use the DAYS parameter to control the days of the week to be reported on, over the date ranges that you specify here.

Abbreviation: **DTE**

Values: *dates* specifies up to 32 single dates or pairs of starting and ending dates for data reporting to cover, each date being in the form *ddmmmyyyy*. You can specify dates in the future.

-n specifies the date to start reporting as a relative displacement in days before the current date, where *n* is the number of days. You can specify the current date as either 0 or -0. You can specify a range of relative displacements.

Default value: The dates or date ranges you specify with the DATES parameter of REPORT PERF apply to all reports. However, the dates or date ranges you specify with the DATES subparameter of the SUMDAY, SUMWK or SUMMON parameter of REPORT PERF or on the SPECIFY SUMMARY REPORT OPTIONS panel apply only to those reports. If you specify neither the DATES subparameter of a summary report parameter nor the DATES parameter, Reporter produces reports for all data in the history file.

Examples: **DTE(26JUN2000:15JUL2000)**

DATES(0) specifies today

DTE(-1) specifies yesterday

DTE(-6:0) specifies the week ending with today

DTE(02Feb2001:-3) specifies the dates from February 2, 2001 until 3 days before the current date.

Notes:

1. The *-n* value always refers to a number of days, even when you use DTE as a subparameter of the SUMDAY, SUMWK or SUMMON parameters.
2. Entering single dates or a range of dates when DTE is a subparameter of the SUMDAY, SUMWK or SUMMON parameters specifies that the weekly or monthly report is to summarize statistics only for those days.
3. For more information about specifying dates, see page 6-8. In particular, see Note 11 on page 6-9. (See also Example 4 on page 8-56.)

DAYS (days | WeeKeNDs | WeeKDaYs)

Optional. If you enter this parameter, you cannot enter the EXDAY parameter.

This parameter specifies the days of the week to be covered in the reports. The days of the week you specify control the days for reporting within the date ranges specified by the DATES parameter.

Abbreviation: DAY

Values: *days* specifies any individual days of the week, spelled out (MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY) or the first three letters of any day of the week (MON, TUE, WED, THU, FRI, SAT, SUN)

WEEKENDS (or WKND) specifies Saturday and Sunday.

WEEKDAYS (or WKDY) specifies Monday through Friday.

Note: You can enter up to 7 specific days of the week for this parameter, or WKND, or WKDY, but no combination of these three options.

Default value: All days in the history files or the raw data files.

Example: DAY(MON WED FRI)

DEVICEDETAIL (YES | NO)

Optional

This parameter specifies whether to print, for all selected reports, detail lines for the individual functional devices.

Abbreviation: DEVDET

Values: YES requests report details for individual devices

NO requests partition and subsystem totals only

Default value: NO

Note: Even if you specify DEVDET (NO) for exception reports, Reporter ignores your specification and provides details.

DEVICEPERFORMANCE (YES | NO)

Optional. However, you must enter (or default) at least one of the BARCHART, DEVICEPERFORMANCE, or CACHEEFFECTIVENESS parameters.

This parameter specifies whether device-performance data is to be reported. If you omit this parameter, you must use either the CAEFF or BAR parameter.

Abbreviation: DEVPERF

REPORT PERF

Values: YES specifies that performance data is to be reported.
NO specifies that performance data is not to be reported.

Default value: YES

Notes:

1. Reporter never reports device-performance data for non-SVA devices.
2. If you specify **DEVPERF (YES)** but there are no device-performance data in the files, Reporter puts out the report header and an error message.

EXCEPTIONFILE (filespec)

Optional

This subparameter of the EXCPTN parameter specifies the filespec of an optional file containing the values for exception thresholds. Any exception parameter values explicitly included as part of the THRSH parameter override the values for the same exception parameter found in the exception file.

Abbreviation: EXCPFL

Values: *filespec* specifies the file that contains the threshold values.

Default value: If you omit this subparameter, Reporter assumes that there is no exceptions file.

Filemode defaults to **A1**. If you specify only the filename, the filetype and filemode default to EXTHRESH A1.

Note: See “Specifying Exception Thresholds” on page 6-10 for information about specifying thresholds, the values you can specify, and the default values.

EXCEPTIONS (NO | YES [subparms])

Optional

This parameter specifies whether you want Reporter to produce exception reports for SVA devices. If you specify YES for this parameter, either specify in the file named by the EXCPFL parameter the values you want to include in the exception report, or specify the values individually with the THRSH parameter.

Abbreviation: EXCPTN

Values: NO specifies that you do not want an exception report.

If you specify **NO** (or omit the **YES** or **NO** value) Reporter ignores the **THRSH**, **EXCPFL**, and **PART** subparameters if you supply them.

YES specifies that Reporter is to produce an exception report. If you specify YES, you can also specify the **THRESH**, **EXCPFL**, and **PART** subparameters.

subparms are **THRSH**, **EXCPFL**, or **PART** subparameters.

Default value: NO

EXCLUDEDATES (dates | -n)**Optional**

This parameter lists the dates that are to be excluded from all the reports. The EXDTE parameter has precedence over the other date-selection parameters, including the DTE subparameter of the SUMDAY, SUMWK, and SUMMON parameters.

Abbreviation: EXDTE

Values: *dates* specifies up to 32 dates or ranges of starting and ending dates for which data reporting to be excluded, each date being in the form *ddmmmyyyy*.

-n specifies an exclusion date as a relative displacement in days before the current date, where *n* is the number of days. You can specify the current date as either 0 or -0. You can specify a range of relative exclusion dates.

Example: EXDTE(15JAN2001)
EXDTE(28FEB2001 1MAR2001 -5:-1)

Notes:

1. The *-n* value always refers to a number of days, even when you use DTE as a subparameter of the SUMDAY, SUMWK or SUMMON parameters.
2. For more information about specifying dates, see page 6-8.

EXCLUDEDAYS (days | WKND | WKDY)

Optional. If you enter this parameter, you cannot enter the DAY parameter.

This parameter lists the days of the week that are to be excluded from all the reports. The days of the week you specify with the DAYS and EXDAY parameters control the days to be reported on, over the date ranges you specify with the DTE and EXDTE parameters.

Abbreviation: EXDAY

Values: *days* specifies any individual days of the week, spelled out (MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY) or the first three letters of any day of the week (MON, TUE, WED, THU, FRI, SAT, SUN)

WEEKENDS (or WKND) specifies Saturday and Sunday.

WEEKDAYS (or WKDY) specifies Monday through Friday.

Note: You can enter up to 7 specific days of the week for this parameter, or WKND, or WKDY, but no combination of these three options.

Example: EXDAY (MON SUN)

EXCLUDENONICEBERG

Optional. If you enter this parameter, you cannot enter the NONIB parameter.

This parameter specifies that Reporter is not to report data from non-SVA disk subsystems. This parameter is the default; Reporter only reports data for non-SVA subsystems if you specify the NONIB parameter, or if the UNIT or VOLUME parameter identifies a non-SVA device.

Abbreviation: EXNONIB

Values: None

Default value: EXNONIB

EXCLUDESUBSYSTEM (subsys)

Optional

This parameter specifies the subsystems to be excluded from data reporting.

Abbreviation: EXSUBSYS

Values: *subsys* specifies the names of up to 32 installed SVA subsystems to be excluded. Use exactly the same uppercase or lowercase characters as defined for the subsystem name.

You can use wildcard characters and ranges.

If a subsystem name contains lowercase characters and SET CASE(UPPER) is in effect, you must enclose the name in matching quotes.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

EXCLUDEUNIT (device)

Optional

This parameter specifies devices (as they are defined to the host operating system) to be excluded from data reporting. You can specify up to 4096 devices on the V2X or up to 1024 on earlier SVAs. Devices to be excluded modify and override the list of devices to be included.

Abbreviation: EXUNIT

Values: *device* specifies host device numbers (1 to 4 hexadecimal digits per device). You can pad to the left with zeros. Reporter treats lowercase the same as uppercase.

You can use wildcard characters and ranges.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

EXCLUDEVOLUME (volser)***Optional***

This parameter specifies the volume serial numbers of devices to be excluded from data reporting. You can specify up to 4096 volsers on the V2X or up to 1024 on earlier SVAs. Volumes to be excluded modify and override the list of volumes to be included.

Abbreviation: EXVOL

Values: *volser* specifies volume serial numbers of devices to be excluded. SVAA converts all alphabets in volsers to uppercase.

You can use wildcard characters and ranges.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

INTERVALREPORT (NO | YES [subparms])***Optional***

This parameter specifies that interval performance reports are to be produced.

Abbreviation: INTRPT

Values: NO specifies that interval reports are not to be produced.

If you specify NO (or omit the YES or NO value) Reporter ignores the SASDFL and SASSFL subparameters if you supply them.

YES specifies that interval performance reports are to be produced. If you specify YES you can also specify the SASDFL and SASSFL subparameters.

subparms are SASDFL or SASSFL subparameters.

Default value: NO

NONICEBERG

Optional. If you enter this parameter, you cannot enter the EXNONIB parameter.

This parameter specifies that Reporter is to include data for non-SVA disk subsystems, except for devices excluded by EXUNIT or EXVOL. Only cache statistics available from the 3990 Read Subsystem Data command are produced. There is no non-SVA device selection provided at the control unit or SSID level.

Abbreviation: NONIB

Values: None

Default value: EXNONIB

Note: If you enter this parameter, you must also enter CAEFF(YES) or BARCHART(*fields*).

OVERALL (YES | NO)

Optional

This parameter specifies whether the overall summary report is to be produced.

Abbreviation: None

Values: YES requests Reporter to produce an overall summary report.

NO specifies that there is to be no overall summary report.

Default value: YES

Note: You cannot specify all of OVERALL(NO), DEVPERF(NO), and CAEFF(NO) unless you specify the BARCHART parameter.

PARTITION (ALL | PRODUCTION | TEST)

Optional

This subparameter of the EXCPTN parameter specifies the partitions for which exception reports are to be produced.

Abbreviation: PART

Values: ALL specifies reports for both the Test and Production partitions.

TEST specifies that statistics for only the Test partition are to be reported.

PROD specifies that statistics for only the Production partition are to be reported.

Default value: PROD

REPORTINTERVAL (nnnn[M] | nn[H])

Optional

This parameter specifies the data reporting interval. The parameter applies only to Interval, Time-Ordered, Performance Bar Chart, and Exception reports.

Abbreviation: RPTINT

Values: nnnn[M] specifies the number of minutes (1 to 1440) in the reporting interval. The numeric portion of the value can be up to four digits; leading zeros are allowed.

nn[H] specifies number of hours (1 to 24) in the reporting interval. The numeric portion of the value can be up to two digits; one leading zero is allowed.

The value of nnnn must be a multiple of the collection interval used in collecting the input data, as specified with the INT parameter of the COLL ORD or COLL PT subcommands. nnnn must also be a multiple of the summarization interval, as specified with the INT parameter of the SUMM HIST subcommand. If nnnn is not such a multiple, unexpected results may occur.

Default value: 120M

RPTINFILE (filespec)

Optional. If you enter this parameter, you cannot enter the RPTINSAS parameter.

This parameter specifies that input for the report is in one or more files in SMF format.

Abbreviation: RPTFL

Values: *filespec* identifies the files containing the input. There is no maximum number of input files other than the restrictions on command lengths and REXX line lengths.

If you specify more than one input file, you must specify the full *filespec* of all but the last file. You can use periods between the parts of the *filespec* instead of spaces. You can specify only the CMS style prefix.

You cannot specify * * * or * * ?.

Default value: If you omit both the RPTFL and the RPTSAS parameters, the *filespec* defaults to a SAS file called * STKPERF *.

If you specify only the filename, the filetype defaults to MAINLOG and the filemode to *.

Note: Names with the optional *style* prefix can have wildcard characters in the filename, the filetype, and the filemode.

RPTINSAS (sasfilename)

Optional. If you enter this parameter, you cannot enter the RPTINFILE parameter.

This parameter specifies that input for the report is in the SAS performance history file (and not in a user-managed file), and gives the SAS name of the input file.

Abbreviation: RPTSAS

Values: Each *sasfilename* identifies a set of four files containing the input. The individual file names cannot exceed 7 characters because Reporter adds one character to each name to differentiate the four types of SAS input file (see “Summarizing Logged Data” on page 5-4).

There is no maximum number of input files other than the restrictions on command lengths and REXX line lengths. (For more information about SAS file names, see “Specifying SAS Files” on page 8-8.)

You cannot specify * * * or * * ?, nor can you use the style prefix. If you specify more than one input file, you must specify the full *filespec* of all but the last file. You can use periods between the parts of the *filespec* instead of spaces.

Default value: If you omit both the RPTFL and the RPTSAS parameters, the *filespec* defaults to a SAS file called * STKPERF *.

If you specify only the filename, the filetype defaults to STKPERF and the filemode to *.

SASDEVICEFILE (sasfilename) [gens]**Optional**

This subparameter of the INTRPT, SUMDAY, SUMWK, SUMMON or TIMORD parameter specifies the name for the SAS device-detail file to be created as input to SAS/GRAPH. If you request both device performance and cache effectiveness reports, the reports are merged into a single SAS file.

Abbreviation: SASDFL

Values: *sasfilename* [*gens*] specifies the name of the SAS device file. See “Specifying SAS Files” on page 8-8 for more on specifying SAS files.

The length of *sasfilename* plus the number of digits in *gens* cannot exceed a total of 8 characters. For example, if *gens* is “6” (1 digit), the SAS filename can have up to 7 characters; if *gens* is “15” (2 digits), the SAS filename can have up to 6 characters.

gens specifies the number generations of SAS files to keep, specified as 1 to 3 decimal digits (1-999). See Note on page 8-8.

Default value: If you specify only the filename, the filetype defaults to **STKPERF** and the filemode to **A1**.

The default number of generations is 5.

Note: The *filespec* must be unique for each report; otherwise, reports will overwrite earlier ones in the same file.

SASPGMNAME (saspname)**Optional**

This parameter specifies that a SAS program is to be produced by the REPORT PERF subcommand. The SAS program, which must be run in a subsequent step, produces the actual report output.

Abbreviation: SASPGM

Values: *saspname* specifies the name of the SAS program. The filetype must be **SAS**. You cannot use the *style* prefix.

Default value: **SIBSRP SAS A1**

If you specify only the filename, the filetype defaults to **SAS** and the filemode to **A1**.

Notes:

1. The rules for specifying *saspname* are the same as for other VM file names. The name is always converted to uppercase, regardless of the case you use.
2. To run the SAS program, specify the loadlib either:
 - in the CONFIG SAS file, for example:


```
SASLOAD = 'SIBSAS LOADLIB * '
```
 - or as an option on the SAS execution statement. For example:


```
SAS saspname (SASLOAD = 'SIBSAS LOADLIB * ' )
```

SASSUBSYSTEMFILE (sasfilename) [gens]**Optional**

This subparameter of the INTRPT, SUMDAY, SUMWK, SUMMON or TIMORD parameter specifies the name for the SAS subsystem totals file to be created as input to SAS/GRAPH.

Abbreviation: SASSFL

Values: *sasfilename* [gens] specifies the file to contain the SAS subsystem totals. See “Specifying SAS Files” on page 8-8 for a discussion of how SAS files can be specified.

The length *sasfilename* plus the number of digits in *gens* cannot exceed 8 characters.

gens specifies the number of generations of SAS files to keep, specified as one to three decimal digits (1-999). See Note on page 8-8.

Default value: If you specify only the filename, the filetype defaults to **STKPERF** and the filemode to **A1**.

The default number of generations is 5 files.

Note: *sasfilename* plus the number of digits in *gens* cannot exceed a total of 8 characters. For example, if *gens* is “6” (1 digit), the SAS filename can have up to 7 characters; if *gens* is “15” (2 digits), the SAS filename can have up to 6 characters.

SMFNUMBER (smfnum)**Conditional**

This parameter is usually optional, but must be specified if:

- the input file contains SMF records and
- the SMF data was created on another host with a different SVAA SMF number (as when you are producing the report on a VM system but the data was collected on an OS/390 system).

Abbreviation: SMFN

Values: *smfnum* specifies SMF record type as a whole number ranging from 128 to 255 inclusive.

Default value: None.

SUBSYSTEM (subsys)**Optional**

This parameter specifies one or more SVA subsystem names.

Abbreviation: SUBSYS

Values: *subsys* specifies the names of up to 32 installed SVA subsystems. Use exactly the same uppercase and lowercase characters as defined for the subsystem name.

You can use wildcard characters and ranges.

If a subsystem name contains lowercase characters and SET CASE(UPPER) is in effect, you must enclose the name in matching quotes.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

SUMMARYBYDAY (NO | YES [subparms])

Optional

This parameter specifies whether you want daily summary reports.

Abbreviation: SUMDAY

Values: NO specifies that you do not want a daily summary report. Reporter ignores the DTE, SASDFL and SASSFL subparameters if you supply them.

YES specifies that you want a summary report for each day. If you specify YES, you can also specify the DTE, SASDFL and SASSFL subparameters.

subparms are DTE, SASDFL, or SASSFL subparameters.

Default value: NO

Example: SUMDAY(YES DTE(-3)) on a subcommand issued on a Tuesday requests a report that will contain four lines, one for each of the preceding Saturday, Sunday, and Monday, and one for Tuesday.

SUMMARYBYMONTH (NO | YES [subparms])

Optional

This parameter specifies whether you want monthly summary reports. A monthly summary report has an entry summarizing the data for each calendar month in the period specified by the DTE subparameter. (Therefore, consecutive lines of the report may summarize the data for periods ranging from 28 to 31 days.)

Abbreviation: SUMMON

Values: NO specifies that you do not want a monthly summary report. If you specify NO (or omit the YES or NO value) Reporter ignores the DTE, SASDFL and SASSFL subparameters if you supply them.

YES specifies that you want a summary report for each month. If you specify YES, you can also specify the DTE, SASDFL and SASSFL subparameters.

subparms are DTE, SASDFL, or SASSFL subparameters.

Default value: NO

Example: SUMMON(YES DTE(-10)) on a subcommand issued on April 5, 2001 requests a report that will contain the following entries:

- A line summarizing the data for April 1 through April 5, 2001
- A line summarizing the data for March 27 through March 31, 2001 (the previous month).

SUMMARYBYWEEK (NO | YES [subparms])*Optional*

This parameter specifies whether you want weekly summary reports. A weekly summary report has an entry summarizing the statistics for each week (Sunday through Saturday) in the period specified by the DTE subparameter.

Abbreviation: SUMWK

Values: **NO** specifies that you do not want a daily summary report. If you specify **NO** (or omit the **YES** or **NO** value) Reporter ignores the DTE, SASDFL and SASSFL subparameters if you supply them.

YES specifies that you want a summary report for each day. If you specify **YES**, you can also specify the DTE, SASDFL and SASSFL subparameters.

subparms are DTE, SASDFL, or SASSFL subparameters.

Default value: NO

Example: SUMWK(YES DTE(-10)) on a subcommand issued on a Wednesday requests a report that will contain the following entries:

- An entry summarizing the data for Sunday through Wednesday of the current week
- An entry summarizing the data for Monday through Saturday of the previous week.

Note: Using the DTE subparameter with a single date specifies that the report is to contain data only for that date.

SUPPRESSPRINT (YES | NO)*Optional*

This parameter specifies whether you want to suppress printed output of the reports, leaving only SAS output for input to the SAS/GRAPH program.

Abbreviation: SUPP

Values: **YES** suppresses printed output from the Reporter report. Reporter produces only SAS output (that is, output in SAS file form), as specified by the SASDFL or SASSFL parameters).

If you specify **YES**, you must also specify either SASDFL or SASSFL.

Note: If you do not request SAS output by specifying the SASDFL or SASSFL parameter, Reporter ignores SUPP(YES).

NO allows printed output from Reporter.

Default value: NO

THRESHOLDS (values)*Optional*

This subparameter of the EXCPTN parameter allows you to select individual fields for reporting for values that exceed, lie between, lie outside, or fall below certain specified thresholds. If you specify individual exception thresholds, Reporter places asterisks beside those values in the reports that fall outside the threshold values. If you specify EXCEPTION(YES) but omit both this parameter and the EXCEPTIONFILE

parameter, Reporter monitors device performance and cache effectiveness, using the default values for all thresholds.

See “Specifying Exception Thresholds” on page 6-10 for more information. See Appendix A, “Exception Thresholds” for the names and descriptions of fields available for exception reporting, and for their default thresholds.

Abbreviation: THRSH

Values: See Appendix A, “Exception Thresholds.”

TIMEORDERED (NO | YES [subparms])

Optional

This parameter specifies whether you want time-ordered reports.

Abbreviation: TIMORD

Values: NO specifies that Reporter is not to produce time-ordered reports.

If you specify NO (or omit the YES or NO value) Reporter ignores the SASDFL and SASSFL subparameters if you supply them.

YES specifies that Reporter is to produce time-ordered reports. If you specify YES, you can also specify the SASDFL or SASSFL subparameters.

subparms are SASDFL or SASSFL subparameters.

Default value: NO

TIMES (hhmm:hhmm)

Optional

This parameter specifies the start-stop time-range pairs for data reporting. Reporter produces a separate report for each time range (or part of a time range) for which data exists, for the dates specified by the DATES parameter (note that SVAA does *not* treat dates and times as starting and ending date-time pairs).

Values: *hhmm:hhmm* specifies up to 16 pairs of times for which data collection is to be started and stopped (in hours and minutes, using the 24-hour clock). The first value in the pair is the starting time and must be between 0000 and 2359; the second is the stopping time and must be between 0001 and 2400. Separate the two times by a colon; separate multiple ranges by spaces. If the stopping time is earlier than the starting time, reporting spans midnight. You cannot specify overlapping time-range pairs. You can specify ranges in any order.

Default value: If you do not specify the TIMES or DUR parameters, Reporter reports all data in the history file. Specifying 0000:2400 also results in all data being reported.

Note: See “Choosing Time Ranges for Reporting” on page 6-6 for more examples and information.

UNIT (device)**Optional**

This parameter specifies devices (as they are defined to the host operating system) for which data is to be reported. You can specify up to 4096 devices on the V2X or up to 1024 on earlier SVAs.

Values: *device* specifies host device numbers (1 to 4 hexadecimal digits per device). You can pad to the left with zeros. Reporter treats lowercase the same as uppercase.

You can use wildcard characters and ranges.

Examples: **UNIT(2D4 2D5 3A0:3BF)** requests data reporting for devices **2D4**, **2D5** and all devices with addresses in the range **3A0** to **3BF**.

UNIT(3*) requests data reporting for all devices with the first digit of the address equal to 3.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

VOLUME (volser)**Optional**

This parameter specifies the volume serial numbers of devices for which data is to be reported. You can specify up to 4096 volsers on the V2X or up to 1024 on earlier SVAs.

Abbreviation: VOL

Values: *volser* specifies volume serial numbers of devices to be included. SVAA converts all alphabets in volsers to uppercase.

You can use wildcard characters and ranges.

Example: **VOL(PROD01:PROD25)** requests data reporting for all devices with volume serial number **PROD01** through **PROD25**.

VOL(PR*) requests data reporting for all devices with volume serial numbers starting with **PR**, while **VOL(PR?D*)** requests inclusion of all devices with volume serial numbers starting with **PR** and with a fourth byte of **D**.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

Examples of REPORT PERF

Example 1. Performance reports based on data spanning midnight

```
REPORT PERF-
  (DTE(01SEP2000))
```

Assume that the data for the requested report was collected by specifying:

```
COLLECT PTDATA ( INTERVAL(1H) SYNCHRONIZE(30))
```

The first collection interval involved in the report ends at 12:30 a.m., but has a timestamp of 2330 on the previous day. Therefore the report includes data for both August 31, 2000 and September 1, 2000.

Example 2. Exception reports with excluded dates and exception thresholds

```
REPORT PERF-
  (RPTSAS(* SRPDAILY B)-
  DAY(WKDY)-
  EXDTE(01JAN2000-
        15JAN2000-
        19FEB2000-
        29MAY2000-
        04JUL2000)-
  TIMES(0800:1600)-
  DEVDET(YES)-
  EXCPTN(YES-
        THRS( IOSVCTM GT 15)-
        EXCPFL(SIBSRP EXTHRESH A) )-
  SASPGM(RPTPGM01 SAS A) )
```

This example requests exception reporting. The input data files are the set of SRPDAILY SAS files on the B disk. First shift data (8 a.m. to 4 p.m) is reported for all weekdays except the holidays specified by the EXDTE parameter. Exceptions are reported for all subsystems. Both individual device exceptions and subsystem exceptions are reported.

Reporter reports intervals in which I/O service time was greater than 15 milliseconds. The remaining exception thresholds to be used are specified in the SIBSRP EXTHRESH A file. If there is an entry for "IOSVCTM,GT,..." in that file, the specification there is to be overridden by "IOSVCTM GT 15".

The SAS report program is named RPTPGM01 SAS A. The data from the PT data-collection run is reported.

Example 3. Exception reports for an on-request data collection

```
REPORT PERF-
  (RPTFL(SPECIAL SRPDATA A)-
  COLLID(SPECIALCOLLA)-
  RPTINT(10M)-
  DEVDET(YES)-
  EXCPTN(YES-
        THRS(( IOSVCTM GT 15) (IORTESUB GT 1500) ) )-
  SASPGM(RPTPGM01 SAS A) )
```

This example requests exception reporting for the on-request data-collection run with the collection identifier SPECIALCOLLA. The input file is SPECIAL SRPDATA A. All data for that collection is reported, in intervals of 10 minutes.

Intervals in which I/O service time was greater than 15 milliseconds are to be reported. Both individual device exceptions and subsystem exceptions are to be reported.

The SAS report program is named RPTPGM01 SAS A.

Example 4. Concatenated command clauses

```

CMD = 'REPORT PERF'

CMD = CMD || '(RPTFL(SPECIAL SRPDATA A) '

CMD = CMD || 'COLLID(SPECIALCOLLA) '

CMD = CMD || 'RPTINT(10M) '

CMD = CMD || 'DEVDET(YES) '

CMD = CMD || 'EXCPTN('YES

CMD = CMD || 'THRSH( (IOSVCTM GT 15) (IORTESUB GT 1500) ) ) '

CMD = CMD || 'SASPGM(RPTPGM01 SAS A) ) '

:

CMD

```

This REXX example requests the same kind of reporting as in Example 6. The example shows how to overcome the 512-character limitation on SAS commands.

REPORT SPACEUTILIZATION Subcommand

* Subcommand of SIBADMIN

This subcommand defines the parameters for Space Utilization reporting. The abbreviation is REPORT SPACEU.

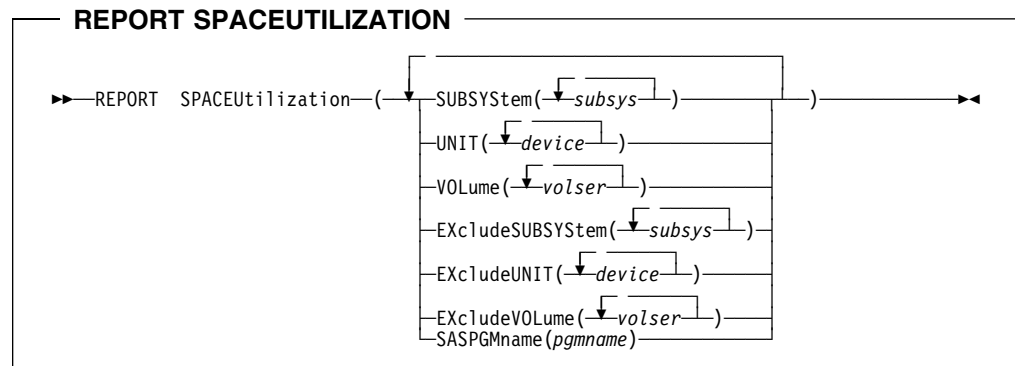
See Chapter 9, “Understanding the SVAA Reports” for the layout of the Space Utilization report.

Notes:

1. Although Reporter can report on space utilization for Power PPRC Bridge devices, it may not make sense to do so. Bridge devices must not be used for user data, so there is little or no value in generating reports for these devices.
2. PAV Alias devices are excluded from all data collection; thus, space utilization data is not reported for Aliases.

For the Space Utilization reports, you can specify:

- The functional devices, volumes, and subsystems for which data is to be reported (UNIT, VOLUME, and SUBSYSTEM parameters).
- The functional devices, volumes, and subsystems for which data is not to be reported (EXCLUDEUNIT, EXCLUDEVOLUME, and EXCLUDESUBSYSTEM parameters).
- The name of the SAS program to be run later to produce the actual output (SASPGMNAME parameter).



Parameters

All of the parameters are optional. See page 8-62 for examples of coding the parameters.

EXCLUDESUBSYSTEM (subsys)

Optional

This parameter specifies the subsystems to be excluded from data reporting.

Abbreviation: EXSUBSYS

Values: *subsys* specifies the names of up to 32 installed SVA subsystems to be excluded. Use exactly the same uppercase or lowercase characters as defined for the subsystem name.

You can use wildcard characters and ranges.

If a subsystem name contains lowercase characters and SET CASE(UPPER) is in effect, you must enclose the name in matching quotes.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

EXCLUDEUNIT (device)

Optional

This parameter specifies devices (as they are defined to the host operating system) to be excluded from data reporting. You can specify up to 4096 devices on the V2X or up to 1024 on earlier SVAs. Devices to be excluded modify and override the list of devices to be included.

Abbreviation: EXUNIT

Values: *device* specifies host device numbers (1 to 4 hexadecimal digits per device). You can pad to the left with zeros. Reporter treats lowercase the same as uppercase.

You can use wildcard characters and ranges.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

EXCLUDEVOLUME (volser)

Optional

This parameter specifies the volume serial numbers of devices to be excluded from data reporting. You can specify up to 4096 volsers on the V2X or up to 1024 on earlier SVAs. Volumes to be excluded modify and override the list of volumes to be included.

Abbreviation: EXVOL

Values: *volser* specifies volume serial numbers of devices to be excluded. SVAA converts all alphabets in volsers to uppercase.

You can use wildcard characters and ranges.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

SASPGMNAME (saspname)

Optional

This parameter specifies that a SAS program is to be produced by the REPORT SPACEU subcommand. The SAS program, which must be run in a subsequent step, produces the actual report output.

Abbreviation: SASPGM

Values: *saspname* specifies the name of the SAS program. The filetype must be **SAS**. You cannot use the *style* prefix.

Default value: SIBSPACE SAS A1

If you specify only the filename, the filetype defaults to **SAS** and the filemode to **A1**.

Notes:

1. The rules for specifying *saspname* are the same as for other VM file names. The name is always converted to uppercase, regardless of the case you use.
2. To run the SAS program, specify the loadlib either:
 - in the CONFIG SAS file, for example:
SASLOAD = 'SIBSAS LOADLIB * '
 - or as an option on the SAS execution statement. For example:
SAS *saspname* (SASLOAD = 'SIBSAS LOADLIB * ')

SUBSYSTEM (subsys)

Optional

This parameter specifies one or more SVA subsystem names.

Abbreviation: SUBSYS

Values: *subsys* specifies the names of up to 32 installed SVA subsystems. Use exactly the same uppercase and lowercase characters as defined for the subsystem name.

You can use wildcard characters and ranges.

If a subsystem name contains lowercase characters and SET CASE(UPPER) is in effect, you must enclose the name in matching quotes.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

UNIT (device)***Optional***

This parameter specifies devices (as they are defined to the host operating system) for which data is to be reported. You can specify up to 4096 devices on the V2X or up to 1024 on earlier SVAs.

Values: *device* specifies host device numbers (1 to 4 hexadecimal digits per device). You can pad to the left with zeros. Reporter treats lowercase the same as uppercase.

You can use wildcard characters and ranges.

Examples: **UNIT(2D4 2D5 3A0:3BF)** requests data reporting for devices **2D4**, **2D5** and all devices with addresses in the range **3A0** to **3BF**.

UNIT(3*) requests data reporting for all devices with the first digit of the address equal to 3.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.
3. You cannot specify non-SVA 3380 or 3390 devices.

VOLUME (volser)***Optional***

This parameter specifies the volume serial numbers of devices for which data is to be reported. You can specify up to 4096 volsers on the V2X or up to 1024 on earlier SVAs.

Abbreviation: VOL

Values: *volser* specifies volume serial numbers of devices to be included. SVAA converts all alphabets in volsers to uppercase.

You can use wildcard characters and ranges.

Example: **VOL(PROD01:PROD25)** requests data reporting for all devices with volume serial number **PROD01** through **PROD25**.

VOL(PR*) requests data reporting for all devices with volume serial numbers starting with **PR**, while **VOL(PR?D*)** requests inclusion of all devices with volume serial numbers starting with **PR** and with a fourth byte of **D**.

Notes:

1. If you don't specify a selection parameter (UNIT, VOL, SUBSYS, EXUNIT, EXVOL, EXSUBSYS), Reporter reports data for all devices on all SVA subsystems.
2. See "Specifying Devices for Data Collection" on page 4-10 for examples and interactions between device inclusion and exclusion parameters.

SEND SRP

Examples of REPORT SPACEU

Example 1. Space Utilization reporting with all defaults

REPORT SPACEU

This example requests Space Utilization reporting with all defaults. Space utilization statistics are printed for all devices attached to all SVA subsystems.

Example 2. Space Utilization reporting for specific functional devices

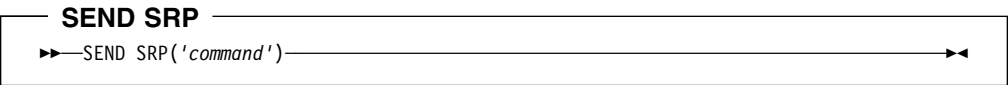
**REPORT SPACEU-
(EXUNIT(200:222))**

This example requests Space Utilization reporting for all functional devices attached to all SVA subsystems, excluding device addresses 200 through 222.

SEND SRP Subcommand

- * ***Subcommand of SIBADMIN***
- * ***System Operator command***

The SEND SRP subcommand sends a command request to the Reporter Data Collection task executing in the SVAA address space.



Values: *command* is any valid command (1 to 127 characters) enclosed in matching quotes (single or double).

Default value: None

Example: SEND SRP("D COLLTN(COLLID('daily'))")

SET Subcommands

The SET subcommands control the setting or define the value of SVAA variables. The default values shown in the subcommand descriptions are the values that are in effect if you have not explicitly defined them with the SET subcommand.

Parameter values set with the SET subcommands are not saved from one invocation of SIBADMIN to the next.

SET subcommands issued under SIBADMIN apply only to the current execution of SIBADMIN.

You can execute SET subcommands in either the PROFSIBA SIB or PROFSIBS SIB macro.

SET CASE

* *Subcommand of SIBADMIN or SIBSRP*

This subcommand specifies whether values of parameters that normally allow lowercase characters are to be translated automatically to uppercase.

SET CASE
<pre> ▶▶ SET CASE(<input type="checkbox"/> Upper <input type="checkbox"/> Mixed) </pre>

Values: Upper or Mixed

Default value: U

Example: SET CASE(M)

SET CHECK

* *Subcommand of SIBADMIN or SIBSRP*

This subcommand specifies whether SVAA subcommand syntax checking is to be performed.

SET CHECK
<pre> ▶▶ SET CHECK(<input type="checkbox"/> NONE <input type="checkbox"/> SCAN) </pre>

Values: NONE turns off subcommand syntax checking.

SCAN turns on subcommand syntax checking. This option enables you to validate syntax for an entire batch file before it is executed.

Default value: NONE

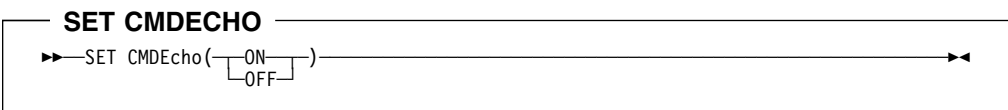
Example: SET CHECK(SCAN)

SET CMDECHO

* *Subcommand of SIBADMIN or SIBSRP*

This subcommand specifies whether SVAA subcommands are to be displayed at the destination specified by SET DEST OUTMSG before execution.

SET DESTINATION



Abbreviation: SET CMDE

Values: ON or OFF

Default value: OFF for SIBADMIN
ON for SIBSRP

Example: SET CMDE(ON)

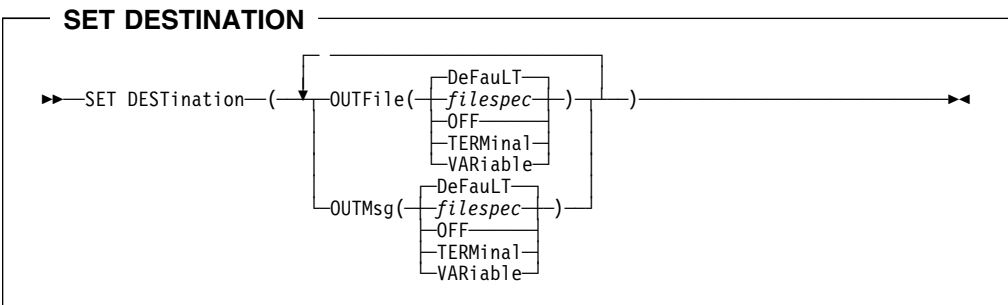
SET DESTINATION

*** Subcommand of SIBADMIN or SIBSRP**

This subcommand enables you to redirect messages (via **OUTMsg**) and reports (via **OUTFile**) to alternate destinations. SET DESTINATION does not affect the destination of:

- SAS reports (Device Performance, Cache Effectiveness, and Space Utilization reports)
- Command output or messages generated by ISPF requests (you must use REXX variables)

Note: You can redirect the output of any individual SVAA subcommand, thus overriding (for *only* that subcommand) the destination you specify with SET DESTINATION. For more information, see “Redirecting Subcommand Output” on page 8-8.



Abbreviation: SET DEST

Values: **OUTF** redirects report output (for example, LISTCFG subcommand output) to the destination indicated by the subparameter value.

OUTM redirects a message to the destination indicated by the subparameter value.

The subparameter is one of the following:

filespec Direct output to the file *filespec* (a SAS/C-style file name).

filespec has a maximum of 22 characters.

You can use the style prefix (see “Using the Style Prefix” on page 8-7 for more information).

DeFauLT	<p>OUTFile defaults to a CMS file called SIBRPT LISTING A1. OUTMsg defaults to TERMINAL.</p> <p>In ISPF, both destinations default to VARIABLE.</p>
OFF	Suppress output.
TERMinAl	Display output at the terminal.
VARiable	<p>Direct output to <i>exec</i> stem variables.</p> <p>SVAA output for destination OUTMSG is written to stem variable SIBLMSG.<i>n</i>. This allows a REXX EXEC to issue an SVAA subcommand and analyze the returned results (messages and reports) in REXX variables.</p> <p>Output for destination OUTFILE is written to the stem variable SIBRMSG.<i>n</i> (<i>n</i> is the value of an occurrence of SIBLMSG or SIBRMSG).</p> <p>The variables with <i>n</i>=0 contain the number of variables generated. For example, if SIBRMSG.0=17, then variables SIBRMSG.1 through SIBRMSG.17 contain the data. The SIBRMSG<i>n</i> and SIBLMSG<i>n</i> variables are set to 0 before the execution of each SVAA subcommand.</p> <p>Note: REXX must be available to use this value.</p>

Default value: DFLT

Example: SET DEST(OUTFILE(REPORT OUT A) OUTMSG(VAR))

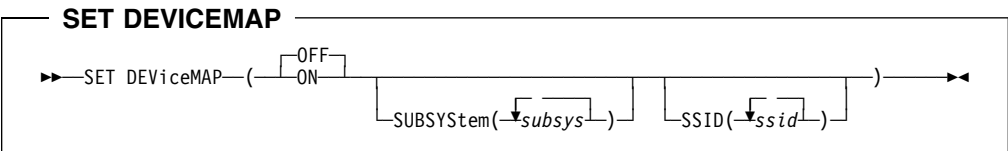
SET DEVICEMAP

* Subcommand of SIBADMIN or SIBSRP

This subcommand specifies whether a device mapping algorithm is to be in effect when an SVA functional device is referenced by unit or volser.

To use device mapping, your VM privilege class must allow you to query real device volsers and to execute the CP DIAGNOSE code X'0E4'. (See the *SVAA for VM Installation, Customization, and Maintenance* guide for information on defining privilege classes.)

Note: This subcommand remains in effect for the duration of the session. For a more permanent effect, place a SET DEVICEMAP subcommand in the SVAA profile (PROFSIBA SIB or PROFSIBS SIB).



Abbreviation: SET DEVMAP

Values: ON specifies that a device mapping algorithm is to be used for all subsystems known to SVAA *except* for any exclusions indicated by SUBSYS or SSID.

SET DUMP

OFF specifies that a device mapping algorithm is *not* to be used for any subsystems known to SVAA *except* for any inclusions indicated by **SUBSYS** or **SSID**.

SUBSYS (*subsys*) identifies one or more SVA subsystems for which a device mapping algorithm is not to be used (if **ON** is specified) or used (if **OFF** is specified). *subsys* is a 1- to 8-character subsystem name.

Note: If a subsystem name contains lowercase characters and **SET CASE(UPPER)** is in effect, you must enclose the name in matching quotes.

SSID (*ssid*) identifies one or more non-SVA subsystems for which a device mapping algorithm is not to be used (if **ON** is specified) or used (if **OFF** is specified). *ssid* is a 4-digit (hexadecimal) subsystem ID.

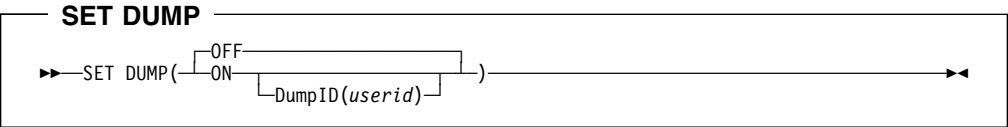
Default value: OFF

Example: SET DEVMAP(ON SUBSYS(IBMVA03 MARY)-
SSID(0013 004E 002B))

SET DUMP

* **Subcommand of SIBADMIN or SIBSRP**

This subcommand specifies whether a dump is to be produced if SVAA terminates abnormally. Additionally, you have the option of specifying a VM userid to receive the dump.



Values: ON or OFF and optionally: DID(*userid*)

userid is 1 to 8 characters

Default value: OFF

userid defaults to the user executing the subcommand.

Example: SET DUMP(ON DID(MAINT9))

SET ECAMDEVICE

* **Subcommand of SIBADMIN or SIBSRP**

This subcommand specifies devices (as defined to the host) to be used for ECAM communications. You can specify multiple (up to 100) ECAM devices.

You must include the SET ECAMDEVICE subcommand in the PROFSIBA REXX EXEC (if you are using it).

Notes:

1. Do not specify a device that does not exist or has not been mapped.
2. If you issue this subcommand while the target device is offline, the device is considered inactive and does not appear in response to a QUERY ECAMDEVICE (ALL) subcommand.
3. Do not issue this subcommand against a PPRC primary or secondary volume; that is, do not try to define a PPRC volume as an ECAM device.
4. You cannot use this subcommand on Power PPRC Bridge devices.

SET ECAMDEVICE

► SET ECAMDEVice(device) ◄◄

Abbreviation: SET ECAMDEV

Values: *device* is a virtual device address (1 to 4 hexadecimal digits) that is defined to the virtual machine executing the SVAA subcommand.

You can specify both lists and ranges of devices.

Default value: None

Example: SET ECAMDEV(2aE 730 112D)

SET IMPEX* **Subcommand of SIBADMIN or SIBSRP**

This subcommand specifies the setting for the implied execution of SVAA macros. If IMPEX is **ON**, an SVAA subcommand is treated as a potential SVAA macro. If the macro does not exist, normal SVAA subcommand processing is performed.

SET IMPEX

► SET IMPEX(ON
OFF) ◄◄

Abbreviation: SET IMP

Values: ON or OFF

Default value: ON

Example: SET IMPEX(OFF)

SET MAXRC* **Subcommand of SIBADMIN or SIBSRP**

For SVAA initialization, this subcommand sets the maximum return code (severity) that will be accepted from the initialization routines and the SVAA profile macro and still allow initialization to continue.

SET MAXRC

► SET MAXRC(*code*) ◄◄

Values: *code* is an unsigned integer ≥ 0 .

SET NONICEBERG

Default value: 8

Example: SET MAXRC(12)

SET NONICEBERG

* *Subcommand of SIBADMIN or SIBSRP*

This subcommand specifies devices (as defined to the host) over which non-SVA subsystem statistics are obtained.

Note: If you issue this subcommand while the target device is offline, the device is considered inactive and does not appear in response to a QUERY NONICEBERG (ALL) subcommand.

SET NONICEBERG

► SET NONIceBerg(*device*) ◄

Abbreviation: SET NONIB

Values: *device* is a virtual device address (1 to 4 hexadecimal digits) that is defined to the virtual machine executing the SVAA subcommand.

You can specify devices with both lists and ranges.

Default value: None

Example: SET NONIB(333 2aa)

SET PAGESIZE

* *Subcommand of SIBADMIN or SIBSRP*

This subcommand specifies the number of lines per page for SVAA reports.

SET PAGESIZE

► SET PaGeSiZe(*lines*) ◄

Abbreviation: SET PGSZ

Values: *lines* is a 2-digit number ranging from 40 to 99.

Default value: 60

Example: SET PGSZ(55)

SET SRPUSER

* *Subcommand of SIBADMIN or SIBSRP*

This subcommand identifies the user ID of the Reporter Service Virtual Machine that is to carry out SVAA data collection.

SET SRPUSER

► SET SRPUser(*userid*) ◄

Abbreviation: SET SRPU

Values: *userid* is the VM user ID: 1 to 8 alphanumeric characters.

Default value: STKSRP

Example: SET SRPUSER(JMDCVM)

SET TITLE_n

* *Subcommand of SIBADMIN or SIBSRP*

This subcommand (**SET TITLE1**, **SET TITLE2**, or **SET TITLE3**) defines the text string (such as an organization name or address) that is to appear in one of the three title lines of SVAA reports. *n* is **1** (line 1), **2** (line 2), or **3** (line 3). SVAA converts all titles to uppercase.

SET TITLE_n

```
➡➡SET TITLEn('text')➡➡
```

Values: *text* is a text string (0 to 127 characters).

The text must be enclosed in parentheses and either single or double quotation marks. However, if the text string contains no blanks, the quotation marks are optional.

Default value: None

Example: SET TITLE1('Line 1 of report title')

STOP SRP Subcommand

* *Subcommand of SIBADMIN*

The STOP SRP subcommand stops the Reporter Data Collection task (running in the SVAA address space). Reporter collects a final set of statistics for each outstanding collection run, unless you specify the IMMED parameter.

STOP SRP

```
➡➡STOP SRP [IMMEDiate]➡➡
```

SUMMARIZE HISTORYDATA Subcommand

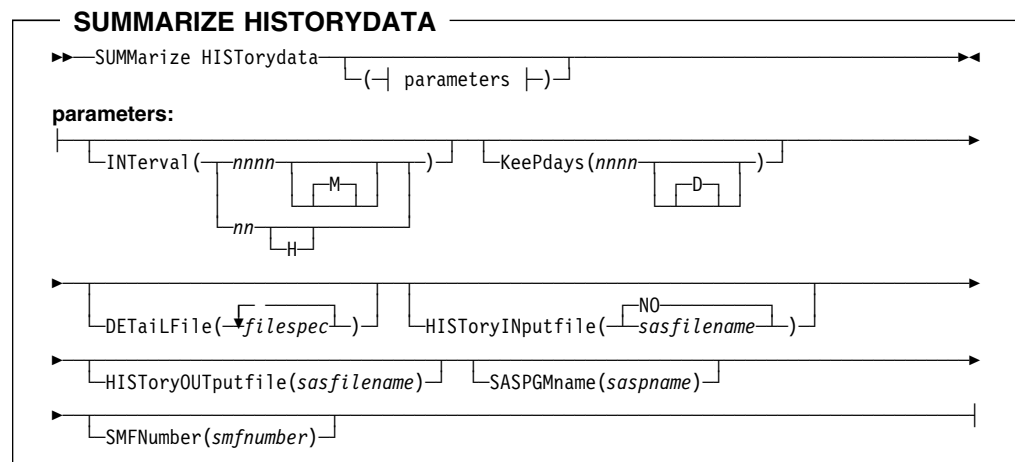
* Subcommand of SIBADMIN

This subcommand summarizes detail PT data in the Reporter history files. The abbreviation is SUMM HIST.

Data accumulates in four files collectively called the history file, for input to the performance trend analysis reports. The history file contains summarized data for the number of days specified by the KP parameter.

For history file summarization, you can specify:

- The periods of time covered by each report statistic (INTERVAL parameter).
- The number of day's collections to keep in the history file after summarization (KEEPDAYS parameter).
- The names of the logging files to be summarized (DETAILFILE parameter).
- The names of any previously unsummarized files to be summarized (HISTORYINPUTFILE parameter).
- The name of the SAS file to be used for the summarized output (HISTORYOUTPUTFILE parameter).
- The name of the SAS program to be run later to produce the actual output (SASPGMNAME parameter).
- The SMF record type for your collection records (SMFNUMBER parameter).



Parameters

All the parameters are optional. If you do not specify any parameters, Reporter uses the default value of all parameters.

See page 8-73 for examples of coding the parameters.

DETAILFILE (filespec)

Optional

Specifies the names of any number of unsummarized logging files to be used as input to the summarization processes.

Abbreviation: DETLF

Value: *filespec* specifies the detail input files
You cannot specify * * * or * * ?.

Default value: * MAINLOG *

If you specify only the filename, the filetype and filemode default to MAINLOG *

HISTORYINPUTFILE (sasfilename | NO)

Optional

If this is the first history data summarization run, specify **NO** to create a new history data summary file.

Otherwise, this parameter specifies the name of the input (previously summarized) history file, which must be a SAS file. See “Specifying SAS Files” on page 8-8 for more information.

Abbreviation: HISTIN

Values: *sasfilename* specifies the input history file. You can specify only up to 7 characters for the file name, because Reporter adds an eighth character to indicate the type of history file.

The filename must be different from that of the HISTOUT (output history) file.

You cannot specify * * * or * * ?

NO specifies that there is no input history file.

Default value: NO

If you specify only the filename, the filetype defaults to **STKPERF** and the filemode to *. Omitting the entire filespec is the same as specifying **NO**.

Note: If you are appending to an existing history file, a return code of 4 is normal.

HISTORYOUTPUTFILE (sasfilename)

Optional

Specifies the name of the output history file, which must be a SAS file. See “Specifying SAS Files” on page 8-8 for rules for specifying SAS files.

Abbreviation: HISTOUT

Value: *sasfilename* specifies the output history file. You can specify only up to 7 characters for the file name, because Reporter adds an eighth character to indicate the type of history file.

The filename must be different from that of the HISTIN (input history) file.

Default value: HISTORY STKPERF A1

If you specify only the filename, the filetype and filemode default to **STKPERF A1**.

INTERVAL (nnnnM | nnH)***Optional***

Specifies the data-summarization interval, which:

- Must be a multiple of the original data-summarization interval
- Must be a factor of either 1440 or 24.

If the history data-summary file already exists, this parameter must be a multiple of the originally specified summarization interval.

Abbreviation: INT

Values: *nnnnM* specifies the interval as a number of minutes, 1 to 1440, that must be exactly divisible into 1440. Leading zeroes are allowed. You cannot specify 0.

nnH specifies the interval as a number of hours, 1 to 24, that must be exactly divisible into 24. A leading zero is allowed. You cannot specify 0.

Default value: 120 minutes.

KEEPDAYS (nnnnD)***Optional***

Specifies the number of days' collections to keep in the history file after summarization.

Abbreviation: KP

Values: *nnnnD* specifies the number of days' collections to keep, where *nnnn* is a positive number. Leading zeros are allowed. You cannot specify 0.

Default value: 395

SASPGMNAME (saspname)***Optional***

A SAS program is produced by the SUMM HIST subcommand. This program, which must be run in a subsequent step, produces the actual summarized history data output. Use the SASPGM parameter to specify the name of the program to be produced.

Abbreviation: SASPGM

Value: *saspname* specifies the name of the SAS program.

Default value: SIBSUMM SAS A1

If you specify only the filename, the filetype defaults to **SAS** and the filemode to **A1**.

Notes:

1. The rules for specifying *saspname* are the same as for other VM file names. The name is always converted to uppercase, regardless of the case you use.
2. To run the SAS program, specify the loadlib, either
 - In the CONFIG SAS file. For example:

SASLOAD = 'SIBSAS LOADLIB * '

- As an option on the SAS execution statement. For example:

```
SAS saspname (SASLOAD = 'SIBSAS LOADLIB * ' )
```

SMFNUMBER (smfnum)

Conditional

This parameter is usually optional, but must be specified if:

- the input file contains SMF records and
- the SMF data was created on another host with a different SVAA SMF number (as when you are producing the report on a VM system but the data was collected on an OS/390 system).

Abbreviation: SMFN

Values: *smfnum* specifies SMF record type as a whole number ranging from 128 to 255 inclusive.

Default value: None.

Examples of SUMM HIST

Example 1.

SUMM HIST-

(DETFL(CMS:010323SU MAINLOG L)-

HISTOUT(010323SU SRPDAILY M)-

SASPGM(SRPSUMM SAS A))

Data is to be summarized at two hour intervals (the default). The history file, a SAS file to be written to the M disk, contains summarized data from the single daily detail file. The detail file was created on March 23, 2001. Its file name was specified as &DAYDATE (see "Specifying Where to Send Output" on page 4-2). It is on the L disk. There is no input history file. The SAS summarization program is named SRPSUMM SAS A.

SUMM HIST

Chapter 9. Understanding the SVAA Reports

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This chapter describes the layout of the default SAS reports of the performance and space utilization of your subsystems. The performance report examples are from the interval Device Performance and Cache Effectiveness reports; the time-ordered and summary reports have the same format as the interval reports.

“Definitions of Field Names” on page 9-15 defines the field names and column headings used in the reports.

Each printed page of any report has a common header composed of up to three title lines, a date-and-time stamp, and a page number:

Tit1e1 Tit1e2 Tit1e3	12:58 Wednesday, November 18, 1998 1
----------------------------	--------------------------------------

Title1, **Title2**, and **Title3** are the title lines you specify for the report in one of these ways:

- Using SET TITLE subcommands in the SIBSTK00 member of SYS1.PARMLIB. SVAA uses this member during SVAA initialization.
- Using SET TITLE subcommands in a SIBADMIN session.
- Using the **Session Administration** function of the SVAA panels.

You can specify up to three title lines in this manner; none are required. The lines you specify (up to 127 characters in each) appear centered at the top of each page of your reports:

SAS inserts the mixed-case date-and-time stamp, followed by the page number, at the right of the first title where there is room. The time is the time that SAS was invoked to produce the report. If there is no room for the stamp on the title lines, it appears on the next available line. SAS inserts a blank line after the date-and-time stamp line.

Note: In most of the examples in this chapter, the title lines and data-and-time stamp are omitted.

Reading the Selected Input Record Summary Report

This report appears automatically whenever you request a Device Performance report and whenever you issue a SUMM HIST subcommand. The report can indicate that there might be duplicate data due to collection being made from more than one host. It is important that collection be made from one host by specifying different collection identifiers for data being collected on different hosts. You should decide which host to collect data on.

The report has the following format:

REPORT TITLE						13:29 Tuesday, July 27, 1999	
REPORT SUB-TITLE						27JUL1999 13:29:50	
SELECTED INPUT RECORDS SUMMARY REPORT						SIBIRSR V1 R0 L1	
REPORTER	SUBSYSTEM	COLLECTION ID	SMF ID	CPU ID	EARLIEST RECORD TIME STAMP	LATEST RECORD TIME STAMP	
	ISPROD10	PERFORMANCETRACK	MVSB	MVSB	05JUL99:23:00:00	07JUL99:00:00:00	
	* ISPROD10	PERFORMANCETRACK	MVSA	MVSA	06JUL99:04:44:00	06JUL99:21:14:00	
	ISPROD40	PERFORMANCETRACK	MVSB	MVSB	05JUL99:23:00:00	07JUL99:00:00:02	
	* ISPROD40	PERFORMANCETRACK	MVSA	MVSA	06JUL99:04:44:00	06JUL99:21:14:00	
	ISPROD50	PERFORMANCETRACK	MVSA	MVSA	06JUL99:00:00:01	07JUL99:00:00:02	
*** WARNING! POTENTIAL OVERLAPPING OF DATA COLLECTION INTERVALS DETECTED.							
DUPLICATE DATA MAY BE IN THE INPUT FILE. PLEASE VERIFY THAT MULTIPLE							
REPORTER DATA COLLECTION TASKS, E.G. RUNNING ON DIFFERENT HOSTS,							
ARE NOT COLLECTING DATA FOR THE SAME SUBSYSTEM(S).							

In this report, the asterisk at the left indicates a subsystem and collection identifier for which there may be duplicate data.

Reading Device Performance Reports

This section describes the layout of the default Device Performance reports.

Report-Specific Header Lines

In addition to the common header described above, each page of a Device Performance Interval Report has the following heading:

REPORTER				DEVICE PERFORMANCE INTERVAL REPORT								25OCT1999		15:20:38	
SUBSYSTEM STK				INTERVAL ENDING: 10OCT1999 8:29 INTERVAL DURATION: 0:15								SIBDP10 V1 R0 L1			
FDID	DEV	VOLSER	T/P	DEVICE	% DEV	I/O	KBYTES	ACCESS	-I/O	SERVICE	TIME (MS)-	% DEV	% DEV	% DEV	
	ADDR			TYPE	AVAIL	PER SEC	PER SEC	DENSITY	TOTAL	DISC	CONNECT	UTIL	DISC	CONN	
----	----	-----	---	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	

These lines show:

1. The type of report and the date and time that SAS created the report.
2. The version, release, and level of SVAA.
3. The SAS macro that produced the report.
4. The name of the subsystem for which the report was run, the date and time of the end of the interval being reported on, and the duration of each interval.
5. The field titles or names of the columns for the report. See “Definitions of Field Names” on page 9-15 for an explanation of the field names.

Sample Device Performance Report

The listing below shows a sample Device Performance Interval Report. The following subcommand produced the report.

```
REPORT PERF-
  (DEVPERF(YES)-
  INTRPT(YES)-
  DEVDET(YES)-
  OVERALL(YES)-
  DATES(10OCT1999)-
  TIMES(0800:1200)-
  RPTINT(15M) )
```

The largest section of a Device Performance Interval Report is composed of sections like the following example, one for each of the intervals in the specified time range. There is one line in this section for each functional device in the collected data, because neither the **UNIT** nor **VOLUME** parameter was specified.

If you specify **DEVDET(NO)**, the detailed device lines do not appear in the report.

REPORTER		DEVICE PERFORMANCE INTERVAL REPORT										25OCT1999 15:20:38			
SUBSYSTEM STK		INTERVAL ENDING: 10OCT1999 8:29 INTERVAL DURATION: 0:15										SIBDP10 V1 R0 L1			
FDID	DEV ADDR	VOLSER	T/P	DEVICE TYPE	% DEV AVAIL	I/O PER SEC	KBYTES PER SEC	ACCESS DENSITY	-I/O TOTAL	SERVICE DISC	TIME (MS)- CONNECT	% DEV UTIL	% DEV DISC	% DEV CONN	
0000	0400	ICE400	P	33901	100.0	0.0	0.0	0.0	22.2	0.1	22.1	0.0	0.0	0.0	
0001	0401	PRDV02	P	33901	100.0	0.7	2.7	0.4	10.2	8.0	2.3	0.7	0.5	0.2	
0002	0402	PRDV03	P	33901	100.0	0.1	0.2	0.0	8.1	6.2	1.9	0.1	0.1	0.0	
0003	0403	PRDV04	P	33901	100.0	0.8	5.0	0.4	10.5	7.0	3.5	0.8	0.5	0.3	
0004	0404	PRDV05	P	33901	100.0	0.3	0.8	0.2	9.7	7.8	2.0	0.3	0.3	0.1	
0005	0405	PRDV06	P	33901	100.0	0.0	0.6	0.0	26.9	20.4	6.5	0.1	0.1	0.0	
0006	0406	PRDV07	P	33901	100.0	0.1	1.0	0.1	13.8	10.1	3.8	0.2	0.1	0.0	
0007	0407	PRDV08	P	33901	100.0	0.1	0.1	0.0	11.7	9.4	2.3	0.1	0.1	0.0	
0008	0408	PRDV09	P	33903	100.0	0.1	0.1	0.0	8.7	6.4	2.3	0.1	0.0	0.0	
0009	0409	PRDV10	P	33903	100.0	6.1	131.9	3.2	12.4	4.2	8.2	7.5	2.6	5.0	
000A	040A	PRDV11	P	33903	100.0	1.1	4.8	0.6	5.6	2.8	2.8	0.6	0.3	0.3	
000B	040B	PRDV12	P	33903	100.0	0.1	0.2	0.1	6.6	4.6	2.0	0.1	0.1	0.0	
000C	040C	PRDV13	P	33903	100.0	2.6	9.8	1.4	4.7	2.7	2.0	1.2	0.7	0.5	
000D	040D	PRDV14	P	33903	100.0	1.4	4.9	0.7	6.2	4.1	2.0	0.9	0.6	0.3	
000E	040E	PRDV15	P	33903	100.0	0.0	0.1	0.0	11.7	9.9	1.8	0.0	0.0	0.0	
:															
00FD	04FD	ORVM14	P	33909	100.0	2.0	11.5	0.7	7.2	4.6	2.7	1.5	0.9	0.5	
00FE	04FE	ORVM15	P	33909	100.0	0.2	1.7	0.1	15.8	12.2	3.5	0.3	0.3	0.1	
00FF	04FF	ORVM16	P	33909	100.0	1.4	6.5	0.5	13.7	10.9	2.8	1.9	1.5	0.4	
=====															
SELECTED DEVICES SUMMARY															
SUBSYSTEM SUMMARY			% DEV AVAIL	I/O PER SEC	KBYTES PER SEC	ACCESS DENSITY	-I/O TOTAL	SERVICE DISC	TIME (MS)- CONNECT	% DEV UTIL	% DEV DISC	% DEV CONN			
PROD PARTITION			100.0	352.3	2917.4	0.7	7.9	3.5	4.4	1.1	0.5	0.6			
OVERALL TOTALS			100.0	352.3	2917.4	0.7	7.9	3.5	4.4	1.1	0.5	0.6			
SELECTED SCSI DEVICES SUMMARY															
SUBSYSTEM SUMMARY			% DEV AVAIL	I/O PER SEC	KBYTES PER SEC	ACCESS DENSITY	-I/O TOTAL	SERVICE DISC	TIME (MS)- CONNECT	% DEV UTIL	% DEV DISC	% DEV CONN			
PROD PARTITION			100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
OVERALL TOTALS			100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

Note: The last three columns of the Device Performance Interval Report may show apparently anomalous data for devices that are designated for ECAM I/O (that is, for communication between Reporter and the SVA subsystem). Reporter issues a single, very long channel program to each subsystem, once each collection interval. Hence, there may be less than 0.0 I/Os per second over a 15-minute collection interval and at the same time there is a high connect time per I/O. Low values for % DEV UTIL and % DEV CONN may also be expected for ECAM devices, because this data is reported per device, not per I/O. For FICON channels, the value for % DEV CONN may exceed 100%.

Following the above report for each of the devices, the report for each interval contains three additional small sections:

- Disk array summary
- Channel interface performance
- Distribution of drive module utilization

Device Performance Reports

Disk Array Summary

The **DISK ARRAY SUMMARY** section summarizes back-end space utilization and some features of back-end activity.

SUBSYSTEM STK		DISK ARRAY SUMMARY											
AVG % DRIVE MODULE UTIL	COEFF OF VARIATION	NET CAPACITY		LOAD % OVERALL	FREE SPACE		COLLECTION LOAD OVERALL	COLL TEST	FREE SPC (%)		UNCOLL TEST	FREE SPC (%)	
		TEST	PROD		TEST	PROD			PROD	OVERALL		PROD	OVERALL
0.0	0	0.0	89.5	89.5	0.0	0.0	0.0	0.0	10.3	10.3	0.0	0.2	0.2

Channel Interface Performance Information

The **CHANNEL INTERFACE PERFORMANCE** section shows how the channel interface is performing.

CHANNEL INTERFACE PERFORMANCE	CLUSTER	INTERFACE ID	INTERFACE NAME	CHANNEL SPEED	CHANNEL TYPE	I/O PER SEC	% ACTIVE ON CHNL
	0	A		20.0	ESCON	95.2	37.5
	0	B		20.0	ESCON	0.0	0.0
	0	C		20.0	ESCON	0.0	0.0
	0	D		20.0	ESCON	0.0	0.0
	0	I		40.0	SCSI	0.0	0.0
	0	K		40.0	SCSI	0.0	0.0

Distribution of Drive Module Utilization

The **DISTRIBUTION OF DRIVE MODULE UTILIZATION** section shows how evenly distributed is the back-end device utilization (the numbers should be reasonably even across the distribution).

=====											
DISTRIBUTION OF DRIVE MODULE UTILIZATION	FREQUENCY (PERCENTILE)	10	20	30	40	50	60	70	80	90	100
	% DRIVE MODULE UTILIZATION	5.3	5.4	5.7	5.8	6.0	6.1	6.2	6.3	6.6	6.7
=====											
REPORT INCLUSION DAYS: ALL											
REPORT EXCLUSION DAYS: N/A											
REPORT EXCLUSION DATES: N/A											

Overall Summary

After the sections for each of the intervals and because **OVERALL(YES)** was specified, the Device Performance Overall Summary appears. This summary is a weighted average of the statistics for the whole time range covered by the interval report.

The following example is a subsystem summary for the Production partition and for subsystem totals. The first portion of the Overall Summary report contains the same information as the device interval report. The summary portion contains the totals and averages for all the devices included in the device detail reports.

Device Performance Reports

REPORTER													25OCT1999 13:06:04			
SUBSYSTEM STK													SIBDPIO V1 R0 L1			
DEVICE PERFORMANCE OVERALL SUMMARY													REPORT START DATE: 10OCT1999			
													REPORT END DATE: 10OCT1999			
													REPORT START TIME: 8:14			
													REPORT END TIME: 11:59			
FDID	DEV ADDR	VOLSER	T/P	DEVICE TYPE	% DEV AVAIL	I/O PER SEC	KBYTES PER SEC	ACCESS DENSITY	-I/O TOTAL	SERVICE DISC	TIME (MS) - CONNECT	% DEV UTIL	% DEV DISC	% DEV CONN		
0000	0400	PRDV01	P	33901	100.0	0.0	0.0	0.0	27.4	4.6	22.7	0.0	0.0	0.0		
0001	0401	PRDV02	P	33901	100.0	1.4	8.2	0.7	7.2	3.9	3.3	1.0	0.5	0.5		
0002	0402	PRDV03	P	33901	100.0	0.6	1.1	0.3	4.2	2.0	2.3	0.3	0.1	0.1		
0003	0403	PRDV04	P	33901	100.0	3.0	59.2	1.6	12.2	6.4	5.9	3.7	1.9	1.8		
0004	0404	PRDV05	P	33901	100.0	0.1	0.3	0.1	10.5	7.9	2.6	0.1	0.1	0.0		
0005	0405	PRDV06	P	33901	100.0	0.1	2.1	0.1	18.0	9.5	8.5	0.2	0.1	0.1		
0006	0406	PRDV07	P	33901	100.0	0.2	1.0	0.1	9.9	6.6	3.3	0.2	0.1	0.1		
0007	0407	PRDV08	P	33901	100.0	0.8	16.3	0.4	17.5	11.5	6.0	1.4	0.9	0.5		
0008	0408	PRDV09	P	33903	100.0	0.1	1.0	0.1	11.5	6.1	5.4	0.1	0.1	0.1		
0009	0409	PRDV10	P	33903	100.0	1.1	23.2	0.6	17.2	10.0	7.2	1.9	1.1	0.8		
000A	040A	PRDV11	P	33903	100.0	0.5	1.8	0.2	6.2	3.4	2.8	0.3	0.2	0.1		
000B	040B	PRDV12	P	33903	100.0	0.8	16.9	0.4	23.5	16.3	7.2	1.8	1.2	0.5		
000C	040C	PRDV13	P	33903	100.0	1.6	12.0	0.8	8.2	5.1	3.1	1.3	0.8	0.5		
000D	040D	PRDV14	P	33903	100.0	1.7	12.1	0.9	8.0	3.9	4.1	1.4	0.7	0.7		
:																
00FD	04FD	ORVM14	P	33909	100.0	0.9	9.1	0.3	7.3	3.2	4.0	0.7	0.3	0.4		
00FE	04FE	ORVM15	P	33909	100.0	0.6	5.2	0.2	8.2	4.4	3.8	0.5	0.2	0.2		
00FF	04FF	ORVM16	P	33909	100.0	2.1	13.7	0.7	7.9	4.4	3.5	1.6	0.9	0.7		

In the summary section that follows, the only difference from the device-detail section of the report is the addition of the **SUBSYSTEM SUMMARY**, which shows, under the same field names, the totals and averages for all the devices included in the device-details report.

SUBSYSTEM STK				REPORT START DATE: 10MAY1999				REPORT END DATE: 10MAY1999			
				REPORT START TIME: 8:14				REPORT END TIME: 11:59			
=====											
SUBSYSTEM SUMMARY		% DEV AVAIL	I/O PER SEC	KBYTES PER SEC	ACCESS DENSITY	-I/O TOTAL	SERVICE DISC	TIME (MS) - CONNECT	% DEV UTIL	% DEV DISC	% DEV CONN
PROD PARTITION		100.0	353.6	2562.4	0.7	7.5	4.0	3.6	1.0	0.5	0.5
OVERALL TOTALS		100.0	353.6	2562.4	0.7	7.5	4.0	3.6	1.0	0.5	0.5
=====											
SUBSYSTEM STK		DISK ARRAY SUMMARY									
AVG % DRIVE MODULE UTIL	COEFF OF VARIATION	NET CAPACITY TEST	LOAD % PROD	OVERALL	FREE SPACE TEST	COLLECTION PROD	LOAD OVERALL	COLL TEST	FREE SPC (%) PROD	OVERALL	UNCOLL FREE SPC (%) PROD OVERALL
0.0	0	0.0	89.5	89.5	0.0	0.0	0.0	0.0	10.3	10.3	0.0 0.2 0.2
=====											
CHANNEL INTERFACE PERFORMANCE	CLUSTER	INTERFACE ID	INTERFACE NAME	CHANNEL SPEED	CHANNEL TYPE	I/O PER SEC	% ACTIVE ON CHNL				
	0	A		20.0	ESCON	94.1	30.3				
	0	B		20.0	ESCON	0.0	0.0				
	0	C		20.0	ESCON	0.0	0.0				
	0	D		20.0	ESCON	0.0	0.0				
	0	M		20.0	ESCON	94.2	30.3				
	0	N		20.0	ESCON	0.0	0.0				
	0	O		20.0	ESCON	0.0	0.0				
	0	P		20.0	ESCON	0.0	0.0				
	1	A		20.0	ESCON	99.1	30.5				
	1	B		20.0	ESCON	0.8	0.0				
	1	C		20.0	ESCON	0.0	0.0				
	1	D		20.0	ESCON	0.0	0.0				
	1	M		20.0	ESCON	99.7	30.0				
	1	N		20.0	ESCON	42.5	19.8				
	1	O		20.0	ESCON	0.0	0.0				
	1	P		20.0	ESCON	0.0	0.0				
=====											
DISTRIBUTION OF DRIVE MODULE UTILIZATION		FREQUENCY (PERCENTILE)	10	20	30	40	50	60	70	80	90 100
		% DRIVE MODULE UTILIZATION	5.4	5.5	5.5	5.6	5.6	5.7	5.7	5.8	5.8 6.0
=====											
REPORT INCLUSION DAYS: ALL											
REPORT EXCLUSION DAYS: N/A											
REPORT EXCLUSION DATES: N/A											

Reading Cache Effectiveness Reports

This section describes the layout of the default Cache Effectiveness reports. Each page has a common report header with title lines, date-and-time stamp and page number, as described at the beginning of this chapter.

Report-Specific Header Lines

In addition to the common header described on page 9-2, a Cache Effectiveness report has the following heading:

REPORTER				CACHE EFFECTIVENESS INTERVAL REPORT								16NOV1999 11:25:36			
INTERVAL ENDING: 10OCT1999 8:29				INTERVAL DURATION: 0:15								SIBCEIO V1 R0 L1			
SUBSYSTEM NAME: STK				CACHE SIZE: 512 MB		NVS SIZE: 8 MB									
				OFFLINE CACHE:		0 BYTES		PINNED CACHE:		0 BYTES					
FDID	DEV	VOLSER	T/P	DEVICE	READ	WRITE	I/O	READ	READ	WRITE	I/O	DFW	STAGE	HITS/	LOW
	ADDR			TYPE	PER SEC	PER SEC	PER SEC	RATIO	HIT %	HIT %	HIT %	CONSTR	PER SEC	STGE	REF CT
----	----	-----	---	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

These lines show:

- 1. The type of report being printed and the time that SAS created the report.
- 2. The date and time the report interval ended and the duration of the interval.
- 3. The subsystem name, and its cache and nonvolatile storage sizes.
- 4. The field names and the headings of the columns in the report. See “Definitions of Field Names” on page 9-15 for an explanation of the field names.

Sample Cache Effectiveness Report

The report below is a sample interval Cache Effectiveness report for each of the devices. The following subcommand produced the report:

REPORT PERF-
 (CAEFF(YES)-
 INTRPT(YES)-
 DEVDET(YES)-
 OVERALL(YES)-
 DATES(100CT1999)-
 TIMES(0800:1200)-
 RPTINT(15M))

REPORTER				CACHE EFFECTIVENESS INTERVAL REPORT								16NOV1999 15:22:21				
INTERVAL ENDING: 100CT1999 8:29				INTERVAL DURATION: 0:15				SIBCEIO V1 R0 L1								
SUBSYSTEM NAME: STK				CACHE SIZE: 512 MB		NVS SIZE: 8 MB										
				OFFLINE CACHE:		0 BYTES		PINNED CACHE:		0 BYTES						
FDID	DEV	VOLSER	T/P	DEVICE	READ	WRITE	I/O	READ	WRITE	I/O	DFW	STAGE	HITS/	LOW		
	ADDR			TYPE	PER SEC	PER SEC	PER SEC	RATIO	HIT %	HIT %	HIT %	CONSTR	PER SEC	STGE	REF CT	
0000	0400	PRDV01	P	33901	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0		
0001	0401	PRDV02	P	33901	0.4	0.2	0.7	2.4	70.8	98.8	79.1	0.00	0.1	3.8	38.9	
0002	0402	PRDV03	P	33901	0.1	0.0	0.1	5.9	78.5	100.0	81.6	0.00	0.0	4.4	9.1	
0003	0403	PRDV04	P	33901	0.4	0.3	0.8	1.1	74.5	95.3	84.4	0.00	0.1	5.4	49.6	
0004	0404	PRDV05	P	33901	0.2	0.1	0.3	1.4	62.5	100.0	78.0	0.00	0.1	3.4	28.8	
0005	0405	PRDV06	P	33901	0.0	0.0	0.0	5.0	36.7	100.0	47.2	0.00	0.0	0.7	52.6	
0006	0406	PRDV07	P	33901	0.1	0.0	0.1	3.9	68.3	100.0	74.8	0.00	0.0	2.9	10.3	
0007	0407	PRDV08	P	33901	0.0	0.0	0.1	1.7	63.6	94.7	75.0	0.00	0.0	3.0	0.4	
0008	0408	PRDV09	P	33902	0.0	0.0	0.1	2.1	81.8	100.0	87.8	0.00	0.0	5.4	23.5	
0009	0409	PRDV10	P	33902	5.9	0.0	6.1	17.6	91.1	100.0	91.1	0.00	0.6	8.7	1.9	
000A	040A	PRDV11	P	33902	0.4	0.7	1.1	0.5	83.6	97.6	93.1	0.00	0.1	12.7	13.9	
000B	040B	PRDV12	P	33902	0.1	0.0	0.1	2.5	87.2	97.1	90.1	0.00	0.0	6.8	52.9	
000C	040C	PRDV13	P	33902	2.4	0.0	2.6	50.7	90.0	97.7	90.1	0.00	0.2	9.1	3.8	
000D	040D	PRDV14	P	33902	1.2	0.1	1.4	8.6	86.5	100.0	87.9	0.00	0.2	7.3	31.7	
000E	040E	PRDV15	P	33902	0.0	0.0	0.0	3.7	59.1	100.0	67.9	0.00	0.0	2.1	11.1	
000F	040F	PRDV16	P	33902	0.1	0.1	0.2	1.7	90.1	100.0	93.8	0.00	0.0	13.5	42.9	
0010	0410	PRDV17	P	33902	1.0	0.2	1.3	6.3	79.3	98.6	81.9	0.00	0.2	4.5	14.8	
:																
00FD	04FD	ORVM14	P	33902	2.1	0.0	2.0	87.9	90.9	95.2	90.9	0.00	0.2	7.6	9.5	
00FE	04FE	ORVM15	P	33902	0.3	0.0	0.2	0.0	73.2	0.0	73.2	0.00	0.1	2.7	78.7	
00FF	04FF	ORVM16	P	33902	0.1	1.3	1.4	0.1	88.0	70.9	71.9	0.00	0.4	2.6	32.4	
=====																
SUBSYSTEM SUMMARY					READ	WRITE	I/O	READ	WRITE	I/O	DFW	STAGE	HITS/	LOW	TRACK	
					PER SEC	PER SEC	PER SEC	RATIO	HIT %	HIT %	HIT %	CONSTR	PER SEC	STGE	REF CT	OCCUP
PROD PARTITION					320.7	110.6	436.1	2.9	87.3	97.6	89.9	0.0	50.6	7.7	35.7	
OVERALL TOTALS					320.7	110.6	436.1	2.9	87.3	97.6	89.9	0.0	50.6	7.7	35.7	218.0
=====																
REPORT INCLUSION DAYS: ALL																
REPORT EXCLUSION DAYS: N/A																
REPORT EXCLUSION DATES: N/A																

Notice the subsystem summary at the end of the device report. Also, the **TRACK OCCUP** column appears only in the overall totals line of the subsystem summary, not in the device-detail reports.

Cache Effectiveness Reports

Cache Effectiveness Overall Summary

The overall summary provides averages over the whole range covered by the report. The summary has the same format as the report for the individual intervals.

REPORTER				CACHE EFFECTIVENESS OVERALL SUMMARY								16NOV1999 15:22:53			
REPORT START DATE: 10OCT1999				REPORT END DATE: 10OCT1999								SIBCEIO V1 R0 L1			
REPORT START TIME: 8:14				REPORT END TIME: 11:59											
SUBSYSTEM NAME: STK				(CACHE SIZE: 512 MB NVS SIZE: 8 MB)											
FDID	DEV	VOLSER	T/P	DEVICE	READ	WRITE	I/O	READ	READ	WRITE	I/O	DFW	STAGE	HITS/	LOW
	ADDR			TYPE	PER SEC	PER SEC	PER SEC	RATIO	HIT %	HIT %	HIT %	CONSTR	PER SEC	STGE	REF CT
0000	0400	PRDV01	P	33901	0.0	0.0	0.0	0.0	72.7	0.0	72.7	0.00	0.0	2.7	0.0
0001	0401	PRDV02	P	33901	1.2	0.2	1.4	5.8	88.8	98.6	90.2	0.00	0.2	7.1	55.2
0002	0402	PRDV03	P	33901	0.4	0.3	0.6	1.4	93.0	99.5	95.8	0.00	0.0	20.2	19.1
0003	0403	PRDV04	P	33901	2.7	0.2	3.0	11.1	50.1	94.9	53.8	0.00	1.4	1.2	17.3
0004	0404	PRDV05	P	33901	0.1	0.1	0.1	1.1	54.2	100.0	76.3	0.00	0.0	3.1	25.6
0005	0405	PRDV06	P	33901	0.1	0.0	0.1	12.5	76.0	100.0	77.8	0.00	0.0	2.7	38.3
0006	0406	PRDV07	P	33901	0.1	0.0	0.2	4.7	87.0	86.7	87.0	0.00	0.0	5.3	33.4
0007	0407	PRDV08	P	33901	0.8	0.0	0.8	53.7	62.4	99.5	63.1	0.00	0.3	1.7	2.9
0008	0408	PRDV09	P	33902	0.1	0.0	0.1	9.8	89.8	100.0	90.1	0.00	0.0	2.7	73.3
0009	0409	PRDV10	P	33902	1.1	0.0	1.1	100.6	73.6	99.3	73.9	0.00	0.3	2.7	2.4
000A	040A	PRDV11	P	33902	0.2	0.3	0.5	0.5	82.2	97.9	92.7	0.00	0.0	10.9	28.7
000B	040B	PRDV12	P	33902	0.7	0.0	0.8	62.3	54.3	96.8	55.0	0.00	0.4	1.1	10.2
000C	040C	PRDV13	P	33902	1.4	0.0	1.6	36.0	83.6	98.9	84.0	0.00	0.2	5.2	5.7
000D	040D	PRDV14	P	33902	1.4	0.2	1.7	5.9	88.0	99.9	89.7	0.00	0.2	6.2	26.9
000E	040E	PRDV15	P	33902	2.2	0.0	2.3	213.2	57.0	97.8	57.2	0.00	0.9	1.3	0.8
000F	040F	PRDV16	P	33902	1.3	0.0	1.4	118.6	52.4	99.3	52.8	0.00	0.6	1.1	2.0
0010	0410	PRDV17	P	33902	0.8	0.1	0.9	6.7	80.6	98.5	83.0	0.00	0.2	4.6	29.8
:															
00FD	04FD	ORVM14	P	33902	1.0	0.1	0.9	16.4	94.3	95.0	94.3	0.00	0.1	9.5	12.8
00FE	04FE	ORVM15	P	33902	0.8	0.0	0.6	190.4	94.1	83.6	94.0	0.00	0.1	11.6	25.4
00FF	04FF	ORVM16	P	33902	0.2	1.8	2.1	0.1	97.4	91.1	91.8	0.00	0.2	9.7	14.0
=====															
SUBSYSTEM SUMMARY					READ	WRITE	I/O	READ	READ	WRITE	I/O	DFW	STAGE	HITS/	LOW
					PER SEC	PER SEC	PER SEC	RATIO	HIT %	HIT %	HIT %	CONSTR	PER SEC	STGE	REF CT
PROD PARTITION					253.3	94.9	353.6	2.7	86.2	98.5	89.6	0.0	41.7	7.5	30.8
OVERALL TOTALS					253.3	94.9	353.6	2.7	86.2	98.5	89.6	0.0	41.7	7.5	30.8
															205.9
=====															
REPORT INCLUSION DAYS: ALL															
REPORT EXCLUSION DAYS: N/A															
REPORT EXCLUSION DATES: N/A															

Reading Space Utilization Reports

This section describes the layout of the default space utilization reports. See "Definitions of Field Names" on page 9-15 for an explanation of the field names.

Sample Space Utilization Report

The listing below shows a space utilization report.

The following subcommand produced the report.

REPORT SPACEU

REPORTER		SPACE UTILIZATION SUMMARY REPORT T								18NOV2000		6:26:02	
										SIBSPUT V2 R1 L1			
SUBSYSTEM INT			(NUMBER OF FUNCTIONAL DEVICES: 737)										

Bar Charts

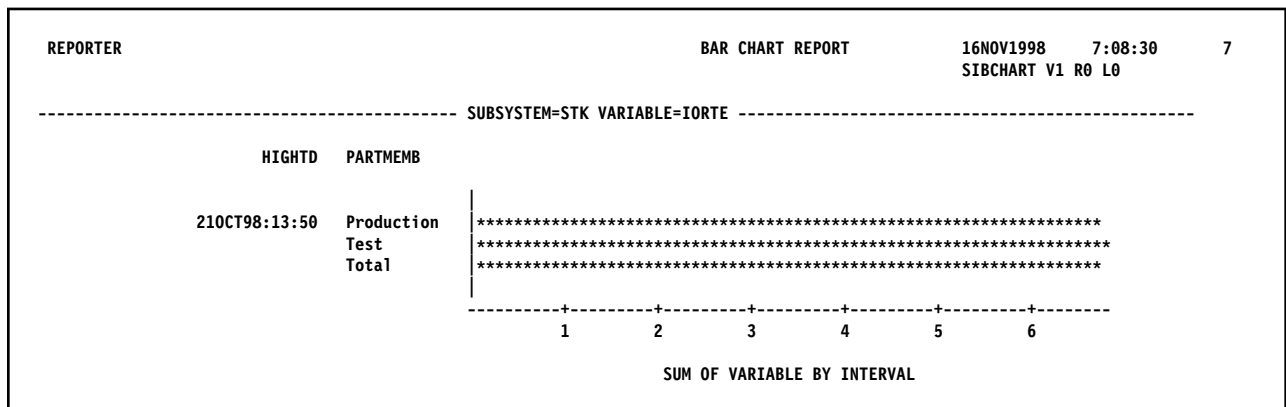
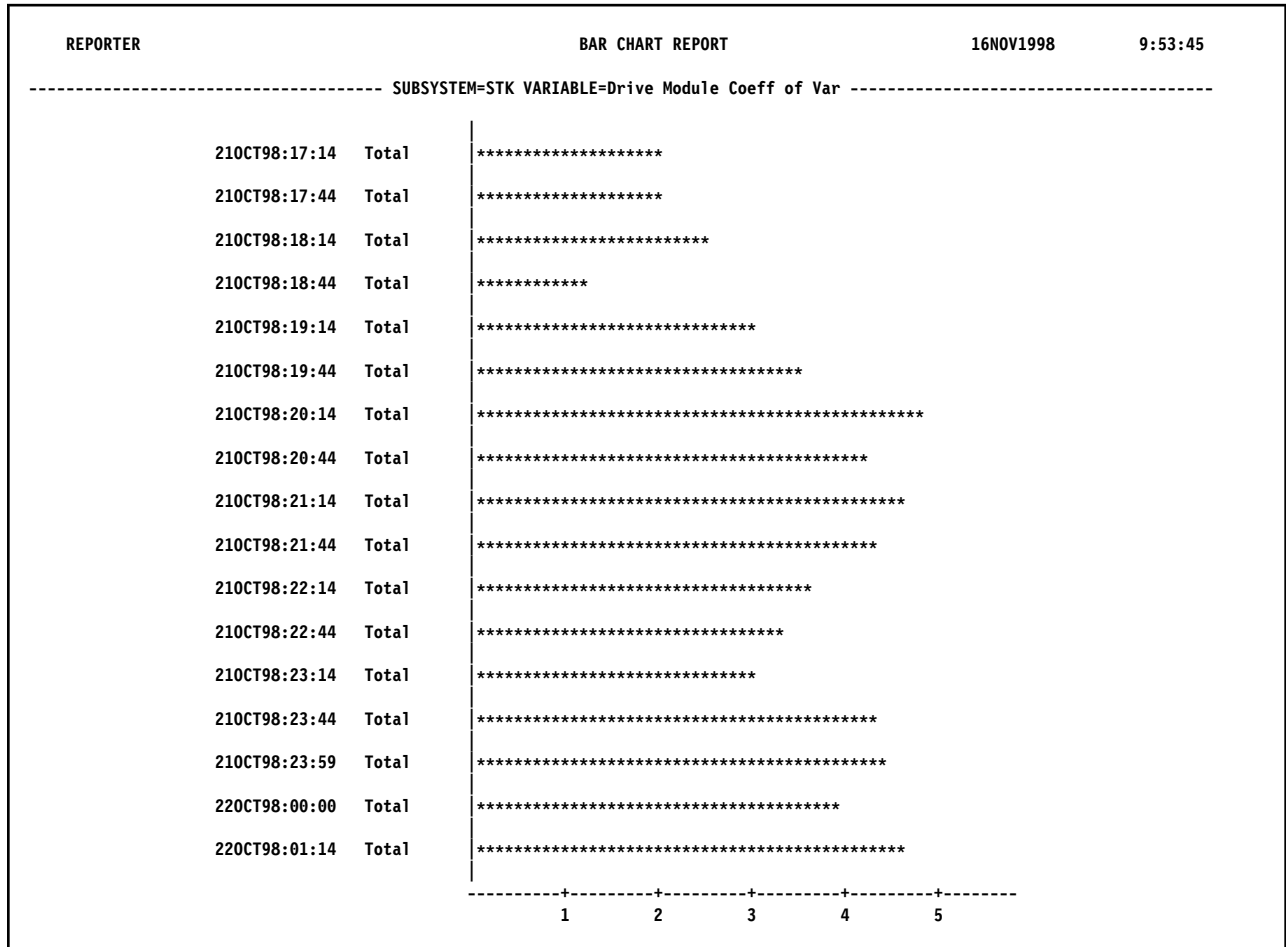
1. A “PHYS CAP USED--TOTAL” field containing 0.0* indicates that a small amount of back end storage exists.
2. In reports:
 - “N/A” indicates that the device address is not available or invalid.
 - An asterisk to the right of an entry in the VOLSER column indicates that the device is offline to the host.
 - V-ERR in an ALLOC column indicates that errors have occurred in accessing the VTOC. Look for messages in the job log with information about the error.

A bar-chart report shows values you specify from one or more of the other seven types of report, plotted over time on a bar chart (histogram). The sample reports below show bar charts for the access density, drive module coefficient of variation, and I/O rate. The statistics were collected at 1-minute intervals and summarized at 30-minute intervals.

REPORT PERF-
(DEVPERF (YES)-
BAR (ACCDEN DRVMCOV IORTE))

1. The common report header.
2. The SVAA subsystem name and the variable shown on the bar graph.
3. The bar graph.





Graphic Reports

Users with SAS/GRAPH® installed can request graphic displays of interval, time-ordered, daily, weekly, or monthly summary report data. Reporter saves the summarized data from the report in SAS file format to be sent to a separate SAS/GRAPH program, which you must run later. The SVAA SIBSAMP MACLIB includes sample SAS/GRAPH programs for producing graphic output from the saved data. The input data to SAS/GRAPH will already have been summarized; no further SAS computation is necessary. SAS/GRAPH output includes trend analyses.

Definitions of Field Names

The following list defines the field names and column headings of the reports explained in this manual. ("Variables Used in Definitions" on page 9-21 explains the variables in the formulas shown in the list.)

% ACTIVE ON CHNL

The percentage of the reporting interval that the subsystem was active on this channel interface. The time that the subsystem was active on the channel interface is the total of all the connect times on the interface.

% COLLECTED FREE SPACE

The percentage of the array cylinders in the subsystem that are free array cylinders (that is, the total space that can be written to).

% DEV AVAIL The percentage of the reporting interval in which the device was available (operational).

$$= \frac{\text{device available time}}{\text{durms}} * 100$$

% DEV CONN The percentage of the reporting interval in which the device was connected to the channel while processing an I/O operation.

$$= \frac{\text{conntime}}{\text{durms}} * 100$$

% DEV DISC The percentage of the reporting interval in which the device was disconnected from the channel while processing an I/O operation.

$$= \frac{\text{devutlti} - \text{conntime}}{\text{durms}} * 100$$

% DEV UTIL The percentage of the reporting interval in which the device was utilized (busy).
Busy time = connect time + disconnect time.

$$= \frac{\text{devutlti}}{\text{durms}} * 100$$

% DRIVE MODULE UTILIZATION

The highest percentage of drive module utilization in each decile range. This is a measure of the evenness of drive module utilization in the subsystem. A perfectly even distribution of drive module utilization would contain the same value in each percentile.

% FUNCTIONAL CAPACITY - NOT STORED

The percentage of defined functional capacity that is not occupying back-end storage.

% FUNCTIONAL CAPACITY - STORED

The percentage of defined functional capacity that is occupying back-end storage.

ACCESS DENSITY

The number of I/O operations per second per gigabyte of functional capacity defined.

$$= \frac{\text{iorate}}{\text{functional capacity in GB}}$$

AVG % DRIVE MODULE UTIL

The average percentage of time that the drive module was busy for the reporting interval, weighted by interval duration.

CACHE SIZE The size in megabytes of cache storage available to the user.

CHANNEL SPEED

The transfer rate (in megabytes per second) of the channel interface.

CLUSTER The channel interface cluster identifier. (Values: 0 or 1.)

Definitions of Field Names

COEFF OF VARIATION

The coefficient of variation of the percentages of times the drive modules were busy. This is a measure of the evenness of utilization of the drive modules in the subsystem; the smaller the coefficient of variation, the more evenly distributed is the utilization of the drive modules (activity is more evenly spread among the drive modules). Ideally, the utilization of each drive module is equal to the mean of all drive-module utilizations and the coefficient of variation is zero. A coefficient of variation greater than 20 should be investigated.

COLL FREE SPC

The space in the free array cylinders in the subsystem (that is, the total space that can be written to).

COLL FREE SPACE %—OVERALL

The percentage of the array cylinders in the subsystem that are free array cylinders.

$$= \frac{\text{frebescp} + \text{frebesct}}{\text{totbecpp} + \text{totbecpt}} * 100$$

COLL FREE SPACE %—PROD

The percentage of the array cylinders in the Production partition that are free array cylinders.

$$= \frac{\text{frebescp}}{\text{totbecpp}} * 100$$

COLL FREE SPACE %—TEST

The percentage of the array cylinders in the Test partition that are free array cylinders.

$$= \frac{\text{frebesct}}{\text{totbecpt}} * 100$$

COMP RATIO The approximate ratio of functional capacity stored to the physical capacity used (on a device level).

$$= \frac{\text{capstored}}{\text{phys cap used}}$$

DATE The ending date on which data included in this report was collected.

DEV ADDR The address of the device as defined in the IOCP.

DEVICE TYPE The type of DASD of the functional device. (Values: 3380-J, 3380-K, 3390-KE, 3390-1, 3390-2, 3390-3, 3390-9.)

DFW CONSTR The number for a functional device or the percentage for a subsystem of DASD fast-write operations that were bypassed (the data was written directly to DASD because insufficient nonvolatile storage was available). The value should be zero for SVA subsystems.

For devices:

$$= \text{NVS constraint count}$$

For subsystems:

$$= \frac{\text{NVS constraint count}}{\text{fastwrts}} * 100$$

DISK ARRAY CAPACITY

The amount of back-end storage available in the subsystem.

$$= \frac{\text{totbecpp} + \text{totbecpt}}{1000000}$$

DISTRIBUTION OF DRIVE MODULE UTILIZATION

A table showing at intervals of 10 percent the percentages of drive-module utilization.

DRIVE MODULE UTIL COEFF OF VAR

Coefficient of variation of individual drive module busy times.

EXCEPTION THRESHOLDS

The exception values that were specified for certain statistics. Values in the report that exceed the exception thresholds are marked with an *.

FDID The SVA subsystem identifier for the functional device. (Values: 00 - FF.)

FREE SPACE COLLECTION LOAD

The amount of back-end physical space collected for free-space consolidation that did not yield available free space.

$$= \frac{\text{bytes read for free-space collection}}{\text{bytes of free space collected}}$$

FREQUENCY The percentiles at which drive module utilization is reported.

FUNCT CAP The functional capacity in megabytes defined for the device.
For CKD devices:

$$= \frac{\text{bytes per track} * \text{tracks per cyl} * \text{primcapa}}{1000000}$$

For SCSI devices:

$$= \frac{\text{scsilbt} * \text{scsilbsz} * \text{tracks per cyl} * (\text{primcapa} - 2)}{1000000}$$

FUNCTIONAL CAPACITY-NOT STORED

The part of the functional capacity defined for the device or subsystem that is not mapped (that is, is not occupying back-end storage).

For CKD devices:

$$= \frac{\text{functional capacity} - \text{functional capacity stored}}{1000000}$$

FUNCTIONAL CAPACITY-STORED

The functional capacity in megabytes mapped (occupying back-end storage) for the device or subsystem.

For CKD devices:

$$= \frac{\text{bytes per track} * \text{number of tracks mapped}}{1000000}$$

For SCSI devices:

$$= \frac{\text{scsilbt} * \text{scsilbsz} * \text{number of tracks mapped}}{1000000}$$

HITS/STGE The ratio of the number of channel segments for which the addressed track was in cache storage to the number of times data was transferred from DASD storage to cache storage (that is, to the number of times the addressed track was not in cache storage). This is the ratio of cache hits to cache misses.

$$= \frac{\text{readhits} + \text{writhits}}{\text{stages}}$$

I/O HIT % The percentage of all I/O operations (read or write) for which the addressed track was present in cache storage.

$$= \frac{\text{readhits} + \text{writhits}}{\text{readreqs} + \text{writreqs} - \text{offlnrds}} * 100$$

Definitions of Field Names

I/O PER SEC The average number of I/O operations per second for the device or subsystem.

$$= \frac{\text{devactiv}}{\text{dursecs}}$$

Note: In Cache Effectiveness reports, I/O PER SEC may not be equal to the sum of READ PER SEC and WRITE PER SEC, either because *devactiv* may include other I/O operations, such as sense commands, or because there may be more than one read or write operation per channel program.

I/O SERVICE TIME-CONNECT

The average time the device was connected to the channel (in milliseconds) while processing an I/O operation.

$$= \frac{\text{conntime}}{\text{devactiv}}$$

This includes data transfer time and command parameter transfer time.

I/O SERVICE TIME-DISC

The average time the device was disconnected from the channel (in milliseconds) while processing an I/O operation.

$$= \frac{\text{devutlti} - \text{conntime}}{\text{devactiv}}$$

I/O SERVICE TIME-TOTAL

The average service time per I/O operation in milliseconds.

$$= \frac{\text{devutlti}}{\text{devactiv}}$$

The time does not include host queuing time (that is, IOSQ and Pend time.)

INTERFACE ID

The channel interface identifier. (Values: One of A through P.)

INTERFACE NAME

The name you assigned to the channel interface.

INTERVAL DURATION

The length of the collection interval in hours and minutes.

KBYTES PER SECOND

The amount of data in kilobytes transferred per second between the host and the subsystem.

$$= \frac{\text{febytxfr} + \text{febytxfw}}{1000 * \text{dursecs}}$$

LOW REF CT The average number of deallocated frames in cache that had fewer than two references before deallocation.

$$= \frac{\text{number of frames deallocated with fewer than 2 references}}{\text{frame deallocation count}} * 100$$

NET CAPACITY LOAD

The amount of back-end physical capacity used in a subsystem. This includes user data and the system areas needed to maintain the arrays. NCL does not include data in the cache until the data is written to the back end.

NET CAPACITY LOAD %

The percentage of back-end physical capacity that is used (not free).

$$= \frac{\text{total back-end capacity} - \text{free back-end capacity}}{\text{total back-end capacity}} * 100$$

NOMINAL FUNCTIONAL CAPACITY

The total defined capacity of all the devices. This is the functional capacity that would be available if every track of every device had a single record with a block length equal to the track size.

$$= \text{functional capacity stored} + \text{funct cap not stored}$$

NUMBER OF FUNCTIONAL DEVICES

The number of functional devices defined with back-end storage in the subsystem.

NVS SIZE The size in megabytes of the nonvolatile storage.

OFFLINE CACHE

The amount of cache storage that has been made unavailable.

OVERALL TOTALS

The sum of the Test partition and Production partition totals. For statistics that are ratios, including percentages, the totals are the weighted averages of the individual statistics.

PHYSICAL CAP USED (MB) - SHARED

The amount of back-end physical space (in megabytes) that is used (shared) by multiple functional devices as a result of a snap command.

PHYSICAL CAP USED (MB) - UNIQUE

The amount of back-end physical space (in megabytes) that is used by only one functional device.

PHYSICAL CAP USED (MB) - TOTAL

The total (shared + unique) back-end physical space (in megabytes) that is used by a functional device.

Note: The values reported for the three terms above do not include the storage used by the mapping tables and functional track directories used to maintain the disk arrays.

PINNED CACHE

The amount of cache that is unavailable to the subsystem because of cache failures or inability to destage a track from the cache. In SVA reports, this field should always be 0.

PROD PARTITION or PRODUCTION PARTITION

The statistics totals for devices in the Production partition. For statistics that are ratios, including percentages, the totals are weighted averages of the individual statistics.

READ HIT % The percentage of read operations for which the addressed track was present in cache storage.

$$= \frac{\text{readhits}}{\text{readreqs} - \text{offlnrds}} * 100$$

READ PER SEC

The average number of read operations per second for the device.

$$= \frac{\text{readreqs}}{\text{dursecs}}$$

Definitions of Field Names

READ/WRITE RATIO

The ratio of the number of read operations to write operations.

$$= \frac{\text{readreqs}}{\text{writreqs}}$$

REPORT END DATE

The latest ending date found in records in the file within the selected date range.

REPORT END TIME

The latest ending time found in records in the file within the selected date range and time range.

REPORT EXCLUSION DATES

The dates explicitly excluded from the report.

REPORT EXCLUSION DAYS

The days of week excluded from the report.

REPORT INCLUSION DAYS

The days of week included in the report.

REPORT START DATE

The earliest beginning date found in records in the file within the selected date range.

REPORT START TIME

The earliest beginning time found in records in the file within the selected date range and time range.

SIBCExx The name of the SAS macro that produced the Cache Effectiveness reports. This is followed by the SVAA version, release, and level.

SIBDPxx The name of the SAS macro that produced the Device Performance reports. This is followed by the SVAA version, release, and level.

STAGE PER SEC

The average number of staging operations (transfers of data from DASD storage to cache storage) per second.

$$= \frac{\text{stages}}{\text{dursecs}}$$

SUBSYSTEM The name of the SVA subsystem to which this report applies.

SUBSYSTEM NAME

The name of the SVA subsystem to which this report applies.

SUMMARY REPORTS

One of the Daily, Weekly, or Monthly Summary reports provided by Reporter.

SYNCHRONIZATION

In data collection, the number of minutes after the hour on which data-collection intervals are to begin.

T/P The partition to which the functional device belongs at the end of the reporting interval. (Values: T or P.)

TEST PARTITION

The statistics totals for devices in the Test partition. For statistics that are ratios, including percentages, the totals are weighted averages of the individual statistics.

TIME The time that the data was collected from the subsystem. In SVAA, this shows the *ending* time of the interval.

TOTAL FUNCTIONAL CAPACITY

The total defined functional capacity of all the devices, in megabytes. This is the functional capacity that would be available if every track of every device had a single record with a block length equal to the track size.

$$= \text{functional capacity stored} + \text{functional capacity not stored}$$

TOTAL FUNCTIONAL CAPACITY STORED

The total number of megabytes of data stored on DASD.

$$= \frac{\text{sum of capacity stored for all volumes}}{1000000}$$

TOTALS

A field that shows the Production partition and Test partition totals. For statistics that are ratios, including percentages, the totals are averages of the individual statistics.

TRACK OCCUP The average number of tracks per megabyte of cache per second. (This field does not appear on detail reports.)

$$= \frac{\text{cache track seconds}}{\text{dursecs} * \text{MB of cache}}$$

UNCOLL FREE SPACE %

The original space occupied when a functional track has been rewritten to a new location in the disk array. Also, the original space occupied by deleted tracks when a minidisk or CMS file has been deleted and space has been released.

VOLSER

The volume serial number for the device at the end of the reporting interval.

If N/A appears in the DEV ADD column, the functional device is not defined to the host operating system. In that case, N/A also appears in the VOLSER column.

WRITE HIT % The percentage of all write operations for which the addressed track was present in cache storage.

$$= \frac{\text{writhits}}{\text{fastwrts}} * 100$$

WRITE PER SEC

The average number of write operations per second for the device.

$$= \frac{\text{writreqs}}{\text{dursecs}}$$

Variables Used in Definitions

The formulas on the preceding pages may include the following variable names:

capstord	Functional capacity stored
CFW	Cache fast write
conntime	Total device connection time in milliseconds
devactiv	Number of end-of-chain events (that is, the number of I/Os) for a device
devutlti	Time in milliseconds the device is utilized (busy)
DFW	DASD fast write
durms	Duration of the interval in milliseconds
dursecs	Duration of the interval in seconds

Definitions of Variables

falloc	Functional capacity allocated: total allocated functional space (from the VTOC) / 1000000
fastwrts	Number of DFW normal requests + DFW sequential requests + CFW requests
febytxfr	Number of front-end read bytes transferred
febytxfw	Number of front-end write bytes transferred
frebecpp	Total (collected and uncollected) free space for Production partition
frebecpt	Total (collected and uncollected) free space for Test partition
frebescp	Collected free space for Production partition
frebesct	Collected free space for Test partition
iorate	devactiv/dursecs
ncapld	Net capacity load
numberio	Number of end-of-chain events at the channel interface
offlnrds	Number of reads that occurred while caching was deactivated for a device
primcapa	Primary capacity in cylinders
readhits	Number of read normal hits + read sequential hits + CFW hits
readreqs	Number of read normal requests + read sequential requests + CFW requests
scsilbsz	SCSI logical block size
scsilbt	SCSI logical blocks per track
stages	Number of DASD-to-cache transfers
stndrd	Standard functional capacity
stored	Total functional capacity stored
totbecpp	Total back-end capacity (Production partition)
totbecpt	Total back-end capacity (Test partition)
writreqs	Number of write normal requests + write sequential requests + CFW requests
writhits	Number of DFW normal hits + DFW sequential hits + CFW hits
xtnd	Extended functional capacity

Chapter 10. Format of Logging Records

Chapter Summary

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The Data Collection File

This chapter shows the layout of the records written in the Reporter data collection file. Output is directed to a user-managed file.

Note: The record formats shown in this chapter refer to “SMF record subtypes” and “SMF record headers” to maintain compatibility with the OS/390 documentation of these records.

The five Reporter data collection records are:

- Subsystem Performance
- Channel Interface Statistics
- Functional Device Performance
- Drive Module Performance
- Space Utilization

In each record, a standard SMF record header precedes the Reporter data, although it is mainly binary zeroes if output is not directed to SMF. Data collection records, as shown in Figure 10-1, consist of:

1. The SMF record header (24 bytes)
2. The Data Collection record prefix (56 bytes)—not present in the Space Utilization record
3. Information Segment Descriptors (8 bytes each)
4. Information Segments (variable length)

SMF Record Header

The SMF record prefix provides general information about the record itself, such as its length, and date and time written. A two-byte field at offset 22 identifies the record subtype. The first part of Table 10-1 on page 10-3 shows the format of the SMF record header.

Data Collection Record Prefix

The Data Collection record prefix provides general information about the conditions under which statistics are reported. The record prefix is present only in record subtypes 1 through 4. The second part of Table 10-1 on page 10-3 shows the format of the record prefix.

Information Segment Descriptors

There is one 8-byte Information Segment Descriptor area for each Information Segment that follows. Data in the segment descriptor includes the offset to the segments, the size of the segments, and the number of them.

If no Information Segments follow, the Information Segment Descriptors are set to zeros.

Information Segments

Information Segments contain the statistics gathered from the subsystems. Information Segments vary in size; they can be omitted, or more than one can be present, depending on the type of record.

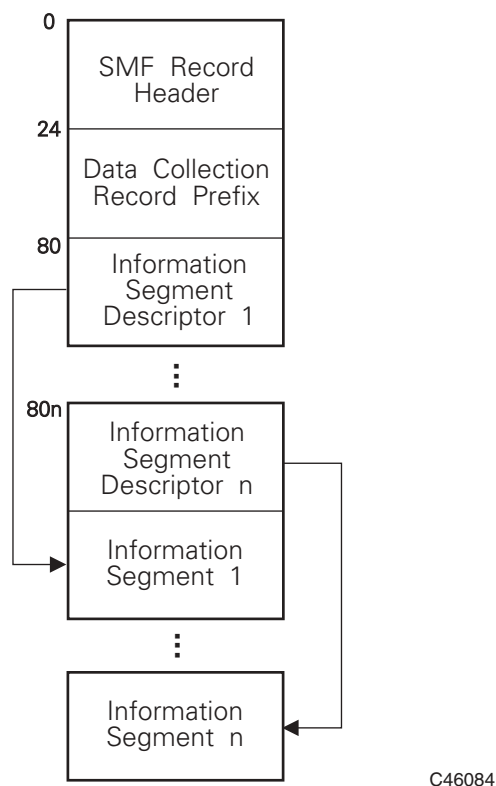


Figure 10-1. General format of Data Collection records, subtypes 1-4

Table 10-1 (Page 1 of 2). Record header and Data Collection record prefix for subtypes 1-4					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
SMF Record Header					
0	00	len	2	Binary	Record length. This field and the next make up the record descriptor word.
2	02	seg	2	Binary	Segment descriptor
4	04	smfflg	1	Binary	X'80' New SMF record format X'40' Subtype utilized X'20' (reserved) X'10' MVS/SP Version 4 X'08' MVS/ESA X'04' MVS/XA X'02' OS/VS2 X'01' (reserved)
5	05	smfrty	1	Binary	SMF record number
6	06	smftime	4	Binary	Time record written, in hundredths of seconds since midnight
10	0A	smfdate	4	Packed	Date record written, in the form 0cyydddF where: c=0 for 1990 to 1999 c=1 for 2000 to 2099
14	0E	smfsid	4	Character	System ID
18	12	smfssi	4	Character	Subsystem identification for SMF

Record Format

Table 10-1 (Page 2 of 2). Record header and Data Collection record prefix for subtypes 1-4					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
22	16	rectype	2	Binary	SMF record subtype X'0001' Subsystem Performance X'0002' Channel Interface Statistics X'0003' Functional Device Performance X'0004' Drive Module Performance X'0005' DDSR X'0006' (reserved) X'0007' Space Utilization X'0008' SnapShot
Data Collection Record Prefix					
24	18	duraTime	4	Integer	Interval duration time for subsystem (in milliseconds)
28	1C	subsysName	8	Character	Subsystem name
36	24	endTime	4	Packed	Interval end time in the form 0hhmmssF. This is the packed decimal time in hexadecimal format (the SAS RMFSTAMPW format).
40	28	endDate	4	Packed	Interval end date in the form 0cyydddF where: c=0 for 1990 to 1999 c=1 for 2000 to 2099 This is the packed decimal date in hexadecimal format (the SAS RMFSTAMPW format).
44	2C	subDurat	4	Integer	Interval duration time for subsystem (in milliseconds)—to be used in calculating overall subsystem rates
48	30	activPrt	1	Character	Partitions active during this collection interval T = Test P = Production B = Test and Production
49	31	version	1	Character	Version of this record subtype 1 = current version
50	32	(reserved)	2	Bitstring	Reserved
52	34	collId	16	Character	Collection run identifier
68	44	cpuID	8	Character	SMFID padded with blanks
76	4C	(reserved)	4	Bitstring	Reserved

Subsystem Performance Record

As shown in Figure 10-2, the Subsystem Performance record consists of:

- 1. The SMF record header (24 bytes)
- 2. The Data Collection record prefix (56 bytes)
- 3. Two Information Segment Descriptors—one for each Information Segment
- 4. The Subsystem Information Segment
- 5. The Space Effectiveness Information Segment

There is always one Subsystem Information Segment; there may be one Space Effectiveness Information Segment or there may be none.

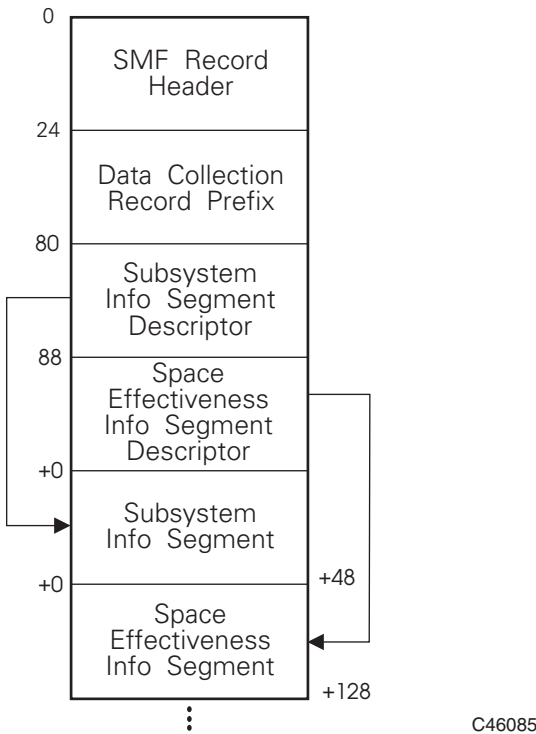


Figure 10-2. Subsystem Performance record

Table 10-2 shows the format of the Subsystem Performance record (subtype 1).

Table 10-2 (Page 1 of 2). Subsystem Performance record (SMF record subtype 1)					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
SMF Record Header and Data Collection Record Prefix					
0	00		80		See Table 10-1 on page 10-3
Subsystem Information Segment Descriptor					
80	50	infOffst	4	Integer	Offset to Subsystem Information Segment
84	54	infSegSz	2	Integer	Size of Subsystem Information Segment
86	56	infSegCt	2	Integer	Number of Subsystem Information Segments in this record -- always 1

Subsystem Performance Record

Table 10-2 (Page 2 of 2). Subsystem Performance record (SMF record subtype 1)					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
Space Effectiveness Information Segment Descriptor					
88	58	spcOffst	4	Integer	Offset to Space Effectiveness Information Segment for the subsystem
92	5C	spcSegSz	2	Integer	Size of a Space Effectiveness Information Segment
94	5E	spcSegCt	2	Integer	Number of Space Effectiveness Information Segments in this record -- can be 0 or 1
Subsystem Information Segment					
+0	00	custCach	4	Integer	Cache size (MB)
+4	04	offCach	4	Integer	Offline cache (MB)
+8	08	pindCach	4	Integer	Pinned cache (MB)
+12	0C	nvsSize	4	Integer	NVS size (MB)
+16	10	rGrpCnt	2	Integer	Array count 0 = No 1 = Yes
+18	12	iceberg	1	Character	This is an SVA device
+19	13	(reserved)	1	Character	Reserved
+20	14	ecamMsgs	4	Integer	Count of ECAM messages processed
+24	18	ecamNspc	4	Integer	Number of ECAM channel programs bypassed because no buffer space was available
+28	1C	ecamCfBs	4	Integer	Number of ECAM channel programs bypassed because no configuration was busy
+32	20	ecamPgms	4	Integer	Number of ECAM channel programs
+36	24	(reserved)	12	Character	Reserved
Space Effectiveness Information Segment					
+0	00	totBeCpT	8	Double	Total back-end capacity of Test partition (in bytes)
+8	08	totBeCpP	8	Double	Total back-end capacity of Production partition (in bytes)
+16	10	freBeCpT	8	Double	Free back-end capacity in Test partition available for user data (in bytes) -- includes capacity reserved for standard volumes
+24	18	freBeCpP	8	Double	Free back-end capacity in Production partition available for user data (in bytes) -- includes capacity reserved for standard volumes
+32	20	fSpcBtRT	8	Double	Total number of bytes read for free space collection in Test partition
+40	28	fSpcBtRP	8	Double	Total number of bytes read for free space collection in Production partition
+48	30	fSpcCoIT	8	Double	Total free space collected in Test partition
+56	38	fSpcCoIP	8	Double	Total free space collected in Production partition
+64	40	(reserved)	8	Character	Reserved
+72	48	stndDefd	8	Double	Standard capacity defined
+80	50	freBeSct	8	Double	Free collected back-end space
+88	58	freBeScp	8	Double	Free collected back-end space in Production partition
+96	60	(reserved)	32	Character	Reserved in Test partition

Channel Interface Statistics Record

As shown in Figure 10-3, the Channel Interface Statistics record consists of:

1. The SMF record header (24 bytes)
2. The Data Collection record prefix (56 bytes)
3. Information Segment Descriptor—one for each Information Segment
4. Channel Interface Statistics Information Segments—one per attached channel

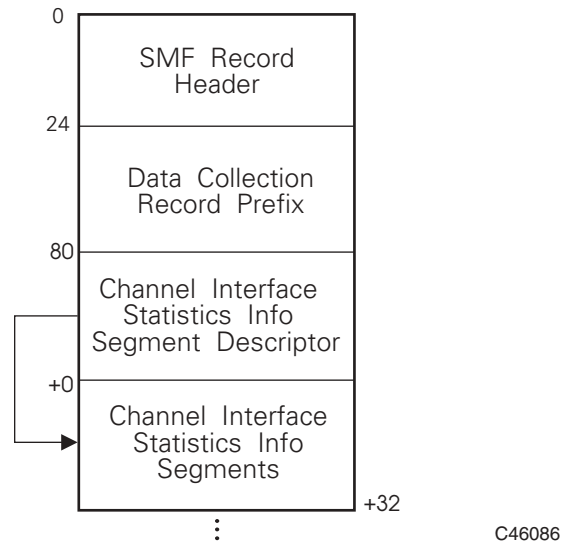


Figure 10-3. Channel Interface Statistics record

Table 10-3 shows the format of the Channel Interface Statistics record (subtype 2).

Table 10-3 (Page 1 of 2). Channel Interface Statistics record (SMF record subtype 2)					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
SMF Record Header and Data Collection Record Prefix					
0	00		80		See Table 10-1 on page 10-3.
Channel Interface Statistics Information Segment Descriptor					
80	50	chnOffst	4	Integer	Offset to Channel Interface Statistics Segment
84	54	chnSegSz	2	Integer	Size of a Channel Interface Statistics Segment
86	56	chnSegCt	2	Integer	Number of Channel Interface Segments in this record
Channel Interface Statistics Information Segment					
+0	00	cluster	1	Character	Channel cluster (0 or 1)
+1	01	intfld	1	Character	Channel interface identifier (A through P)
+2	02	intfName	8	Character	Channel interface name
+10	0A	intEnCur	2	Integer	Channel interface currently enabled 0 = No 1 = Yes
+12	0C	chanSped	2	Integer	Channel speed -- 3.0, 4.5, or 20.0 megabytes/second
+14	0E	(reserved)	2	Character	Reserved
+16	10	numberIo	4	Integer	Number of I/Os
+20	14	tiCoBuCh	4	Integer	Time control unit busy at channel (in milliseconds)

Functional Device Performance Record

Table 10-3 (Page 2 of 2). Channel Interface Statistics record (SMF record subtype 2)					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
+24	18	chanType	2	Integer	Channel interface type 0 = uninstalled 1 = parallel 2 = ESCON 3 = SCSI 4 = fibre 6 = FICON
+26	1A	(reserved)	6	Integer	Reserved

Functional Device Performance Record

As shown in Figure 10-4, the Functional Device Performance record consists of:

1. The SMF record header (24 bytes)
2. The Data Collection record prefix (56 bytes)
3. Three Information Segment Descriptors—one for each Information Segment
4. Three Information Segments

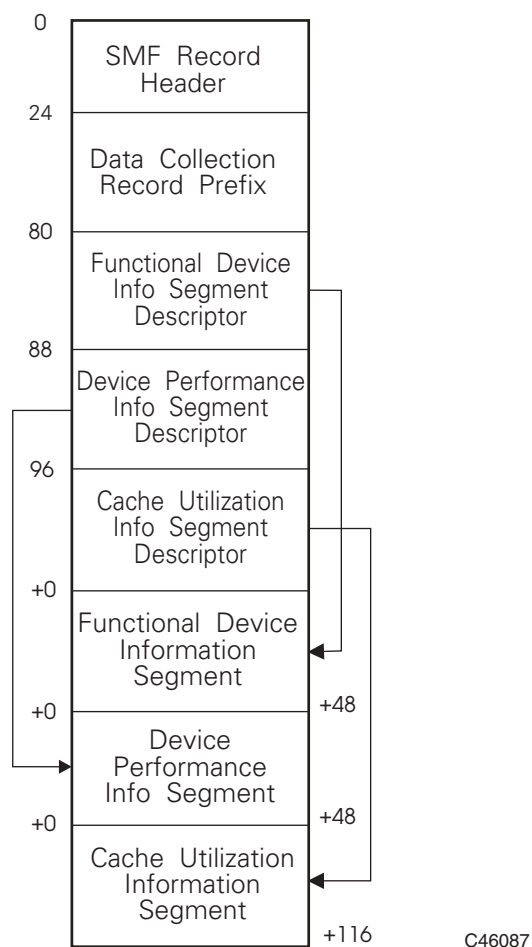


Figure 10-4. Functional Device Performance record

Table 10-4 shows the format of the Functional Device Performance record (subtype 3).

Table 10-4 (Page 1 of 3). Functional Device Performance record (SMF record subtype 3)					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
SMF Record Header and Data Collection Record Prefix					
0	00		80		See Table 10-1 on page 10-3.
Functional Device Information Segment Descriptor					
80	50	infOffst	4	Integer	Offset to Functional Device Information Segment
84	54	infSegSz	2	Integer	Size of Functional Device Information Segment
86	56	infSegCt	2	Integer	Number of Functional Device Information Segments in this record -- always 1.
Device Performance Information Segment Descriptor					
88	58	prfOffst	4	Integer	Offset to Device Performance Segment.
92	5C	prfSegSz	2	Integer	Size of a Device Performance Segment
94	5E	prfSegCt	2	Integer	Number of Device Performance Segments in this record -- can be 0 or 1
Cache Utilization Information Segment Descriptor					
96	60	cacOffst	4	Integer	Offset to Cache Utilization Information Segment
100	64	cacSegSz	2	Integer	Size of a Cache Utilization Information Segment
102	66	cacSegCt	2	Integer	Number of Cache Utilization Information Segments in this record -- can be 0 or 1
Functional Device Information Segment					
+0	00	vdid	2	Integer	Functional device identifier (0-4095)
+2	02	partMemb	1	Character	Partition membership T = Test P = Production
+3	03	devValid	1	Integer	Device number (devNum) is valid flag 0 = No 1 = Yes
+4	04	devNum	2	Integer	Device address as known to the host SCP
+6	06	volSer	6	Character	Volume serial number
+12	0C	vDevName	8	Character	Device name
+20	14	iceberg	1	Character	This is an SVA device 0 = No 1 = Yes
+21	15	(reserved)	3	Character	Reserved
+24	18	readReqs	4	Integer	Total read request count
+28	1C	writReqs	4	Integer	Total write request count
+32	20	devActiv	4	Integer	Number of I/O operations (number of end-of-chain events)
+36	24	vDevType	6	Character	Type of virtual device
+42	2A	volType	2	Integer	Type of volume 0 = CKD (includes PAV Base devices) 1 = CKD with SCSI format 2 = CKD Power PPRC Data Bridge 3 = CKD Power PPRC Status Bridge

Functional Device Performance Record

Table 10-4 (Page 2 of 3). <i>Functional Device Performance record (SMF record subtype 3)</i>					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
+44	2C	(reserved)	4	Character	Reserved
Device Performance Information Segment					
+0	00	feBytXfR	8	Double	Count of front-end bytes transferred -- read operations
+8	08	feBytXfW	8	Double	Count of front-end bytes transferred -- write operations
+16	10	availTim	4	Integer	Device available time (in milliseconds)
+20	14	devUtlTi	4	Integer	Device utilization time (in milliseconds)
+24	18	connTime	4	Integer	Device connect time (in milliseconds)
+28	1C	(reserved)	4	Integer	Reserved
+32	20	primCapa	4	Integer	Primary capacity in cylinders
+36	24	trackCyl	4	Integer	Tracks per cylinder
+40	28	byteTrak	4	Integer	Bytes per track
+44	2C	scsilbt	2	Integer	SCSI logical blocks per track
+46	2E	scsilbsz	2	Integer	SCSI logical block size
Cache Utilization Information Segment					
+0	00	(reserved)	4	Integer	Reserved
+4	04	rdNorReq	4	Integer	Search or read normal request count
+8	08	rdNorHit	4	Integer	Search or read normal hits
+12	0C	wrNorReq	4	Integer	Write normal requests
+16	10	dfwNorHt	4	Integer	DASD Fast Write normal hits
+20	14	rdSeqReq	4	Integer	Search or read sequential request count
+24	18	rdSeqHit	4	Integer	Search or read sequential hits
+28	1C	wrSeqReq	4	Integer	Write sequential requests
+32	20	dfwSeqHt	4	Integer	DASD Fast Write sequential hits
+36	24	rdCFWreq	4	Integer	Search or read Cache Fast Write requests
+40	28	rdCFWhit	4	Integer	Search or read Cache Fast Write hits
+44	2C	wrCFWreq	4	Integer	Cache Fast Write requests
+48	30	wrCFWhit	4	Integer	Cache Fast Write hits
+52	34	inhCaLrq	4	Integer	Inhibit cache loading requests
+56	38	bypCaReq	4	Integer	Bypass cache requests
+60	3C	caSeqXfr	4	Integer	Sequential DASD to cache transfers (stages)
+64	40	caXfrStg	4	Integer	DASD to cache transfers (stages)
+68	44	caDasdXf	4	Integer	Cache to DASD transfers
+72	48	dfwNVSct	4	Integer	DASD Fast Write NVS constraint count
+76	4C	dfwNorWr	4	Integer	DASD Fast Write normal write requests
+80	50	dfwSeqWr	4	Integer	DASD Fast Write sequential write requests
+84	54	(reserved)	4	Integer	Reserved
+88	58	seqIntAc	4	Integer	Sequential-detected sequential access read requests
+92	5C	caEnbCur	1	Integer	Device caching status 0 = Caching inactive for device 1 = Caching active for device

Table 10-4 (Page 3 of 3). <i>Functional Device Performance record (SMF record subtype 3)</i>					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
+93	5D	dfwEnCur	1	Integer	Device DASD Fast Write status 0 = DASD Fast Write inactive for device 1 = DASD Fast Write active for device
+94	5E	(reserved)	2	Integer	Reserved
+96	60	lowRfCnt	4	Integer	Low reference count
+100	64	lowRfLRU	4	Integer	Low reference count due to LRU
+104	68	frDealCt	4	Integer	Frame deallocation count
+108	6C	caTrkSec	4	Integer	Cache occupancy (track milliseconds)
+112	70	(reserved)	4	Integer	Reserved

Drive Module Performance Record

Figure 10-5 shows the layout of the Drive Module Performance record, which consists of:

1. The SMF record header (24 bytes)
2. The Data Collection record prefix (56 bytes)
3. Information Segment Descriptor—one for each Information Segment
4. Drive Module Performance Information Segments

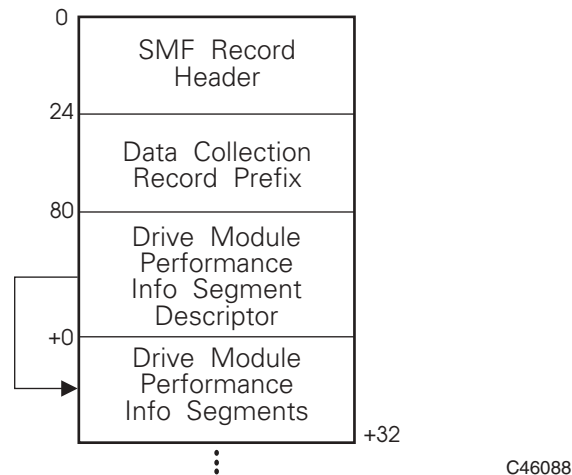


Figure 10-5. *Drive Module Performance record*

Table 10-5 on page 10-12 shows the format of the Drive Module Performance record (subtype 4).

Drive Module Performance Record

Table 10-5. Drive Module Performance record (SMF record subtype 4)					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
SMF Record Header and Data Collection Record Prefix					
0	00		80		See Table 10-1 on page 10-3.
Drive Module Performance Information Segment Descriptor					
80	50	prfOffst	4	Integer	Offset to Drive Module Performance Segment
84	54	prfSegSz	2	Integer	Size of a Drive Module Performance Segment
86	56	prfSegCt	2	Integer	Number of Drive Module Performance Segments in this record
Drive Module Performance Information Segment					
+0	00	unit	1	Integer	Unit
+1	01	tray	1	Integer	Tray
+2	02	slot	1	Integer	Slot
+3	03	partMemb	1	Character	Partition membership (T = Test, P = Production)
+4	04	drvMdTim	4	Integer	Drive module interval duration (in milliseconds)
+8	08	busyTime	4	Integer	Drive module busy time (in milliseconds)
+12	0C	(reserved)	4	Integer	Reserved
+16	10	readByts	8	Excess 64 ¹	Bytes transferred -- read operations
+24	18	wrteByts	8	Excess 64	Bytes transferred -- write operations

¹ Excess 64 notation is the long floating-point notation in which the characteristic of a floating-point number is represented by its binary equivalent plus 64. The first two hexadecimal digits represent the sign of the fraction (the first bit) and the exponent. The other 6 hexadecimal digits represent the mantissa of the fraction (which is always positive).

Space Utilization Record

The Space Utilization record consists of:

1. The SMF record header (24 bytes)
2. The basic segment
3. The report summary heading
4. The first section: space utilization report summary
5. The second section: selected devices summary
6. The third section: space utilization summary

In general, the fields of the space utilization SMF event record correspond to the fields of the space utilization report (see “Sample Space Utilization Report” on page 9-11). However, the SMF record also includes fields that are used for internal calculations and are not shown in the report.

For each field in the event record shown in Table 10-6, the description column entry begins with one of:

- (***) to indicate a calculation field; these do not appear in the report
- The heading (in all caps) that appears in the report
- An indication that there is no corresponding heading in the report

Table 10-6 (Page 1 of 6). <i>Space Utilization event record (SMF record subtype 7)</i>					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
SMF Record Header					
0	00	len	2	Binary	Record length. This field and the next make up the record descriptor word.
2	02	seg	2	Binary	Segment descriptor
4	04	smfflg	1	Binary	X'80' New SMF record format X'40' Subtype utilized X'20' (reserved) X'10' MVS/SP Version 4 X'08' MVS/ESA X'04' MVS/XA X'02' OS/VS2 X'01' (reserved)
5	05	smfnty	1	Binary	SMF record number
6	06	smftime	4	Binary	Time record written, in hundredths of seconds since midnight
10	0A	smfdate	4	Packed	Date record written, in the form 0cyydddF where: c=0 for 1990 to 1999 c=1 for 2000 to 2099
14	0E	smfsid	4	Character	System ID
18	12	smfssi	4	Character	Subsystem identification for SMF

Space Utilization Record

Table 10-6 (Page 2 of 6). <i>Space Utilization event record (SMF record subtype 7)</i>					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
22	16	rectype	2	Binary	SMF record subtype X'0001' Subsystem Performance X'0002' Channel Interface Statistics X'0003' Functional Device Performance X'0004' Drive Module Performance X'0005' DDSR X'0006' (reserved) X'0007' Space Utilization X'0008' SnapShot
Basic Segment					
0	00	ssucode	2	Integer	(**) LIC level
2	02	totflag	2	Binary	(**) Totals record flag: 1 = This is a totals record 2 = Not a totals record If this is a totals record, all fields except the totals fields are blank.
4	04	noTrMapd	4	Integer	(**) Number of tracks mapped
8	08	primCapa	2	Integer	Primary capacity in cylinders
10	0A	trackCyl	2	Integer	(**) Tracks per cylinder
12	0C	byteTrak	4	Integer	(**) Bytes per track
16	10	capntstr	8	Double	Functional capacity not stored
24	18	spAlloc	8	Double	(**) Space allocated
32	20	fnctcap	8	Double	(**) Functional capacity (primCapa*trackCyl*byteTrak)
40	28	capstord	8	Double	(**) Capacity stored (noTrMapd*byteTrak)
48	30	beBytExt	8	Double	(**) Number of back-end bytes
56	38	totBeCpT	8	Double	(**) Total back-end capacity in Test partition
64	40	totBeCpP	8	Double	(**) Total back-end capacity in Production partition
72	48	freBeCpT	8	Double	(**) Free back-end capacity in Test partition
80	50	freBeCpP	8	Double	(**) Free back-end capacity in Production partition
88	58	freBeScT	8	Double	(**) Free back-end space collected in Test partition
96	60	freBeScP	8	Double	(**) Free back-end space collected in Production partition
Space Utilization Summary Heading					
+104	68	subSName	9	Character	SUBSYSTEM: Subsystem name
+113	71	res1	1	Character	Reserved
+114	72	fDevCnt	2	Integer	NUMBER OF FUNCTIONAL DEVICES: Number of functional devices
Space Utilization Report Summary					
+116	74	vDevName	9	Character	FDID: Name of functional device
+125	7D	devNum	5	Character	DEV ADDR: Device address
+130	82	volSer	9	Character	VOLSER: Volume serial number
+139	8B	res2	1	Character	Reserved

Table 10-6 (Page 3 of 6). <i>Space Utilization event record (SMF record subtype 7)</i>					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
+140	8C	offflag	2	Character	(No heading in report.) Offline flag: if an asterisk appears between the VOLSER and T/P columns in the report, the volume is offline
+142	8E	errflg	2	Character	(No heading in report.) Device error flag: if there is a device error, ALLOC fields in the report are changed to "V-ERR."
+144	90	partMemb	2	Character	T/P: Partition membership (Test or Production)
+146	92	vDevType	7	Character	DEVICE TYPE: Type of virtual device
+153	99	res3	7	Character	(Reserved)
+160	A0	fcapcity	8	Double	FUNCT CAP: Functional capacity in megabytes
FUNCTIONAL CAPACITY					
+168	A8	falloc	8	Double	ALLOC: Functional capacity allocated (in megabytes)
+176	B0	fstored	8	Double	STORED: Functional capacity stored (in megabytes)
+184	B8	fnotstor	8	Double	NOT STORED: Functional capacity not stored (in megabytes)
SELECTED DEVICES					
+192	C0	palloc	8	Double	ALLOC: Percentage of functional capacity allocated
+200	C8	pstored	8	Double	STORED: Percentage of functional capacity stored
+208	D0	pnotstor	8	Double	NOT STORED: Percentage of functional capacity not stored
+216	D8	PhCapUse	8	Double	PHYS CAP USED: Physical capacity used (megabytes)
+224	E0	cmprat	8	Double	COMPRESS RATIO: Compression ratio
+232	E8	backstor	1	Character	(No heading in report.) If PhCapUse = 0.0 but the value is greater than zero before rounding, "*" is appended to the PHYS CAP USE field.
+233	E9	res4	1	Character	(Reserved)
Selected Devices Summary					
SELECTED DEVICES					
+234	EA	tDevCntP	2	Integer	PRODUCTION PARTITION: Total number of functional devices -- Production partition
+236	EC	tDevCntT	2	Integer	TEST PARTITION: Total number of functional devices -- Test partition
+238	EE	tDevCntB	2	Integer	TOTALS:) Total number of functional devices -- both partitions
TOTAL FUNCTIONAL CAPACITY					
+240	F0	tFunCapP	8	Double	PRODUCTION PARTITION: Total functional capacity (in megabytes) -- Production partition
+248	F8	tFunCapT	8	Double	TEST PARTITION: Total functional capacity (in megabytes) -- Test partition
+256	100	tFunCapB	8	Double	TOTALS: Total functional capacity (in megabytes) -- both partitions
TOTAL FUNCTIONAL CAPACITY STORED					
+264	108	tFuCpStP	8	Double	PRODUCTION PARTITION: Total functional capacity stored (in megabytes) -- Production partition

Space Utilization Record

Table 10-6 (Page 4 of 6). <i>Space Utilization event record (SMF record subtype 7)</i>					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
+272	110	tFuCpStT	8	Double	TEST PARTITION: Total functional capacity stored (in megabytes) -- Test partition
+280	118	tFuCpStB	8	Double	TOTALS: Total functional capacity stored (in megabytes) -- total of both partitions
TOTAL FUNCTIONAL CAPACITY NOT STORED					
+288	120	tFuCpNoP	8	Double	PRODUCTION PARTITION: Total functional capacity not stored (in megabytes) -- Production partition
+296	128	tFuCpNoT	8	Double	TEST PARTITION: Total functional capacity not stored (in megabytes) -- Test partition
+304	130	tFuCpNoB	8	Double	TOTALS: Total functional capacity not stored (in megabytes) -- total of both partitions
% FUNCTIONAL CAPACITY STORED					
+312	138	pFuCpStP	8	Double	PRODUCTION PARTITION: Percentage functional capacity stored -- Production partition
+320	140	pFuCpStT	8	Double	TEST PARTITION: Percentage functional capacity stored -- Test partition
+328	148	pFuCpStB	8	Double	TOTALS: Percentage functional capacity stored -- both partitions
% FUNCTIONAL CAPACITY NOT STORED					
+336	150	pFuCoNoP	8	Double	PRODUCTION PARTITION: Percentage functional capacity not stored -- Production partition
+344	158	pFuCoNoT	8	Double	TEST PARTITION: Percentage functional capacity not stored -- Test partition
+352	160	pFuCpNoB	8	Double	TOTALS: Percentage functional capacity not stored -- both partitions
PHYS CAP USED					
+360	168	tPhCpUsP	8	Double	PRODUCTION PARTITION: Total physical capacity of disk array used -- Production partition
+368	170	tPhCpUsT	8	Double	TEST PARTITION: Total physical capacity of disk array used -- Test partition
+376	178	tPhCpUsB	8	Double	TOTALS: Total physical capacity of disk array used -- both partitions
COMPRESS RATIO					
+384	180	tCmpRatP	8	Double	PRODUCTION PARTITION: Compression ratio of disk array -- Production partition
+392	188	tCmpRatT	8	Double	TEST PARTITION: Compression ratio of disk array -- Test partition
+400	190	tCmpRatB	8	Double	TOTALS: Compression ratio of disk array -- both partitions
+408	198	tBakStoP	1	Character	(No heading in report.) Flag (in report, asterisk right of PHYS CAP USED column) to indicate that physical capacity of disk array used is greater than 1.0 -- Production partition
+409	199	tBakStoT	1	Character	(No heading in report.) Flag (in report, asterisk right of PHYS CAP USED column) to indicate that physical capacity of disk array used is greater than 1.0 -- Test partition

Table 10-6 (Page 5 of 6). <i>Space Utilization event record (SMF record subtype 7)</i>					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
+410	19A	tBakStoB	1	Character	(No heading in report.) Flag (in report, asterisk right of PHYS CAP USED column) to indicate that physical capacity of disk array used is greater than 1.0 -- both partitions
+411	19B	res5	5	Character	(Reserved)
Space Utilization Summary					
+416	1A0	totlpcap	8	Double	DISK ARRAY CAPACITY: Capacity of disk array (in megabytes)
NET CAPACITY LOAD %					
+424	1A8	ncapldpt	8	Double	TEST: Percentage net capacity load -- Test partition
+432	1B0	ncapldpp	8	Double	PROD: Percentage net capacity load -- Production partition
+440	1B8	ncapldp	8	Double	OVERALL: Percentage net capacity load -- overall
COLL FREE SPACE %					
+448	1C0	fspccolt	8	Double	TEST: Percentage collected free space -- Test partition
+456	1C8	fspccolp	8	Double	PROD: Percentage collected free space -- Production partition
+464	1D0	fspccol	8	Double	OVERALL: Percentage collected free space -- overall
UNCOLL FREE SPACE %					
+472	1D8	fspcunct	8	Double	TEST: Percentage uncollected free space -- Test partition
+480	1E0	fspcuncp	8	Double	PROD: Percentage uncollected free space -- Production partition
+488	1E8	fspcunc	8	Double	OVERALL: Percentage uncollected free space -- overall
+496	1F0	datetime	25	Character	(**) Date and time record was produced
+521	209	res6	3	Character	(Reserved)
+524	20C	noTrMapu	4	Integer	(**) Number of unique tracks mapped
+528	210	beBytUnq	8	Double	(**) Number of unique back end bytes
+536	218	beBytShr	8	Double	(**) Number of shared back end bytes
+544	220	PhCapUsS	8	Double	Shared physical cap used (in megabytes)
+552	228	PhCapUsU	8	Double	Unique physical cap used (in megabytes)
+560	230	tPhCpSrP	8	Double	PRODUCTION PARTITION: Total shared physical capacity used -- Production partition
+568	238	tPhCpSrT	8	Double	TEST PARTITION: Total shared physical capacity used -- Test partition
+576	240	tPhCpSrB	8	Double	TOTALS: Total shared physical capacity used -- both partitions
+584	248	tPhCpUnP	8	Double	PRODUCTION PARTITION: Total unique physical capacity used -- Production partition
+592	250	tPhCpUnT	8	Double	TEST PARTITION: Total unique physical capacity used -- Test partition
+600	258	tPhCpUnB	8	Double	TOTALS: Total unique physical capacity used -- both partitions
+608	260	scsilbt	2	Integer	SCSI logical blocks per track
+610	262	scsilbsz	2	Integer	SCSI logical block size

Space Utilization Record

Table 10-6 (Page 6 of 6). <i>Space Utilization event record (SMF record subtype 7)</i>					
Dec Offset	Hex Offset	Field Name	Length	Type	Description
+612	264	volType	2	Integer	Type of volume 0 = CKD (includes PAV Base devices) 1 = CKD with SCSI format 2 = CKD Power PPRC Data Bridge 3 = CKD Power PPRC Status Bridge
+614	266	res7	26	Character	(Reserved)

Appendix A. Exception Thresholds

The following tables describe all the exception thresholds monitored by Reporter.

The first column of the tables lists subsystem variables for which you can specify reporting thresholds. The second column describes the variables. The next column shows a mnemonic abbreviation for the variable; you use these abbreviations in specifying thresholds using Reporter subcommands. The last two columns show the default values for the lower and upper thresholds of the variable. You can specify these defaults by using an asterisk for the threshold value in the panel field or subcommand parameter. Threshold values for which there is no default are marked **N/A**.

Specify the threshold names and values in one of two ways:

- As values of the THRS parameter of the REPORT PERF subcommand or as values on the SPECIFY EXCEPTION THRESHOLDS panel.
- As entries in an exception thresholds file.

You can also specify that there be no exception reporting for a subsystem variable by specifying **NO** for that variable.

For more information, see “Specifying Exception Thresholds” on page 6-10.

Device-Performance Exception Thresholds

The following table lists the fields of the SPECIFY EXCEPTION THRESHOLDS panel that apply to Device Performance reports. You specify these thresholds using primarily the left side of the panel. The fields are ordered as you see them on the panel. (The panel appears on page 7-40.)

Table A-1 (Page 1 of 2). Exception thresholds for device-performance reporting				
Panel field	Description of Exception	Abbreviation for exception	LT	GT
I/O rate (device)	Average number of I/O operations per second for a functional device.	IORTEDEV	N/A	40
Device Available %	Percentage of reporting interval in which the device was available (operational).	DEVAVL PCT	100	0
Drive Module Coeff Var	Coefficient of variation (expressed as a percent) of percentage drive module busy.	DRVMCOV	N/A	20
Access Density	Number of I/O operations per second per gigabyte of functional capacity defined.	ACCDEN	N/A	10
I/O Service Time	Average service time per I/O operation in milliseconds.	IOSVCTM	N/A	12
Disconnect Time	Average time device was disconnected from the channel (in milliseconds) while processing an I/O operation.	DISCTM	N/A	10
Device Utilization %	Percentage of reporting interval in which the device was utilized (busy).	UTILPCT	N/A	30
Disconnect Time %	Percentage of reporting interval in which the device was disconnected from the channel while processing an I/O operation.	DISCPCT	N/A	24

Thresholds

Table A-1 (Page 2 of 2). <i>Exception thresholds for device-performance reporting</i>				
Panel field	Description of Exception	Abbreviation for exception	LT	GT
Channel I/O Rate	Average number of I/O operations (end-of-chain events) per second for the channel interface.	CHNLRTE	N/A	350
% Active on Channel	Percentage of reporting interval the subsystem was active (transferring data) on this channel interface.	ACTCHNPCT	N/A	50
Drive Module Util %	Average percentage drive module busy for reporting interval averaged over all drive modules.	DRVMUTILPCT	N/A	15
Net Capacity Load %	Percentage of back-end capacity that is used (not free).	NCAPLODPCT	N/A	75

Cache-Effectiveness Exception Thresholds

The following table lists the fields of the SPECIFY EXCEPTION THRESHOLDS panel that apply to Cache Effectiveness reports. You specify these thresholds using primarily the right side of the panel. The fields are ordered as you see them on the panel. (The panel appears on page 7-40.)

Table A-2 (Page 1 of 2). <i>Exception thresholds for cache-effectiveness reporting</i>				
Panel field	Description of Exception	Abbreviation for exception	LT	GT
I/O rate (device)	Average number of I/O operations per second for a functional device.	IORTEDEV	N/A	40
I/O Rate (subsystem)	Average number of I/O operations per second for a subsystem.	IORTESUB	N/A	1200
I/O Hit %	Percentage of I/O operations for which the addressed track was present in cache storage.	IOHITPCT	70	N/A
Read Hit %	Percentage of read operations for which the addressed track was present in cache storage.	RDHITPCT	65	N/A
Write Hit %	Percentage of write operations for which the addressed track was present in cache storage.	WRHITPCT	90	N/A
DASD Fast Write Constraint (device)	Number of DASD Fast Write operations that were delayed (data written directly to DASD) due to insufficient nonvolatile storage, summarized by functional device.	DFWCNSTDEV	N/A	0
DASD Fast Write Constraint (subsystem)	Number of DASD Fast Write operations that were delayed (data written directly to DASD) due to insufficient nonvolatile storage, summarized by subsystem.	DFWCNSTSUB	N/A	1
Stage Rate (device)	Average number of staging operations (transfer of data from DASD storage to cache) per second, summarized by functional device	STGRTEDEV	N/A	12

Table A-2 (Page 2 of 2). Exception thresholds for cache-effectiveness reporting				
Panel field	Description of Exception	Abbreviation for exception	LT	GT
Stage Rate (subsystem)	Average number of staging operations (transfer of data from DASD storage to cache) per second, summarized by subsystem	STGRTESUB	N/A	360
Tracks Occupied	Average number of tracks occupying cache per second per megabyte of cache, for the subsystem only.	TRKOCC	45	N/A
Hits per Stage (xx.x or xxxx)	Ratio of number of channel segments for which the addressed track was in cache storage to number of times data was transferred from DASD storage to cache. xx.x is a reminder that you can enter thresholds with at most one decimal place.	HITSTGE	2.3	N/A

Thresholds

Appendix B. Variables for Bar Chart Reports

The following table lists all subsystem variables for which you can produce bar charts.

The first column lists the subsystem variables that are available for reporting as bar charts in the order that the fields appear on the SELECT BAR CHART FIELDS panel (see Figure 7-43 on page 7-44). The second column shows the abbreviation to use in the BARCHART parameter of the REPORT PERFORMANCE subcommand to obtain a bar chart for the selected value.

Table B-1 (Page 1 of 2). Bar chart fields		
Panel field	Description of subsystem value	Abbreviation
Device Available %	Percentage of reporting interval in which the device was available (operational).	DEVAVL PCT
Drive Module Utilization %	Average percent drive module busy for reporting interval averaged over all drive modules.	DRVMUTIL PCT
I/O rate	Average number of I/O operations per second for the device, channel interface, or subsystem.	IORTE
Drive Module Coeff of Var	Coefficient of variation of percent drive module busy. This measures the evenness of real device utilization in the subsystem.	DRVMCOV
Access Density	I/O operations per second per gigabyte of functional capacity defined.	ACCDEN
I/O Hit %	Percentage of total I/O operations for which the addressed track was present in cache storage.	IOHIT PCT
Kilobytes per Second	Kilobytes of data transferred between the host computer and the subsystem per second.	KBSEC
I/O Service Time	Average service time per I/O operation in milliseconds. Does not include host queueing time.	IOSVCTM
Read Hit %	Percentage of read operations for which the addressed track was present in cache storage.	RDHIT PCT
Disconnect Time	Average time device was disconnected from the channel (in milliseconds) while processing an I/O operation.	DISCTM
DASD Fast Write Constraint	Percentage of DASD Fast Write operations which were bypassed (data written directly to DASD) due to of insufficient nonvolatile storage.	DFWCONSTR
Device Utilization %	Percentage of reporting interval in which the device was utilized (busy). Busy time = connect time + disconnect time.	UTIL PCT
Stage Rate	Average number of staging operations (transfer of data from DASD storage to cache) per second.	STGRTE
Disconnect Time %	Percentage of reporting interval in which the device was disconnected from the channel while processing an I/O operation.	DISCPCT
Hits per Stage	Ratio of number of channel segments for which the addressed track was in cache storage to number of times data was transferred from DASD storage to cache.	HITSTGE
Free Space Collection Load	Percentage of back-end physical space collected for free space consolidation that did not yield available free space.	SPCCOLL D
Tracks Occupied	Average number of tracks occupying cache per second per megabyte of cache for the subsystem only.	TRKOCC

Bar Charts

Table B-1 (Page 2 of 2). <i>Bar chart fields</i>		
<i>Panel field</i>	<i>Description of subsystem value</i>	<i>Abbreviation</i>
Net Capacity Load %	Percentage of back-end capacity that is used (not free).	NCAPLODPCT
Write Hit %	Percentage of write operations for which the addressed track was present in cache storage.	WRHITPCT

Appendix C. Information in Host Records

This appendix shows you which reports provide statistics for the various variables collected from the subsystems. Table C-1 lists the kinds of information shown in SAS reports and shows the associated internal variable names. Table C-2 on page C-4 shows the reports that provide data for each variable.

To use this appendix:

1. Find the statistic you want in the first column of Table C-1.
2. Obtain the corresponding variable name from the second column of the table.
3. Go to Table C-2 on page C-4 and find the variable name in the first column.
4. Read across the table. Wherever there is an x in the table, look at the top of the column to find a report that includes the statistic you want reported.

For example, to determine which reports indicate the amount of free space collected, look in the second column of Table C-1 and find “amount of free space collected (bytes).” The table indicates that the variable that contains this information is FSPCCOLL. Looking up that variable in Table C-2 on page C-4, you see an 'x' in the columns that indicate that you can find this statistic in any of the six kinds of summary device performance reports that show subsystem totals.

Table C-1 (Page 1 of 3). SAS labels and their corresponding variables	
SAS label	SAS variable
% collected free space	FSPCCOL
% collected free space (Production)	FSPCCOLP
% collected free space (Test)	FSPCCOLT
% DASD fast writes directly to DASD	DFWCONST
% device active/capacity	IOCPRATE
% device connected to channel	PDVCONN
% device disconnected from channel	PDVDISC
% device was utilized (pdvconn+pdvdisc)	PDVUTIL
% drive module coeff of variation	COEFFVAR
% I/Os for which track was in cache	IOHIT
% of available reporting interval device	DEVAVAIL
% of reads for which track was in cache	READHIT
% of writes for which track was in cache	WRITHIT
% subsys active on channel	ACTVCHNL
% uncollected free space	FSPCUNC
% uncollected free space (Production)	FSPCUNCP
% uncollected free space (Test)	FSPCUNCT
# bytes read for free space coll (Production partition)	FSPCBTRP
# bytes read for free space coll (Test partition)	FSPCBTRT
amount of free space collected (bytes)	FSPCCOLL
ave % drive module utilization	DRVMODUT

Host Variables

Table C-1 (Page 2 of 3). SAS labels and their corresponding variables	
SAS label	SAS variable
ave % drive module busy	WGHTAVG
ave num of reads per sec	READRATE
ave num of writes per second	WRITRATE
ave number I/Os per sec	IORATE
ave service time in millisecs	IOSTOTL
ave time device connect to channel msec	IOSTCONN
ave time disconnected from channel msec	IOSTDISC
cache storage in megabytes	RPTCACH
channel cluster	CLUSTER
channel I/Os per sec	CIORATE
channel interface identifier (A-P)	INTFID
channel interface name	INTFNAME
channel speed megabytes per second	CHANSPEED
compress ratio	CMPRAT
cache size in megabytes	CUSTCACH
device address as known to the host	DEVNUM
device capacity	CAPACITY
device name	VDEVNAME
device number valid flag	DEVVALID
duration of collection interval	INTDUR
duration of reporting interval	INT
free min sectors avail for user (bytes)	FREBECAP
free back end sector (Production)	FREBESAP
free back end sector (Test)	FREBESAT
free space collection load (total)	SPCCOLL
free space collection load (Production partition)	SPCCOLLP
free space collection load (Test partition)	SPCCOLLT
highest % drive module util in 10% range	PCNT10
highest % drive module util in 20% range	PCNT20
highest % drive module util in 30% range	PCNT30
highest % drive module util in 40% range	PCNT40
highest % drive module util in 50% range	PCNT50
highest % drive module util in 60% range	PCNT60
highest % drive module util in 70% range	PCNT70
highest % drive module util in 80% range	PCNT80
highest % drive module util in 90% range	PCNT90
highest % drive module util in 100% range	PCNT100
hits per stage	HITSSTG
Iceberg device indicator	ICEBERG
input/output per sec per gig of func cap	ACCDEN

Table C-1 (Page 3 of 3). SAS labels and their corresponding variables	
SAS label	SAS variable
SVAA subsystem name	SUBSNAME
kilobytes per second	KBYTESEC
low reference count	LOWREFCT
net capacity load % (total)	NCAPLDP
net capacity load % (Production)	NCAPLDPP
net capacity load % (Test)	NCAPLDPT
nonvolatile storage in megabytes	RPTNVS
nvs size in megabytes	NVSSIZE
offline cache in megabytes	OFFLCACH
offline cache in megabytes	RPTOFFL
part member for detail type recs	PARTM2
part member for part member type recs	PARTM1
partition membership	PARTMEMB
pinned cache in megabytes	PINDCACH
pinned cache in megabytes	RPTPIND
ratio of reads to writes	RWRATIO
reporting int/subsys summary var	INTSSN
reporting interval max date	DHIDATE
reporting interval max date	HIDATE
reporting interval max time	DHITIME
reporting interval max time	HITIME
reporting interval max date/time	HIGHTD
reporting interval max date/time	MAXENDTD
reporting interval min date/time	MINSTRTD
reporting interval start date	SRTDATE
stages per second	STGRATE
subsys interval summary variable	SSNINT
summary type	_TYPE_
tot num summarized recs	_FREQ_
total back-end capacity (Production partition)	TOTBECPD
total back-end capacity (Test partition)	TOTBECPT
tracks occupied per sec per cache mbyte	TRACKOCC
unit, tray, slot	UTS
virtual device identifier (0-4095)	VDID
volume serial number	VOLSER

Host Variables

Table C-2 (Page 1 of 4). Reports containing the various output file variables. Each of the three kinds of report is divided into three columns, one for Device Performance reports, one for Cache Effectiveness reports, and one for both. Each of these three columns is further divided into two columns, one headed "D" and one headed "S"; the "D" column indicates a device-details report and the "S" column indicates a subsystem-totals report.

Variable Name	INTERVAL SUMMARY						DAY/WEEK/MONTH SUMMARY						TIME-ORDERED SUMMARY					
	Dvce Perf		Cache Eff		Both		Dvce Perf		Cache Eff		Both		Dvce Perf		Cache Eff		Both	
	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S
FREQ		X				X		X				X		X				X
TYPE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ACCDEN	X	X			X	X	X	X			X	X	X	X			X	X
ACTVCHNL	X				X		X				X		X				X	
CAPACITY	X	X			X	X	X	X			X	X	X	X			X	X
CHANSPED	X				X		X				X		X				X	
CIORATE	X				X		X				X		X				X	
CLUSTER	X				X		X				X		X				X	
COEFFVAR		X				X		X				X		X				X
CUSTCACH			X	X	X	X			X	X	X	X			X	X	X	X
DEVAVAIL	X	X			X	X	X	X			X	X	X	X			X	X
DEVNUM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DEVVALID	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
DFWCONST			X	X	X	X			X	X	X	X			X	X	X	X
DHIDATE															X	X	X	X
DHITIME															X	X	X	X
DRVMODUT		X				X		X				X		X				X
FREBECAP		X				X		X				X		X				X
FSPCBTRP		X				X		X				X		X				X
FSPCBTRT		X				X		X				X		X				X
FSPCCOLL		X				X		X				X		X				X
IDATE	X	X	X	X	X	X												
HIGHTD													X	X	X	X	X	X
HITIME	X	X	X	X	X	X												

Table C-2 (Page 2 of 4). Reports containing the various output file variables. Each of the three kinds of report is divided into three columns, one for Device Performance reports, one for Cache Effectiveness reports, and one for both. Each of these three columns is further divided into two columns, one headed "D" and one headed "S"; the "D" column indicates a device-details report and the "S" column indicates a subsystem-totals report.

Variable Name	INTERVAL SUMMARY						DAY/WEEK/MONTH SUMMARY						TIME-ORDERED SUMMARY					
	Dvce Perf		Cache Eff		Both		Dvce Perf		Cache Eff		Both		Dvce Perf		Cache Eff		Both	
	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S
HITSSTG			x	x	x	x			x	x	x	x			x	x	x	x
ICEBERG			x	x	x	x			x	x	x	x			x	x	x	x
INT	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
INTDUR	x	x	x	x	x	x												
INTFID	x				x		x				x		x				x	
INTFNAME	x				x		x				x		x				x	
INTSSN		x	x	x	x	x		x	x	x	x	x						
IOCPRATE	x	x			x	x	x	x			x	x	x	x			x	x
IOHIT			x	x	x	x			x	x	x	x			x	x	x	x
IORATE	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
IOSTCONN	x	x			x	x	x	x			x	x	x	x			x	x
IOSTDISC	x	x			x	x	x	x			x	x	x	x			x	x
IOSTOTL	x	x			x	x	x	x			x	x	x	x			x	x
KBYTESEC	x	x			x	x	x	x			x	x	x	x			x	x
LOWREFCT			x	x	x	x			x	x	x	x			x	x	x	x
MAXENDTD							x	x	x	x	x	x						
MINSTRTD							x	x	x	x	x	x						
NCAPLDP		x				x		x				x		x				x
NCAPLDPP		x				x		x				x		x				x
NCAPLDPT		x				x		x				x		x				x
NVSSIZE			x	x	x	x			x	x	x	x			x	x	x	x
OFFLCACH			x	x	x	x									x	x	x	x
PARTMEMB	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PARTM1							x	x	x	x	x	x	x	x	x	x	x	x

Host Variables

Table C-2 (Page 3 of 4). Reports containing the various output file variables. Each of the three kinds of report is divided into three columns, one for Device Performance reports, one for Cache Effectiveness reports, and one for both. Each of these three columns is further divided into two columns, one headed "D" and one headed "S"; the "D" column indicates a device-details report and the "S" column indicates a subsystem-totals report.

Variable Name	INTERVAL SUMMARY						DAY/WEEK/MONTH SUMMARY						TIME-ORDERED SUMMARY					
	Dvce Perf		Cache Eff		Both		Dvce Perf		Cache Eff		Both		Dvce Perf		Cache Eff		Both	
	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S
PARTM2							X	X	X	X	X	X	X	X	X	X	X	X
PCNT10	X				X		X				X		X				X	
PCNT100	X				X		X				X		X				X	
PCNT20	X				X		X				X		X				X	
PCNT30	X				X		X				X		X				X	
PCNT40	X				X		X				X		X				X	
PCNT50	X				X		X				X		X				X	
PCNT60	X				X		X				X		X				X	
PCNT70	X				X		X				X		X				X	
PCNT80	X				X		X				X		X				X	
PCNT90	X				X		X				X	X	X				X	
PDVCONN	X	X			X		X	X			X	X	X	X			X	X
PDVDISC	X	X			X	X	X	X			X	X	X	X			X	X
PDVUTIL	X	X			X	X	X	X			X	X	X	X			X	X
PINDCACH			X	X	X	X									X	X	X	X
READHIT			X	X	X	X			X	X	X	X			X	X	X	X
READRATE			X	X	X	X			X	X	X	X			X	X	X	X
RPTCACH			X	X	X	X			X	X	X	X			X	X	X	X
RPTNVS			X	X	X	X			X	X	X	X			X	X	X	X
RPTOFFL			X	X	X	X									X	X	X	X
RPTPIND			X	X	X	X									X	X	X	X
RWRATIO			X	X	X	X			X	X	X	X			X	X	X	X
SPCCOLL		X				X		X				X		X				X
SPCCOLLP		X				X		X				X		X				X

Table C-2 (Page 4 of 4). Reports containing the various output file variables. Each of the three kinds of report is divided into three columns, one for Device Performance reports, one for Cache Effectiveness reports, and one for both. Each of these three columns is further divided into two columns, one headed "D" and one headed "S"; the "D" column indicates a device-details report and the "S" column indicates a subsystem-totals report.

Variable Name	INTERVAL SUMMARY						DAY/WEEK/MONTH SUMMARY						TIME-ORDERED SUMMARY					
	Dvce Perf		Cache Eff		Both		Dvce Perf		Cache Eff		Both		Dvce Perf		Cache Eff		Both	
	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S
SPCCOLLT		x				x		x				x		x				x
SRTDATE							x	x	x	x	x	x						
SSNINT														x				x
STGRATE			x	x	x	x			x	x	x	x			x	x	x	x
SUBSNAME	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
TOTBECPP		x				x		x				x		x				x
TOTBECPT		x				x		x				x		x				x
TRACKOCC ¹			x	x	x	x			x	x	x	x			x	x	x	x
UTS		x				x		x				x		x				x
VDEVNAME	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
VDID	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
VOLSER	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
WGHTAVG		x				x		x				x		x				x
WRITHIT			x	x	x	x			x	x	x	x			x	x	x	x
WRITRATE			x	x	x	x			x	x	x	x			x	x	x	x

¹ Only at the subsystem level (not on device details)

Host Variables

Appendix D. Using Data Extraction

This appendix provides suggestions for creating graphs of the extracted data in various operating environments, and defines the variables that may be specified for data extraction (see “Extracting Summarized History Data” on page 7-47).

Overview of Data Extraction

The data-extraction function of Reporter reduces the amount of data involved in a report so that the data can be used to produce a meaningful graphic report—either with SAS/GRAPH in a VM environment, on a UNIX workstation or a PC, or with an application that can process comma-delimited files in any of these environments or on a Macintosh personal computer. You can also process the data with SAS or with any other personal computer application that takes comma-delimited output.

The general process is:

1. Use the SVAA panels to create a SAS extraction program (see “Extracting Summarized History Data” on page 7-47). SVAA uses data from the history files you specify as input.
2. Execute the SAS extraction program as a separate step.
3. The SAS extraction program produces output in one of the following forms, as you specify on the panels:
 - Comma-delimited output file. Process this file either on a workstation or a personal computer, using any program that takes comma-delimited data as input.
 - SAS output file. Process this file with SAS/GRAPH on a mainframe. The SVAA SIBSAMP MACLIB includes sample programs that produce the seven kinds of graphs that you can specify on the panels. You must modify the SAS LIBNAME statement in these programs as necessary.
 - SAS transport file. Download this file to a workstation or to a personal computer and process it with SAS and SAS/GRAPH.

Later sections of this appendix provide additional information about step 3 in various environments.

Creating the SAS Extraction Program

You use the SVAA panels as described in “Extracting Summarized History Data” on page 7-47 to create a SAS program to extract the data from a current history file for graphing or other processing.

The examples in this appendix assume that you have run the SAS program to extract the data and that the output program is stored in a file called **EXTRACT SAMPLE A1** in VM.

Running the Output Program

The data extraction function of SVAA produces a SAS program that you can run to produce output files that can be used in various environments to produce graphs of the extracted data. The output files can be comma-delimited or in SAS format.

Extracting the Data

Run the output SAS extraction program.

Downloading Samplib Members to the Workstation from VM

SVAA includes sample programs for creating the graphs supplied by StorageTek both in a samplib and on a floppy disk. Use the following process to download the sample programs from the &samplib..

The sample program files must be transferred to the workstation with EBCDIC-to-ASCII translation, because all the data in the files is in character format.

Samplib members reside in the SIBSAMP MACLIB macro library. Before beginning the FTP process, take these steps to make each samplib member into its own file:

1. In CMS, enter **XEDIT SIBSAMP MACLIB(MEMBER SIBSGR01)**
2. Enter **PUT * SIBGR01 SAS A**
3. Exit from XEDIT.
4. Repeat steps 1 through 3 for members SIBSGR02 through SIBSGR07.

To transfer the files from VM to a workstation using the File Transfer Program (FTP) on the mainframe:

1. Enter **FTP *workstation-name***, where *workstation-name* is the defined name or TCP/IP address of your workstation.
2. When prompted, enter your workstation user ID and password.
3. Enter **ASCII** to make sure that EBCDIC-to-ASCII translation occurs.
4. To transfer each of the files from VM, enter: **PUT SIBSGRnn.SAS.A**
/path/SIBSGRnn, where *nn* is **01, 02, ..., 07**

Creating the Graphs

If you created a SAS output program, run the sample SAS programs SIBSGR01 - SIBSGR07 to produce the graphs. You can run these programs in VM, OS/390, or UNIX.

Downloading Comma-Delimited Files

Before the extracted data can be processed on the workstation, the files must be downloaded. The process to follow depends on the kind of file.

Comma-delimited files must be transferred to the workstation with EBCDIC-to-ASCII translation, because all the data in the files is in character format, consisting of fields that are in quotes and separated by commas.

To transfer a comma-delimited file from a mainframe computer to a workstation using the File Transfer Program (FTP) on the mainframe:

1. Enter **FTP** *workstation-name*, where *workstation-name* is the defined name or TCP/IP address of your workstation.
2. When prompted, enter your workstation user ID and password.
3. Enter **ASCII** to make sure that EBCDIC-to-ASCII translation occurs.
4. Enter: **PUT EXTRACT.SAMPLE** *workstation-name* (note that the filename and filetype are separated by a period, not a blank).

Note: *workstation-name* must follow the workstation's file-naming convention and must include the full path name.

Downloading SAS Files

SAS files (either a SAS extracted-data file or a SAS transport file) must be transferred to a workstation without EBCDIC-to-ASCII translation, because data in these files is in mixed binary and character formats. SAS translates the character fields as necessary after the data has been downloaded.

To transfer a SAS file from a mainframe to a workstation using FTP on the workstation:

1. Enter **FTP** *hostname*, where *hostname* is the defined name or TCP/IP address of the mainframe.
2. When prompted, enter your user ID and password for your logon to the mainframe.
3. Enter **BINARY** to make sure that EBCDIC-to-ASCII translation does not occur.
4. To download the files in VM, enter: **GET EXTRACT.SAMPLE** *workstation-filename* (note that the filename and filetype are separated by a period, not a blank).

Notes:

1. *workstation* must follow the workstation's file-naming convention and must include the full path name.
2. Once the SAS file has been downloaded to the workstation, you can access the device-detail and subsystem-totals output as separate SAS library members. (See the sample SAS/GRAPH programs distributed in &samplib. for examples of the required FILENAME statements.) If you created SAS extract files as well as SAS transport files, the SAS member names of the exported output are the same as the member names specified for the SAS file members. If you did not create SAS extract files, the member name is TEMPDET for device totals and TEMPTOT for subsystem totals.

Graphing Extracted Data on a PC

Data in a comma-delimited extract file can be processed with any application that accepts comma-delimited input. One way is with an Excel macro, a sample of which can be found in the SIBSAMP MACLIB distributed with SVAA.

Downloading the Sample Excel Macro

There is a sample Excel macro named SIBXGR00 in the &samplib. in binary form and also on a diskette supplied by StorageTek. To transfer the macro from the mainframe to a personal computer using FTP on the mainframe:

1. After entering FTP and setting up the connection, enter **BINARY**.

2. Enter `PUT SIBXGR00.SAMPLIB C:\EXCEL\SIBXGR00.XLM`

Running the Excel Macro

To run the sample Excel macro:

1. Open Excel.
2. Select **File** from the menu bar.
3. Select **Open** from the file menu.
4. Select **SIBXGR00.XLM** to load the macro (the macro has the hidden attribute, so it does not appear on your display).
5. In Excel 4:
 - a. Select **Macro** from the menu bar.
 - b. Select **Run**.
 - c. Highlight **SIBXGR00.XLM** and click on **OK**.
6. In Excel 5:
 - a. Select **Tools** from the menu bar.
 - b. Select **Macro**.
 - c. Highlight **SIBXGR00.XLM** and click on **Run**.
7. A dialog box with the title "Select Worksheet to Chart" appears. The upper-left corner of the dialog box contains a list of the worksheets that you have already opened. If a worksheet containing the data you want to chart has already been opened, you can select it from this list (only one worksheet name appears at first—you can click the down arrow to see the names of the rest of the open worksheets, and highlight the one you want). Then click on **OK**.
8. If the worksheet containing the data you want to chart has not yet been opened, click on the "Open New File..." box in the lower left corner of the dialog box (note that this option is not available on the Macintosh, where the worksheet must have been opened previously).
9. A new dialog box called "Open New worksheet" now appears. Select the desired file from the list of files in the current directory. If the file you want is not in the current directory, select the appropriate directory from the list of directories, then select the desired file. If the file is still in comma-delimited format (that is, it has not yet been converted to Excel format), click on the "comma-delimited" option in the lower-left corner of this dialog box. (Excel reads in the file as a comma-delimited file and saves it as an Excel file with an .XLS extension in the Windows environment).
10. The SIBXGR00.XLM macro then opens the file. Note that if the selected file had previously been opened, the macro reverts the file to the copy saved on the disk. Therefore, be careful not to use this option if you have made changes to the worksheet that have not yet been saved.
11. Once you have selected an already open worksheet or you have opened a new one, a new dialog box called "Select Graphs" appears. Only those graphs for which the worksheet has data is available for selection (the rest are dimmed). If the worksheet was created from extracted subsystem totals data, the "I/O service time and functional device utilization" graph is not available. If the worksheet was created from extracted device totals data, the "I/O service time and functional device utilization graph" is the *only* graph available and is

automatically selected, if all the required fields are present. Select the desired graphs from the list and click on OK. The graphs are generated and appear in separate windows. Note that the macro may take several minutes to produce a graph, depending on the amount of data present. (This is especially true for the device-totals graph.)

Note: If you select too many graphs, or if you are graphing a large amount of data, you may run out of Windows® resources. In that case, close any graphs you have already produced and run the macro again, this time selecting fewer graphs.

Opening Comma-Delimited Files

To open a comma-delimited extract file with Excel, rather than using the SIBXGR00.XLM macro, follow these steps:

1. Select **File** from the Excel menu bar.
2. Select **Open** from the File menu.
3. With Excel 4, click on the **Text** button. Then select the **comma** option and click on OK.
4. Highlight the desired file or files, then click on OK.
5. To save the file as an Excel file, select **File** from the menu bar. Select **Save As...** from the File menu. Under **Save as File Type**, select "Normal." In Windows, the file is then saved with the .XLS extension.

LIBNAME statements in SAS

The data extract function creates a SAS program that produces the output files in comma-delimited or SAS format. &samplib. contains sample SAS-format files named SIBSGR nn , where nn is 01 through 07 (these numbers correspond to the seven types of graphs you can create—see page 7-54). To run SAS/GRAPH using the sample programs, you must provide LIBNAME statements and you must modify the Set statement to point to the correct libdef and filename. The format of these statements depends on where the data extraction program was run and where you are running SAS. The following examples refer to output files named *hlq.EXTRACT.SAMPLE* with SAS member name EXTRACT SAMPLE A

Produced on VM, Running on VM

The format of the LIBNAME statement is:

```
LIBNAME SIBSGR $nn$  'filetype filemode';
```

Example: **LIBNAME SIBSGR01 'SAMPLE A';**

The format of the SET statement is:

```
SET SIBSGR $nn$ .filename;
```

(In the sample, the filename appears as ????????, so you must replace it with the filename or member name.)

Example: **SET SIBSGR01.EXTRACT;**

Produced on VM, SAS-Transport File Running on UNIX

The format of the LIBNAME statement is:

```
LIBNAME SIBSGRnn XPORT '/path/filename.filetype'
```

Example: LIBNAME SIBSGR01 XPORT '/a/b/EXTRACT.SAMPLE';

The format of the SET statement is:

```
SET SIBSGRnn.filename
```

Example: SET SIBSGR01.EXTRACT;

Miscellaneous Information about Data Extraction

In addition to the above, data extract users should be aware of the following items.

Estimated Work Space

SVAA calculates the number of bytes required to store a data extract output file as 8 times the number of unique variables selected, times the number of days specified, times the number of intervals within the time range.

Saving a SAS Graph in a Postscript® File

The sample SIBSGRnn files in &samplib. allow you to save the output in a Postscript file instead of displaying it on the screen. To create a Postscript file for printing:

1. Edit the SIBSGRnn file from &samplib..
2. Locate the phrase "Remove asterisk to Save Output."
3. Remove the asterisk from column 1 of that line.

To change back to displaying the output on the screen, replace the asterisk.

Excel Graphs

You can produce all seven graphs with SIBGRX00.XLM. You select the graphs you want when you run the macro, providing you had specified those graphs on the panels.

The macro performs some calculations to produce the graphs. Therefore, these charts are not automatically updated when the underlying spreadsheet changes; you must regenerate these charts by running the macro again.

Volsers in Extracted Output

If a functional device is offline or not defined to the collecting host during data collection, the volume serial number is unknown. In that case, the volume serial number field in the data extract output contains either the user-defined name of the functional device, followed by a single asterisk or, if the functional device name is blank, the functional device ID, followed by two asterisks.

Data Extraction Variables

This section lists and describes the reporting variables that can be specified for data extraction.

Data for some variables is not extracted from the source files under certain circumstances, because doing so would create redundant data for functional devices when the data was collected over a number of channels. In this case, SVAA extracts only channel totals. Table D-1 shows the two groups of variables that are NOT extracted and the circumstances under which this happens. The two groups are:

Set A *chansped, cluster, intencur, intfid, intfname*

Set B *capacity, devnum, devvalid, vdevname, vdid, volser*

The first column of the table shows the type of source file from which the data is to be extracted. The second column shows the variables that are excluded from the device summary file; the third column shows the variables that are excluded from the subsystem totals summary.

Table D-1. Variables NOT extracted for each summary type		
Source	Summary type requested	
	Device	Subsystem
Device detail file		For the functional devices, Set A plus Set B
Detail detail and channel files	Set A	For both functional devices and channels, Set A plus Set B
Channel file		For the channels, Set A plus Set B

The following list shows the variables that may be defined for data extraction.¹

accden	Access density
actvchnl	Percent subsystem active on channel
availtim	Device available time in milliseconds
busytim	Total drive-module-busy time
busytime	Total drive module utilization in milliseconds
bypcareq	Number of bypass cache requests
bytetrak	Bytes per track
cacsegct	Number of device cache utilization segments
cadasdx	Cache to DASD transfers (destages)
capacity	Functional capacity in gigabytes
caseqxf	Number of sequential stages (prestages)

¹ For non-SVA devices, SVAA provides only cache-effectiveness data. Therefore, some of the following variables will have zero values in the extracted data file.

Data Extraction Variables

caxfrstg	Normal stages
chansped	Channel speed
chantype	Channel interface type
ciorate	Channel I/O rate
cluster	Cluster ID
coeffvr	Drive module utilization coefficient of variation
collid	Collection ID
conntime	Total time device is connected in milliseconds
cpuid	ID of CPU on which data collection was run
custcach	Cache size in megabytes
devactiv	Number of end-of-chain events
devavail	Percentage functional device available
devnum	Device number as known to operating system
devutlti	Total time device is utilized in milliseconds
devvalid	Device number is valid indicator
dfwnorht	DASD Fast write normal hits
dfwnorwr	DASD Fast write normal write requests
dfwnvsct	DASD Fast write constraint count
dfwseqht	DASD Fast write sequential hits
dfwseqwr	DASD Fast write write requests
drvmddtim	Interval duration in milliseconds
drvmddtm	Total drive module available time
drvmddut	Average percentage drive module utilization
enddate	Interval ending date
endtime	Interval ending time
fastwrts	Fast-write requests
febytxfr	Number of front-end read bytes transferred
febytxfw	Number of front-end write bytes transferred
frdealct	Total number of frames deallocated
frebecp	Free (collected plus uncollected) back-end capacity in gigabytes
frebecs	Total (collected plus uncollected) back-end capacity in gigabytes
fspcbtr	Bytes read for free-space collection
fspccol	Total amount of free-space collected
funccap	Total functional capacity in gigabytes
hitsstg	Hits per stage
iceberg	Inhibit cache-loading requests
inhcalrq	Number of requests to inhibit cache-loading

intencur	Channel enabled
intfid	Interface ID
intfname	User-assigned interface name
iohit	I/O hit percentage
iorate	Average I/O rate (device activity)
ioratec	I/O rate (cacheable I/Os)
iostconn	Average connect time per I/O
iostdisc	Average disconnect time per I/O
iostotl	Average service time per I/O
kbperio	Kilobytes transferred per I/O
kbytesec	Average kilobytes transferred per second
lowrefct	Low reference deallocation percentage
lowrfcnt	Frames deallocated with fewer than two references
maxconn	I/O connect time at maximum I/O rate
maxdisc	I/O disconnect time at maximum I/O rate
maxiort	Maximum subsystem I/O rate (device activity)
maxiost	I/O service time at maximum I/O rate
maxkbsc	Maximum kilobytes per second transferred
mincols	Minimum collected free space in gigabytes
ncaplda	Net capacity load amount in gigabytes
ncapldp	Net capacity load percentage
numberio	Number of end-of-chain events at channel interface
nvssize	Nonvolatile storage (NVS) size
offlcach	Offline cache
offread	Reads when device was not cached
offwrite	Number of bytes when device was not cached
partmemb	Partition membership
pcolfsp	Percentage collected free space
pdfwcnst	DFW constraint percentage
pdvconn	Average functional device connected percentage
pvdvdisc	Average functional device disconnected percentage
pdvutil	Average functional device utilization percentage
pindcach	Pinned cache
prfsegct	Number of device performance segments
primcapa	Primary capacity in cylinders
puncfsp	Percentage of uncollected free space
rdcfwhit	Read cache fast-write hits

Data Extraction Variables

rdcfwreq	Read cache fast-write requests
rdnorhit	Read normal hits
rdnorreq	Read normal requests
rdseqhit	Read sequential hits
rdseqreq	Read sequential requests
readbyts	Bytes read from drive module
readhit	Read hit percentage
readhits	Read hits
readrate	Read rate
readreqs	Read requests
rgrpcnt	Number of arrays
rwratio	Read/write ratio
scsilbsz	SCSI logical block size
scsilbt	SCSI logical blocks per track
smfdate	Date record presented to SMF
smfflg	SMF system indicator
smfrty	SMF record type
smfsid	SMF system ID
smfssi	OS/390 subsystem ID
smftime	Time record presented to SMF
spccoll	Free-space collection load
stages	Stages
stgrate	Stage rate
subdurat	Interval duration in milliseconds
subpname	Subsystem name
svcperkb	Service time per kilobyte transferred
ticobuch	Time control unit busy at channel in milliseconds
totbecp	Total back-end capacity in gigabytes
trackcyl	Number of tracks per cylinder
vdevname	Functional device name assigned by user
vdevtype	Device type
vdid	Functional device ID
version	Version of this record
volser	Volume serial number
voltype	Volume type
wrcfwhit	Write cache fast-write hits
wrcfwreq	Write cache fast-write requests

wrotebyts	Bytes written to drive module
writhit	Write hit percentage
writhits	Write hits
writrate	Write rate
writreqs	Write requests
wrnorreq	Write normal requests
wrseqreq	Write sequential requests

Data Extraction Variables

Glossary

This glossary is included in each book in the Shared Virtual Array Administrator library. All of the terms are associated with SVAA, but not all are used in this specific document.

A

Alias. A pseudo-device used by the operating system to support an additional I/O path to a Base device. Each Alias device supports one additional I/O to a Base. See also: Base and Parallel Access Volume.

array. A group of storage devices that are used collectively to achieve data redundancy and/or improved performance. In the SVA, an array consists of either 7 or 15 drive modules. See also: dual-redundancy array.

array cylinder. The collection of all physical cylinders in a dual-redundancy array that have the same physical cylinder address (CC). The SVA allocates back-end space in units of array cylinders. There are two types of array cylinders: free and allocated.

array device. The disk devices that are logically grouped together when a FORM ARRAY command is issued at the local operator panel or from SVAA.

array track. The collection of all physical tracks in a dual-redundancy array that have the same physical track address (CC, HH).

B

back-end storage. The data storage portion of a storage subsystem. In the SVA, the disk arrays.

Base. A real device that supports additional I/O paths to itself in the form of Alias devices. Each Alias device supports one additional I/O to a Base. Multiple Alias devices can be associated with a single Base. See also: Alias and Parallel Access Volume.

base functional device ID (BFDID). The functional device identifier that maps to or from the lowest (base) interface address on a given channel.

C

cache. Solid state, random access memory that is located in a controller. The cache retains frequently used data for faster access by the channel. In the SVA, all data access is through cache.

cache fast write (CFW). A form of fast write in which

data is written directly to cache storage without using nonvolatile storage and is available for later destaging.

channel end. The indication from the channel that it has completed an operation.

channel interface. The Disk Array Controller circuitry that attaches to the host channels.

cluster. See storage cluster.

collected free space %. The percentage of array cylinders that are free array cylinders (collected and completely free of user data).

compaction. The SVA process that eliminates inter-record gaps normally associated with CKD DASD. Compaction reduces the amount of wasted disk array space, thus reducing the net capacity load on the subsystem.

compression. The SVA process that reduces the size of data records by translating them to a different encoding scheme that requires fewer bytes of real storage.

controller. See Disk Array Controller.

count-key-data (CKD). A recording format that writes variable-length records. Each record consists of 1) a count field, which specifies the length of the (optional) key field and data field of the record, 2) the (optional) key field, and 3) a data field. The first record on each track contains a fourth field, home address.

current data. User data, stored in a disk array, that has valid pointers from internal SVA mapping tables.

D

DASD fast write (DFW). A form of fast write to cache in which data is written concurrently to cache and nonvolatile storage (NVS) and is subsequently scheduled for destaging to the disk arrays. Both copies are retained in the SVA Disk Array Controller until the data is completely written to the disk arrays.

Data Bridge. A pair of devices used by Power PPRC to transmit all tracks on all primary devices from the primary subsystem to the secondary subsystem. These devices are not used to store customer data.

Data Collection Virtual Machine. The disconnected service machine that periodically requests SVA performance data.

dedicated connection

dedicated connection. In an Enterprise Systems Connection Director (ESCD), a connection between two ports that is not affected by information contained in link frames. This connection restricts these ports from communicating with any other port. The two ports have a dedicated connection that appears as one continuous link.

destage. The nonsynchronous write of new or updated data from the cache storage or nonvolatile storage to the Disk Array Units.

device. See (1) drive module and (2) functional device.

device end. An indication from an I/O device that it has ended an operation.

device reconstruction. The SVA automatic background function of recreating and rewriting all of the data that was stored on a failed device to a spare device using the functional track recovery process.

direct access storage device (DASD). A storage device in which the medium is always available to the read/write head without having to be mounted by an external agent.

disk array. The SVA's logical grouping of drive modules. See also: dual-redundancy disk array.

disk array capacity. The formatted physical capacity of a disk array excluding redundancy data.

Disk Array Controller. The SVA control unit that provides the interface between the host(s) and the back-end storage.

Disk Array Unit (DAU). A single physical frame containing drive modules that comprise the disk array storage in an SVA subsystem.

domain. See SCSI domain.

drain. The SVA process that gradually moves data stored on a device or a disk array to other devices. Drain operations allow for the nondisruptive deinstallation of a device or a Disk Array Unit.

drive module. A disk storage device consisting of the access arms and heads, disk surfaces, and the supporting electronics required to locate, write, and read data. Each drive module is physically packaged as a single field-replaceable unit (FRU) within the SVA.

drive reconstruction. See device reconstruction.

dual-redundancy disk array. A disk array that allows for real-time automatic recovery of data from up to two failed devices within the array.

In the V2X and V960 SVAs, a dual-redundancy disk array consists of 15 (13+2) drive modules. The array has a capacity equivalent to 13 drives of user data and 2 drives of redundancy data. (In the SVA, redundancy data is distributed among all 15 drives).

In the 9500 and earlier SVAs, arrays of 7 (5+2) drive modules can also be formed.

Dynamic Configuration. An SVA feature that allows the channel interfaces and up to 4096 functional volumes to be defined and/or altered. The functional configuration of an SVA subsystem can be determined by user requirements rather than available drive modules.

E

ECAM device. A functional device over which SVAA-based communication between the SVA Disk Array Controller and the host CPU(s) takes place.

ESCON channel. A channel that uses ESCON cables to transmit data between the host and the Disk Array Controller.

Extended Control and Monitoring (ECAM). The communications protocol that permits communication between SVAA and the SVA.

extent. A range of disk addresses expressed as a cylinder head range (CCHH) for a CKD device, or a logical block address (LBA) for a SCSI device.

F

fast write. A write operation that does not require immediate synchronous transfer of data to a DASD device, thus reducing the time an application must wait for channel end and device end for an I/O operation.

fault symptom code (FSC). An error code, generated by a control unit or subsystem, that points to the area or FRU most likely causing a problem.

fault tolerance. The capability of a subsystem to continue operating without interruption and/or intervention despite a failure within the subsystem (e.g., hardware, power, cooling). Fault tolerance is generally measured in relation to inherent reliability, availability, serviceability, and recoverability for the product.

FDID map. See functional device identifier mapping.

fence. The automatic or manual separation of a logical path or physical component from the remaining operating portion of the subsystem. The fencing process provides for continuous operation of the subsystem and allows for deferred nondisruptive

servicing of field-replaceable units (FRUs) via hot-plugging.

A logical barrier on a node or path that prevents the use of that node or path.

FICON channel. A channel that uses fiber connections to transmit data between the host and the Disk Array Controller.

field-replaceable unit (FRU). The smallest self-contained component that can be individually replaced during a service or repair action.

fixed block architecture (FBA). (Contrast with CKD) A recording format in which every track of the device is formatted with a fixed number of fixed-length records (generally called sectors), each of which contains an identifier (ID) field and a data field.

| **flexvolume.** A 3380 or 3390 CKD volume defined with
| less than the maximum number of cylinders. The range
| of cylinders allowed depends on the device type.

free array cylinder. An array cylinder that contains no current or non-current user data.

free space collection (FSC). The automatic SVA background task that relocates data from fragmented array cylinders in order to collect free space into empty array cylinders. Free space collection maximizes the efficiency of array cylinder writes.

free space collection load. The average percentage of array cylinder space that must be relocated in order to create empty array cylinders in the SVA.

front end. The portion of the SVA Disk Array Controller data path that passes data between the channels and the cache.

functional. The term used to describe the SVA interface as viewed by the host, application, and users. This interface appears as a 3990-3 subsystem interface.

functional/allocated. The user-allocated portion of a functional volume's space; that is, minidisks as defined in the VM directory.

functional capacity. The data storage capacity that the host, application, and users view. Used in reference to the space available for storing data in (1) a single functional device, or (2) all defined functional devices in an SVA subsystem.

functional device. The volume image that the host operating system receives when the "Read Device Characteristics" CCW is issued.

functional device identifier (FDID). The identifier for a functional device as it is known to the SVA. FDIDs

range from 0 to FFF (hexadecimal) or from 0 to 4095 (decimal).

functional free space. The unallocated/unused portion of a functional volume's space, as defined in the VM directory.

functional track. The equivalent of a 3380- or 3390-DASD track. A functional track record is stored on contiguous sectors in an allocated array cylinder.

functional track directory (FTD). The SVA internal mapping table that contains one entry for each functional track associated with the functional volumes currently defined by the user.

functional track recovery (FTR). The automatic SVA process of recovering data from a physical track that is unreadable due to a media defect or a failed device. The SVA accomplishes functional track recovery by reading and processing the user data and redundancy data at corresponding physical track locations on the remaining devices in the array.

functional volume. See functional device.

G

global spares. See spare devices.

L

| **large volume.** A 3390-9 CKD volume defined with
| 32760 cylinders.

link address. An address assigned during initialization that identifies a channel or control unit so that the channel or control unit can send and receive frames, and perform I/O operations. See logical paths.

LLAPI. An ECAM device driver available to vendors which provides the ability to query an SVA subsystem and its devices as well as the ability to manipulate functional tracks.

logical array. A grouping of devices into an array. The grouping of devices does not depend on their physical location.

logical partition. The subset of a processor unit that is allocated to support the operation of a systems control program.

logical paths. The relationship between a channel and a control unit that designates the physical path to be used for device-level communication between the channel and the control unit. This relationship is defined within the channel and control unit by a link address assigned to the control unit and a link address assigned to the channel.

MAINTSTK virtual machine

M

MAINTSTK virtual machine. The virtual machine from which all maintenance for all SVA VM software products is performed.

MAT partition. The SVA partition consisting of drive modules that are not yet available for storing user data. Drive modules are automatically members of the MAT partition when they are first physically inserted in the SVA or when they have been drained of data.

Media Acceptance Test partition. See MAT partition.

N

net capacity load (NCL). This number is two KB times the number of physical sectors actually used to store user data, not including redundancy data. NCL is a percentage of the total number of sectors that are storing user data and is based on physical capacity used.

nonquiesced snap. A snap taken when the system is in full read-write access mode.

nonvolatile storage (NVS). The redundant solid state memory in the Disk Array Controller that remains active when ac power is removed. NVS protects any data that has not been written to the disk arrays.

P

Parallel Access Volume. A combination of a real device (Base) and one or more pseudo-devices (Aliases) that together support multiple concurrent I/Os to enhance performance.

parallel channel. A channel that uses bus-and-tag cables to transmit data between the host and the Disk Array Controller.

partition. The logical separation of devices, arrays, or groups of arrays to allow different modes of operation. The SVA supports a MAT partition, a Test partition, a Production partition, a Spares partition, and an Unavailable partition.

Note: The Test partition is not available in the V2X, V960, or 9500 SVA.

PAV. See Parallel Access Volume.

physical capacity. The physical space contained in (1) a single drive module, (2) a partition, or (3) an SVA subsystem.

physical device. See drive module.

privileged ECAM device. Privileged ECAM devices are the only devices that SVAA can use to send messages to the subsystem to request a change in the SVA's state. Such messages include those that alter the subsystem configuration or start a drain.

At least one privileged ECAM device must be defined in each SVA; all functional volumes in an SVA subsystem can be defined as privileged ECAM devices.

Production partition. The SVA partition consisting of drive modules assigned to production arrays for storing user data.

PROFSIBA macro. The profile executed when the SVAA SIBADMIN program is started.

PROFSIBS macro. The profile executed when the SVAA Subsystem Reporting Program is started.

Q

quiesce. To end a process by allowing operations to complete normally.

quiesced snap. A snap taken while the system is quiesced; all buffered transactions are flushed to disk storage.

R

read hit. The situation in which data requested by the read operation is located in cache.

read miss. The situation in which data requested by the read operation is not located in cache.

reconstruction. See device reconstruction

redundancy group. A logical grouping of devices that are protected from data loss due to a device failure by the use of redundancy (parity) data that is stored across the devices. Arrays in the SVA are redundancy groups that protect data against two simultaneous device failures. See also: dual-redundancy disk array.

Reporter. The SVAA subsystem reporting program—the SVAA component that collects subsystem performance data and produces reports based on that data, as well as on space utilization.

S

SCSI channel. See SCSI I/O interface.

SCSI domain. An SVA addressing scheme, prefixed to SCSI target and LUN addresses, that extends the number of addressable volumes from SCSI-attached host systems.

serial channel. A channel that uses fiber-optic (ESCON) cables to transmit data between the host and the Disk Array Controller. See also: ESCON channel.

Service Information Message (SIM). A message generated by the host processor upon receipt of sense information from the SVA that contains notification of a need for repair or customer action, or status information.

Shared Virtual Array (SVA). StorageTek's online, random access disk array storage subsystem composed of a Disk Array Controller and 16 to 64 disk drive modules.

Shared Virtual Array Administrator (SVAA). StorageTek's host software product that enables implementation of the extended storage management facilities of the SVA, and offers additional functions including SnapShot, NCL management, and reporting capabilities.

SIBADMIN module. The module used to invoke SVAA in command mode.

SIBLLAPI. An ECAM device driver available to vendors which provides the ability to query an SVA subsystem and its devices as well as the ability to manipulate functional tracks.

SIBMENU exec. The module used to invoke SVAA in menu mode.

SIBSRP module. The SVAA module for the subsystem reporting program.

SIBSRPAC exit. The user exit that authorizes a user to communicate with the SRP service machine via IUCV.

SIM alert. An operator console message that alerts the operator that an action requiring attention has occurred.

slot. The physical location of an SVA subsystem drive module.

snap. (noun) A duplication of a source volume or minidisk with SnapShot (see SnapShot). A snap is also the result of a successful SnapShot operation (not the use of a data mover). Synonymous with SnapShot. Contrast with *data mover copy*.

snap. (verb) To duplicate a functional volume or minidisk with SnapShot.

SnapShot. StorageTek's high-speed data-duplication facility, available only with the SVA and packaged with SVAA. SnapShot achieves great time-savings in duplicating volumes or minidisks because it only creates a second set of pointers to the data. No additional physical disk space is used in the process.

source. The minidisk or volume from which data is snapped.

spare devices. SVA drive modules that are physically installed but not logically associated with an array. Spare devices are used by the SVA to form new arrays or to automatically reconstruct and logically replace failed devices.

spares. See spare devices.

Spares partition. The SVA partition consisting of all of the spare devices in the subsystem. See spare devices.

SSID. See subsystem identifier (SSID)

Status Bridge. A pair of devices used by Power PPRC to transmit acknowledgements that the data was received at the other end. These devices are not used to store customer data.

storage cluster. A power and service region that processes channel commands and controls the data storage devices. The SVA contains two storage clusters, each of which contains interfaces for up to 16 channels.

subsystem free space. Storage space in the disk arrays that does not contain user data.

subsystem identifier (SSID). The identifier for a 3990 controller emulated within the SVA. From one to sixteen SSIDs (logical 3990s) can be defined in each subsystem. Within an installation, each logical 3990 is defined by a unique four-digit (hexadecimal) SSID.

subsystem reporting program (SRP). The SVAA component that collects subsystem performance data and produces reports based on that data, as well as on space utilization. See also: Reporter.

SVAA profile facility. When invoked, this facility allows the user to specify commands for an SVAA session.

T

target. The minidisk or volume to which data is snapped.

Test partition. The SVA partition consisting of drive modules assigned to a test array and containing test data. The Test partition allows user-controlled, host-driven, testing of arrays, as though they were production arrays.

Note: The Test partition is not available in the V2X, V960, or 9500 SVA.

tray

tray. The physical packaging of eight drive modules within the disk array area of the SVA.

U

Unavailable partition. The SVA partition consisting of drive modules that are not available for use in an array. Drive modules that are not installed or have failed are in this partition.

unit. See Disk Array Unit.

V

virtual device identifier (VDID). Another term for FDID. See functional device identifier (FDID).

volatile memory. See cache volatile memory.

volume. See functional volume.

volume serial number. A six-character alphanumeric name that identifies a disk volume to the host operating system.

W

write hit. The situation in which data to be updated by a write operation is located in cache.

write miss. The situation in which data to be updated by a write operation is not located in cache.

Abbreviations and Acronyms

API	application programming interface	IPL	initial program load
BFDID	base functional device ID	ISPF	Interactive System Productivity Facility
CCHH	cylinder-head address (CC is the two-byte cylinder number, HH is the two-byte head number)	I/O	input/output
CCW	channel command word	LBA	logical block address
CFW	cache fast write	LOP	Local Operator Panel
CKD	count-key-data	LUN	logical unit number
CLI	command line interface	MAT	Media Acceptance Test
CMS	Conversational Monitor System	MB	megabyte
CSI	consolidated software inventory	MIH	missing interrupt handler
DASD	direct access storage device	MVS	Multiple Virtual Storage
DAU	Disk Array Unit	NCL	net capacity load
DFW	DASD fast write	NVS	nonvolatile storage
DOP	Detached Operator Panel	PAV	Parallel Access Volume
DSF	Data Support Facilities	PPRC	peer-to-peer remote copy
DTL	domain-target-LUN	PTF	program temporary fix
ECAM	Extended Control and Monitoring	RACF	Resource Access Control Facility
ESA	Enterprise Systems Architecture	RAID	redundant array of inexpensive disks
ESCON	Enterprise Systems CONnection	REXX	Restructured Extended Executor
ESDI	enhanced small device interface	RFA	record format assist
FDID	functional device identifier	SAF	Security Access Facility
FICON	Fibre CONnection	SCP	system control program
FMID	function modification identifier	SCSI	small computer system interface
FRU	field-replaceable unit	SIM	service information message
FSC	fault symptom code, or free space collection	SMF	system management facility
FTD	functional track directory	SRP	Subsystem Reporting Program
FTR	functional track recovery	SSID	subsystem identifier
GB	gigabyte	SVA	Shared Virtual Array
HCD	hardware configuration definition	SVAA	Shared Virtual Array Administrator
ICKDSF	ICK Data Support Facilities	VCU	virtual control unit
IDID	interface device identifier	VDID	virtual device identifier
IML	initial microprogram/microcode load	VM	Virtual Machine
IOCP	I/O configuration program	VM/ESA	Virtual Machine/Enterprise Systems Architecture
		volser	volume serial number

Abbreviations and Acronyms

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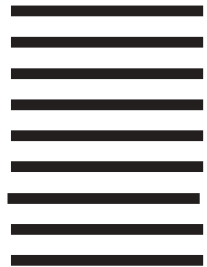
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