

MAINVIEW[®]
for UNIX System Services
User Guide and Reference

Version 1.3

March 31, 2003



Copyright 2003 BMC Software, Inc. All rights reserved.

BMC Software, the BMC Software logos, and all other BMC Software product or service names are registered trademarks or trademarks of BMC Software, Inc. IBM and DB2 are registered trademarks of International Business Machines Corp. All other trademarks belong to their respective companies.

BMC Software considers information included in this documentation to be proprietary and confidential. Your use of this information is subject to the terms and conditions of the applicable End User License Agreement for the product and the proprietary and restricted rights notices included in this documentation.

Restricted Rights Legend

U.S. Government Restricted Rights to Computer Software. UNPUBLISHED -- RIGHTS RESERVED UNDER THE COPYRIGHT LAWS OF THE UNITED STATES. Use, duplication, or disclosure of any data and computer software by the U.S. Government is subject to restrictions, as applicable, set forth in FAR Section 52.227-14, DFARS 252.227-7013, DFARS 252.227-7014, DFARS 252.227-7015, and DFARS 252.227-7025, as amended from time to time. Contractor/Manufacturer is BMC Software, Inc., 2101 CityWest Blvd., Houston, TX 77042-2827, USA. Any contract notices should be sent to this address.

Contacting BMC Software

You can access the BMC Software Web site at <http://www.bmc.com>. From this Web site, you can obtain information about the company, its products, corporate offices, special events, and career opportunities.

United States and Canada

Address BMC Software, Inc.
2101 CityWest Blvd.
Houston TX 77042-2827

Telephone 713 918 8800 or
800 841 2031

Fax 713 918 8000

Outside United States and Canada

Telephone (01) 713 918 8800

Fax (01) 713 918 8000

Customer Support

You can obtain technical support by using the Support page on the BMC Software Web site or by contacting Customer Support by telephone or e-mail. To expedite your inquiry, please see “Before Contacting BMC Software.”

Support Web Site

You can obtain technical support from BMC Software 24 hours a day, 7 days a week at http://www.bmc.com/support_home. From this Web site, you can

- read overviews about support services and programs that BMC Software offers
- find the most current information about BMC Software products
- search a database for problems similar to yours and possible solutions
- order or download product documentation
- report a problem or ask a question
- subscribe to receive e-mail notices when new product versions are released
- find worldwide BMC Software support center locations and contact information, including e-mail addresses, fax numbers, and telephone numbers

Support by Telephone or E-mail

In the United States and Canada, if you need technical support and do not have access to the Web, call 800 537 1813. Outside the United States and Canada, please contact your local support center for assistance. To find telephone and e-mail contact information for the BMC Software support center that services your location, refer to the Contact Customer Support section of the Support page on the BMC Software Web site at www.bmc.com/support_home.

Before Contacting BMC Software

Before you contact BMC Software, have the following information available so that Customer Support can begin working on your problem immediately:

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

Contents

About This Book	xiii
Chapter 1	Customizing MAINVIEW for UNIX System Services
Customization Steps	1-2
Define a User ID for the Product Address Space (Required)	1-3
Authorize CSSLIB (Required)	1-3
Copy Members (Optional)	1-3
What Next?	1-4
Chapter 2	Introducing MAINVIEW for UNIX System Services
MAINVIEW Organization	2-2
MAINVIEW Address Spaces	2-2
Controlling the Product Address Space	2-5
MAINVIEW Window Interface	2-5
Activities Monitored by MAINVIEW	2-6
Processes	2-6
Threads	2-7
File Systems and File Information	2-7
System Information	2-7
User Information	2-7
IPC Real-time Activity	2-7
Threshold Alarms	2-8
System-Monitored Intervals	2-8
Historical Data	2-8
Background Processing	2-9
Displayed Information	2-10
Understanding the MAINVIEW Window Interface	2-10
Understanding View Categories	2-11
Customizing Views and Help Text to Meet Your Needs	2-12
Getting Help on Views	2-13

Moving Around in MAINVIEW for UNIX System Services	2-14
Using Hyperlinks	2-14
Using Easy Menus	2-18
Using Commands	2-19
Displaying Multiple Views Simultaneously	2-20
Using View Parameters	2-21
Determining Positional Parameters	2-21
Using Keyword Parameters	2-24
Using the PARM Command	2-26
Using MAINVIEW Explorer to Access Views	2-27

Chapter 3

Solving Performance Problems

Using MAINVIEW Easy Menus	3-2
MAINVIEW for UNIX System Services Easy Menu	3-2
System Overview	3-3
Processes	3-3
File Systems	3-4
Users	3-5
Realtime Activity	3-5
USS Address Spaces	3-6
MVUSS Easy Action Menu	3-7
Alarm Management	3-8
MAINVIEW Environment	3-9
MVUSS Fast Menu	3-9
Using MAINVIEW for UNIX System Services Views	3-10
Process and Thread Activity	3-10
HFS, zFS, and Other File Systems Statistics	3-11
Address Space Information and System Parameters	3-12
User and Group Views	3-13
Utility View	3-13

Chapter 4

Controlling UNIX System Services from MAINVIEW for UNIX System Services

Setting System and IPCS Parameters	4-2
Extending an HFS File Size	4-5
From the FSMOUNT or FSMOUNTZ View	4-5
From the HFSSOVERZ View	4-7
Setting Global Buffer Limits	4-8
Displaying Real-time Process/Thread Status	4-10
Killing a Process	4-12
Dumping a Process	4-13
Displaying Files for a Process	4-13
Browsing Files and Producing a Hexadecimal Listing	4-14
Changing Limits for a Process	4-16
Mounting and Unmounting File Systems	4-16

	Viewing the Details of a zFS File	4-17
	Introducing the zFS File System	4-17
	Displaying All zFS Aggregates	4-17
	Displaying Detailed Information about a zFS Attached Aggregate.	4-18
	Displaying All zFS File Systems in an Aggregate.	4-19
	Displaying Detailed Information about a zFS File System	4-20
	Viewing All of the zFS Administrative Actions.	4-21
Chapter 5	Comparing Performances with Historical Data	
	Displaying Historical Data	5-2
	Using Dynamic Fields with Historical Data.	5-3
	Issuing the TIME Command.	5-4
	Examples of Using the TIME Command.	5-5
	Controlling Thread History Data Collection	5-7
	Using the THREADHistory Command	5-7
	Changing the UBBPARAM Dataset.	5-7
Chapter 6	Controlling Data Collectors	
	Understanding Data Collectors.	6-2
	Steps in Requesting a View	6-3
	Ad Hoc Views	6-3
	Controlling the Collectors.	6-4
	Using DCSTAT.	6-4
	Data Collectors and Product Views	6-6
Chapter 7	MAINVIEW Alarm Manager	
	Alarm Definitions	7-3
	MAINVIEW Alarm Manager Views	7-3
	Alarm Reporting	7-4
	Additional Information	7-4
Chapter 8	Before Calling Customer Support	
	No Data in Any View	8-2
	Error Messages during OS/390 PAS Initialization	8-3
Appendix A	Understanding View Field Terminology	
	Displaying Numeric Values	A-2
	Understanding Intervals	A-2
Glossary		
Index		

Figures

Figure 2-1	Communication Flow	2-4
Figure 2-2	PSOVERZ View	2-15
Figure 2-3	Splitting the Screen	2-16
Figure 2-4	Using a Split Screen with a Hyperlink	2-17
Figure 2-5	EZUSS Menu	2-18
Figure 2-6	EZUPRCs Menu, the Easy Menu for Processes	2-18
Figure 2-7	PSOVERZ Processes with EZB* Command Names	2-19
Figure 2-8	ISPF Delimiter	2-21
Figure 2-9	Using the PSOVER View Online Help to Determine the Positional Parameters	2-22
Figure 2-10	PSOVER View Positional Parameters	2-23
Figure 2-11	Filtering with Positional Parameters	2-24
Figure 2-12	Using the PSOVER View Online Help to Determine Keyword Parameters	2-25
Figure 2-13	PSOVER View Keyword Parameters	2-26
Figure 2-14	PSOVER View Accessed Using MAINVIEW Explorer	2-27
Figure 3-1	Primary Easy Menu, EZUSS	3-2
Figure 3-2	EZUSYS Menu	3-3
Figure 3-3	EZUPRCs Menu	3-3
Figure 3-4	EZUFSYS Menu	3-4
Figure 3-5	EZUUSRS Menu	3-5
Figure 3-6	IPCOVER View	3-6
Figure 3-7	ASOVERZ View	3-6
Figure 3-8	Easy Action (EZUACTS) Menu	3-7
Figure 3-9	EZALARM Menu	3-8
Figure 3-10	EZUENV Menu	3-9
Figure 3-11	MVUSS Fast Menu (EZUFAST)	3-9
Figure 4-1	BPXPRM View	4-3
Figure 4-2	IPCBXP View	4-4
Figure 4-3	Change UNIX Configuration Settings Panel	4-4
Figure 4-4	FSMOUNTZ View	4-5
Figure 4-5	Extend File System Panel	4-6
Figure 4-6	HFSOVERZ View	4-7
Figure 4-7	HFSINFO View	4-8

Figure 4-8	HFSGINFO View	4-9
Figure 4-9	Set Global Buffer Limits Panel	4-9
Figure 4-10	Displaying the Status of a Process Using the PSOVERZ View	4-10
Figure 4-11	EZUPRC View	4-11
Figure 4-12	Scrollable ISPF Panel	4-11
Figure 4-13	Options of the KILL Command	4-12
Figure 4-14	Dumping a Process	4-13
Figure 4-15	Displaying Open Files for a Process	4-13
Figure 4-16	FSPACE View	4-14
Figure 4-17	FLIST View	4-15
Figure 4-18	FLISTH View	4-15
Figure 4-19	Changing Limits for a Process	4-16
Figure 4-20	ZFATTACH View	4-17
Figure 4-21	ZFADETL View	4-18
Figure 4-22	ZFFILSYS View	4-19
Figure 4-23	ZFFDETL View	4-20
Figure 4-24	MVUSS Easy zFS Administration Menu (EZUZADM)	4-21
Figure 6-1	DCSTAT View	6-5
Figure 7-1	Using the EZALARM Menu to Display Alarms	7-3
Figure 8-1	DCSTAT View	8-2

Tables

Table 2-1	PAS Modify Commands	2-5
Table 2-2	Online Help Available for MAINVIEW Products	2-13
Table 3-1	Process Views	3-10
Table 3-2	HFS, zFS, and Other File-System Views	3-11
Table 3-3	Address Space Views	3-12
Table 3-4	User and Group Views	3-13
Table 3-5	Utility View	3-13
Table 6-1	Controlling Data Collectors	6-4
Table 6-2	Enabling and Disabling Collectors with DCSTAT	6-5
Table 6-3	Data Collectors and Product Views	6-6
Table 7-1	MAINVIEW for UNIX System Services Alarms	7-2

About This Book

This book contains detailed information about the MAINVIEW for UNIX System Services product and is intended for systems analysts, systems programmers, computer operators, or anyone who is responsible for applying system maintenance and ensuring maximum system performance.

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

- your database management system (DBMS)
- Multiple Virtual Storage (MVS) systems, job control language (JCL), and the Interactive System Productivity Facility (ISPF)
- your client and host operating systems

For example, you should know how to respond to ISPF panels.

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

How This Book Is Organized

This book is organized as follows. In addition, this book contains a glossary of terms and an index.

Chapter/Appendix	Description
Chapter 1, "Customizing MAINVIEW for UNIX System Services"	describes how to customize MAINVIEW for UNIX System Services
Chapter 2, "Introducing MAINVIEW for UNIX System Services"	describes the architecture and purpose of MAINVIEW for UNIX System Services, as well as how to navigate through the views
Chapter 3, "Solving Performance Problems"	describes how to begin using MAINVIEW for UNIX System Services to detect performance problems or potential problems

Chapter/Appendix	Description
Chapter 4, "Controlling UNIX System Services from MAINVIEW for UNIX System Services"	describes how to execute UNIX System Services commands from within MAINVIEW for UNIX System Services
Chapter 5, "Comparing Performances with Historical Data"	describes how historical data can be used to compare performances
Chapter 6, "Controlling Data Collectors"	describes the MAINVIEW for UNIX System Services data collectors, how they work, and how to control them
Chapter 7, "MAINVIEW Alarm Manager"	describes MAINVIEW Alarm Manager and its views
Chapter 8, "Before Calling Customer Support"	describes solutions for common scenarios that customers might encounter
Appendix A, "Understanding View Field Terminology"	describes and defines view field terminology

Related Documentation

BMC Software products are supported by several types of documentation:

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

Note: To view online messages that the MAINVIEW for UNIX System Services product generates, type **msg** followed by the message number on any MAINVIEW screen.

Online and Printed Books

The books that accompany BMC Software products are available in online and printed formats. Online books are formatted as Portable Document Format (PDF) files. Some online books are also formatted as HTML files.

To Access Online Books

To view any online book that BMC Software offers, visit the Customer Support page of the BMC Software Web site at http://www.bmc.com/support_home. You can also access PDF books from the documentation compact disc (CD) that accompanies your product.

Use the free Acrobat Reader from Adobe Systems to view, print, or copy PDF files. In some cases, installing the Acrobat Reader and downloading the online books is an optional part of the product-installation process. For information about downloading the free reader from the Web, go to the Adobe Systems site at <http://www.adobe.com>.

To Request Additional Printed Books

BMC Software provides some printed books with your product order. To request additional books, go to http://www.bmc.com/support_home.

Online Help

The MAINVIEW for UNIX System Services product includes online Help. In the MAINVIEW for UNIX System Services ISPF interface, access Help by pressing **PF1** from any ISPF panel.

Release Notes and Other Notices

Printed release notes accompany each BMC Software product. Release notes provide current information such as

- updates to the installation instructions
- last-minute product information

In addition, BMC Software sometimes provides updated product information between releases (in the form of a flash or a technical bulletin, for example), and maintenance announcements accompany maintenance releases. The latest versions of the release notes and other notices are available on the Web at www.bmc.com/support_home.

General Conventions

This book uses the following general conventions:

Item	Format	Example
information that you are instructed to type	bolded and in Times 10 pt. font	Type the command psuse;next;psstat .
specific (standard) keyboard key names	bolded and in Times 10 pt. font	Press PF3 to execute the command or PF12 to cancel the request.
field names, option names	bolded and in Times 10 pt. font	See the Name field in the default view. The IPC Realtime Activity option hyperlinks to IPCOVER
directories, file names, Web addresses, e-mail addresses, option names	bolded and in Times 10 pt. font	The BMC Software home page is at www.bmc.com .
view names, commands, nonspecific key names, keywords, parameters	every letter capitalized	The EZUSYS menu has options that hyperlink to views regarding system performance areas. Use the HELP function key. The NEXT parameter steps forward one Extractor interval from the date and time last specified.
commands that can be shortened	required letters capitalized; other letters in lowercase	To clear the screen, type RESet .
code examples, syntax statements, system messages, screen text	in a Courier font	<code>TIME [date time [duration NEXT PREV]] [dowMask todMask]</code>
emphasized words, new terms, variables	in italics	A <i>hyperlink</i> is a link from a field in a view to another view or a command.

This book uses the following types of special text:

Note: Notes contain important information that you should consider.

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

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

Chapter 1 Customizing MAINVIEW for UNIX System Services

This chapter covers information that you must know if you do not use AutoCustomization to customize the MAINVIEW for UNIX System Services product. The chapter includes the following topics:

Customization Steps	1-2
What Next?	1-4

Customization Steps

BMC Software recommends that you use AutoCustomization to customize MAINVIEW for UNIX System Services. See the *OS/390 and z/OS Installer Guide* for information about AutoCustomization.

If you decide not to use AutoCustomization, perform the following steps to customize MAINVIEW for UNIX System Services manually:

1. *(required)* Complete the steps in “Chapter 5, Customizing the MAINVIEW Environment” in the *MAINVIEW Common Customization Guide* for Group 2 products.
2. *(required)* Define a user ID for the product address space (PAS).
3. *(required)* Authorize CSSLIB.
4. *(optional)* Copy members BBUTSRP0, BBUTAHS0, USSJPRCS, and BBUTSRH0.

Steps 2, 3, and 4 are explained in the following sections.

Define a User ID for the Product Address Space (Required)

To access UNIX System Services data, the MAINVIEW for UNIX System Services Product Address Space (PAS) must have superuser authority. The PAS requires that a user ID be defined. The user ID must have an OMVS segment with UID 0. The PAS user must also have a home of /.

Here is an example of how an OMVS segment might be defined:

```
UID = 0000000000
HOME = /
PROGRAM = /bin/false
```

Authorize CSSLIB (Required)

The UNIX Systems Services CSSLIB data set must be authorized and must be in either the system link list or the STEPLIB concatenation of the PAS startup procedure.

Copy Members (Optional)

This step copies the following members:

- BBPARM member BBUTSRP0—used to specify processes that are required to be executing. Processes that are specified in BBUTSRP0 can be monitored with the PESTAT view.
- BBPARM member BBUTAHS0—used to change the default processing for ad hoc request management. See “Background Processing” on page 2-9 for more information about BBUTAHS0.
- BBSAMP member USSJPRCS—contains a sample screen definition that can be used to display the ASOVERZ and PSSTAT views.
- BBPARM member BBUTSRH0—used to specify HFS, zFS, or TFS files that are required to be mounted. Files that are listed in this member can be monitored for their mount characteristics by using the HFSSTAT and ZFSSTAT views.

To copy these members to the appropriate libraries, follow these steps:

Step 1 Copy *hilevel*.BBSAMP member UFOCOPY to your private JCL library, where *hilevel* is the high-level qualifier that is used for MAINVIEW for UNIX System Services data sets at your site.

UFOCOPY contains JCL to execute IEBCOPY.

Step 2 Customize the JCL by following the instructions at the top of the member.

Step 3 Submit the JCL.

Step 4 Review the job output to verify that the IEBCOPY job was successful.

What Next?

After you have completed the manual customization for the MAINVIEW for UNIX System Services product, BMC Software recommends that you perform the following tasks:

1. Review the information in the *MAINVIEW Administration Guide* to assist you in setting up your MAINVIEW environment.
2. Use the MAINVIEW CLIST to access MAINVIEW for UNIX System Services.

Chapter 2 Introducing MAINVIEW for UNIX System Services

MAINVIEW for UNIX System Services is a system-management application that provides a wide range of services and functions to help you manage the performance of your UNIX System Services applications. Built upon BMC Software MAINVIEW architecture, the MAINVIEW for UNIX System Services product employs the MAINVIEW window interface to provide easy, intuitive access to all of the system performance data that you need.

To use MAINVIEW for UNIX System Services to its fullest advantage, you should have a good understanding of some of the key concepts and terms that pertain to all aspects of the product.

This chapter provides background information about MAINVIEW for UNIX System Services. You can also refer to *Using MAINVIEW* for more detailed information about the MAINVIEW architecture and interface.

This chapter includes the following topics:

MAINVIEW Organization	2-2
Activities Monitored by MAINVIEW	2-6
Displayed Information	2-10
Moving Around in MAINVIEW for UNIX System Services	2-14

MAINVIEW Organization

The BMC Software MAINVIEW organization for systems management currently supports the following products:

- CMF[®] MONITOR
- IMSplex System Manager
- MAINVIEW Alarm Manager
- MAINVIEW Alternate Access
- MAINVIEW AutoOPERATOR[™]
- MAINVIEW Explorer
- MAINVIEW FOCAL POINT
- MAINVIEW for CICS
- MAINVIEW for DB2[®]
- MAINVIEW for DBCTL
- MAINVIEW for IMS
- MAINVIEW for IP
- MAINVIEW for Linux
- MAINVIEW for OS/390 (replaces MAINVIEW for MVS)
- MAINVIEW for TCP/IP
- MAINVIEW for UNIX System Services
- MAINVIEW for VTAM
- MAINVIEW VistaPoint[™]
- MAINVIEW for WebSphere Application Server
- MAINVIEW for WebSphere MQ (replaces MAINVIEW for MQSeries)
- Plex Manager (part of MAINVIEW architecture)

Before you use MAINVIEW for UNIX System Services, it is important that you understand the MAINVIEW organization.

MAINVIEW Address Spaces

All MAINVIEW products require three address spaces:

- **Coordinating address space (CAS):**

The CAS, which runs as a subsystem, provides many services to all MAINVIEW products. For example, the CAS is responsible for managing communication with other CASs on other local and remote systems and for establishing direct communication between an individual user address space and a product address space. One CAS exists for each OS/390 system image.

- **Product address space (PAS):**

A PAS provides special services to one or more related products. MAINVIEW for UNIX System Services uses the OS/390 PAS, which houses the MAINVIEW for UNIX System Services data collectors, as well as the Open Editor (OE) data gatherer. The OS/390 PAS runs as a started task.

The OE data gatherer is a component that provides the following services to data collectors and selectors:

- keeps knowledge of UNIX System Services away from the PAS data collectors and selectors
- maintains currency between releases
- decouples data collectors and selectors from delays that are inherent in UNIX System Services

MAINVIEW for UNIX System Services, MAINVIEW for OS/390, and CMF MONITOR can either work as stand-alone products or share the OS/390 PAS with either or both of the other two products. Additional product address spaces might exist to support other MAINVIEW products.

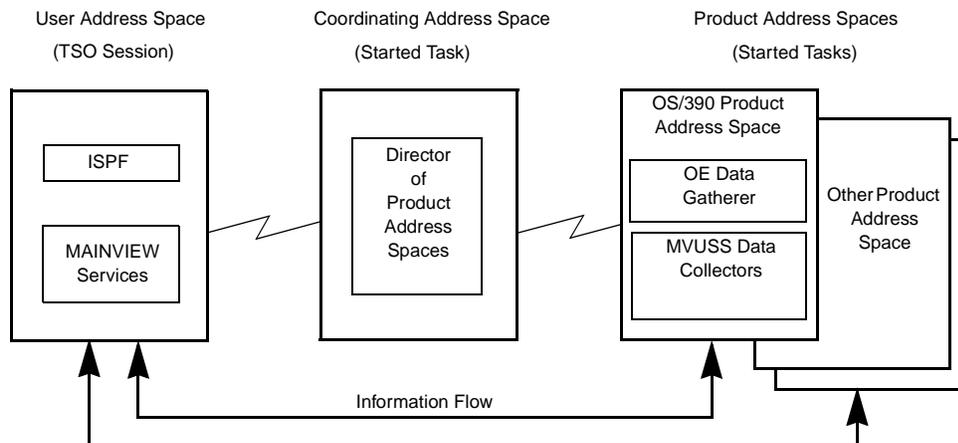
For information about the commands used to control the PAS, see “Controlling the Product Address Space” on page 2-5.

Note: Although MAINVIEW for UNIX System Services and MAINVIEW for OS/390 share the OS/390 PAS, MAINVIEW for OS/390 is not a prerequisite for MAINVIEW for UNIX System Services.

- **User address space (UAS):**

A user address space is a TSO or a MAINVIEW Alternate Access session.

The communication flow between the MAINVIEW for UNIX System Services address spaces is illustrated in Figure 2-1 on page 2-4.

Figure 2-1 Communication Flow

The OS/390 coordinating address space and the product address space are set up by your system administrator. Under most circumstances, they are automatically started at each system IPL.

Because the MAINVIEW for UNIX System Services data collectors are isolated from the CAS, you can control the two entities independently. This feature is especially useful if you want to run the MAINVIEW for UNIX System Services product only during certain periods of the day. You can stop the OS/390 product address space without stopping the CAS, thus keeping other MAINVIEW products up and running.

Controlling the Product Address Space

Use the commands that are listed in Table 2-1 to control the PAS and start and stop the data collectors to alter the information.

Table 2-1 PAS Modify Commands

Command	Action
DC=START	starts all of the MAINVIEW for UNIX System Services, MAINVIEW for OS/390, and CMF MONITOR data collectors at the same time
DC=STOP	stops all of the MAINVIEW for UNIX System Services, MAINVIEW for OS/390, and CMF MONITOR data collectors at the same time
DC=REFRUID	refreshes the UID cache to incorporate any changes made to the security database
DC=REFRGID	refreshes the GID cache to incorporate any changes made to the security database

Note: Within the MAINVIEW for UNIX System Services product, you can also use the DCSTAT view to control data collectors.

For more information about these commands and controlling the PAS, refer to Chapter 6, “Controlling Data Collectors.”

MAINVIEW Window Interface

Each product in the MAINVIEW family takes full advantage of the BMC Software MAINVIEW window interface, a robust, easy-to-use extension of the standard ISPF interface. With the MAINVIEW window interface, you can use multiple products to control and monitor multiple resources on multiple systems, all on just one screen. During MAINVIEW sessions, you can use standard ISPF features, such as scrolling and screen swaps, to help navigate MAINVIEW menus and views.

For more information, see “Understanding the MAINVIEW Window Interface” on page 2-10.

Activities Monitored by MAINVIEW

The MAINVIEW for UNIX System Services product monitors a wide variety of processes and resources on your UNIX System Services system.

The monitored features include

- MVS address spaces that have been dubbed as MVS-OE address spaces
- processes/threads that are running in the MVS-OE address spaces
- files that are open for a process (including zFS files)
- summary information for mounted file systems
- IPC real-time activity
- detailed file information, including size, owner, and file permissions
- HFS global buffer information and file-system statistics
- address space information, including usage and delays
- users who are logged on to UNIX System Services
- system parameters in BPXPRMxxx

These activities are categorized into one of the following groups.

Processes

As you can see from the preceding bulleted list, you can use the MAINVIEW for UNIX System Services product to monitor the process activities that are associated with your UNIX System Services.

Process activity that is monitored includes the current status, any delays, and resource usage. You can obtain information about a single process or access a summary of all active processes.

Threads

Information about active threads for a given process is also available in the THREADS view. To see the THREADS view, you can hyperlink from PSOVER as well as from the threads pop-up view from the Process/Thread action on EZUPRC.

File Systems and File Information

MAINVIEW for UNIX System Services provides detailed information about all file systems, including specific data about individual files, which file systems are currently mounted, and the full directory names of the files. In addition, MAINVIEW for UNIX System Services displays information about storage allocation, I/O statistics, and index event data for HFS, zFS, and other file systems.

System Information

You can track address space usage, delays, and activity through the address space views that are provided by MAINVIEW for UNIX System Services. You can also access MAINVIEW for UNIX System Services views to obtain information about the UNIX System Services parameter settings (SYS1.PARMLIB member BPXPRMxx).

User Information

MAINVIEW for UNIX System Services includes a series of user views where you can determine such things as the length of time that a user has been logged on for a single session and the number of processes that a user has running.

IPC Real-time Activity

MAINVIEW for UNIX System Services includes a series of views to show real-time interprocess communication activity. You can access the views from the EZUSS or EZFAST menu.

Threshold Alarms

With MAINVIEW Alarm Manager, your site can set thresholds for important indicators. You can also trigger alarms, based on thresholds, and then the Alarm Manager sends the alarms to the ALARM view or to MAINVIEW AutoOPERATOR or to both. For details, see Chapter 7, “MAINVIEW Alarm Manager.”

System-Monitored Intervals

Although the MAINVIEW for UNIX System Services product continually gathers and stores information about processes, file systems, address spaces, parameters, and users, you control when and how often that information is displayed.

Using MAINVIEW for UNIX System Services, you can display data in various intervals:

- Ad hoc views display information as it exists at the moment of inquiry.
- Interval views display all of the information since the completion of the last full interval.
- Summary views display summarized information over multiple intervals that are requested with the TIME command.

Historical Data

You can also use MAINVIEW for UNIX System Services to re-create the operating environment as it existed during a previous time period. This feature, called historical data, stores information about your operating environment at the end of each interval so that you can compare the current performance with a previous performance. By using this comparison, you can determine whether your system is working normally.

For information about using historical data, see Chapter 4, “Controlling UNIX System Services from MAINVIEW for UNIX System Services,” or type **HELP TIME** on any MAINVIEW **COMMAND** line.

Background Processing

When you request ad hoc views (FSPACE, PSFOPEN, and PSTREE), the MAINVIEW for UNIX System Services product waits only briefly for a response. If the response is not timely, the REQSTAT view appears, and the **Status** field indicates the status of the request. You can proceed with other work as your request continues processing. You can refer to REQSTAT to view the status of your request until it is completed, or you can purge the request if the information is no longer needed.

By default, only the 25 most recent ad hoc data requests are retained. When a new ad hoc view is invoked, a new ad hoc data request is made and, if 25 requests are already being retained, the oldest request is automatically purged.

If you need to exempt a request from the automatic purge process, you can use the H line command on the REQSTAT view to hold the request. (Held requests are not automatically purged.) With this feature, you can issue a number of requests to gather the same data and then compare the information. For example, you might want to compare file-space information that was gathered at different times. You can use the S line command on the REQSTAT view to see previously gathered ad hoc data.

It is possible to change the default processing for ad hoc request management by changing the specifications in the BBUTAHS0 parmlib member. You can change the number of requests that are retained by the automatic purge process to something other than 25, and you can specify which users are subject to automatic purge processing and the receipt of pop-up notifications. Users whose requests are not subject to automatic purge processing must manage their ad hoc data explicitly by manually purging their requests by using the P line command on the REQSTAT view.

Warning! Failure to control the amount of storage that is used to retain ad hoc requests can lead to a shortage of resources in the PAS.

Displayed Information

The MAINVIEW for UNIX System Services product displays the information that it gathers in a view. Data about a particular topic is presented in tabular form (rows and columns). When a view is selected for display, a query is executed against the data that is collected by MAINVIEW for UNIX System Services to retrieve the relevant information. The data is formatted according to the associated set of instructions for the selected view.

With MAINVIEW for UNIX System Services, you can change a view's form without affecting its underlying query. The information that you have requested is the same, but it is presented in a different format. For information about how to change the form, type **HELP FORM** on any MAINVIEW **COMMAND** line.

Understanding the MAINVIEW Window Interface

All MAINVIEW products use the MAINVIEW window interface or the MAINVIEW standard ISPF panel interface (or a combination of both). MAINVIEW for UNIX System Services operates primarily in the window environment.

In the MAINVIEW window environment, each view is displayed in its own *window*. The top row of each window, called a *window information line*, tells you, among other things, the number and status of the window; the name of the view; the system, date, and time that are reflected by the view; and the name of the MAINVIEW product that you are currently using. A typical window information line looks like this:

```
>W1 =PSOVERZ=====SYSE=====15MARYYYY=====16:53:58=====MVUSS=====D===20
```

Everything below this line is called the *display area*. The top three lines of the MAINVIEW window interface are called the *window control area*. The control area consists of the following lines and fields:

- Information Display line (which contains the current date and time)
- **COMMAND** line
- **SCROLL** field
- **CURR WIN** (current window) field
- **ALT WIN** (alternate window) field

The window information line displays a lot of information; however, its exact appearance depends on many factors. For information about any of these fields, place the cursor on the field and press **PF1** (Help). The window information line and its fields are also discussed in detail in Chapter 3 of *MAINVIEW for UNIX System Services Getting Started*.

Understanding View Categories

Five kinds of views are available in MAINVIEW products:

- Menu views

You can use menu views to hyperlink to other views. Some menus hyperlink to views that display information about your system; other menus hyperlink to more specific views or menus that you can use to focus on the information that you need.

- Tabular views

Tabular views are rows and columns of data. Each field in a given row addresses the same process, file system, or user ID. Most views are tabular.

- Detail views

Detail views provide detailed information about a particular process, file system, or resource. Although detail views might resemble tabular views, the fields in a detail view are actually completely independent from one another. PSINFO, FSINFO, and HFSINFO are all detail views.

- Summary views

Summary views compress several rows of data into a single row based on certain criteria. For example, a summary view focusing on process activity within a process group might compress the process records so that each process group is represented by a single row of data. All summary views are created from tabular views, using a View Customization option called GROUP BY. For more information, type **HELP CUSTOM** on the **COMMAND** line, and then select the **GROUP BY** option.

- Detail summary views

Detail summary views provide detailed information for a single resource, similar to detail views. However, the information might be summarized for one or more subresources and, possibly, multiple intervals. For instance, ASINFOZ is a detail summary view that displays summarized process statistics for a single address space. If multiple intervals have been requested (using the TIME command), the statistics are summarized over multiple intervals.

MAINVIEW for UNIX System Services provides views that are divided into the following categories:

- process views, which monitor process resource usage and delay
- file-system views, which provide overviews and detailed statistics for HFS, zFS, and other file systems, as well as standard file systems
- system views, which provide information about address-space usage and delays, as well as UNIX System Services parameter settings (SYS1.PARMLIB member BPXPRM $_{xx}$)
- user views, which organize process activity by the group ID or user ID and display the currently idle users

Customizing Views and Help Text to Meet Your Needs

One of the primary advantages of the MAINVIEW for UNIX System Services window interface is the ability to customize all views and Help text to meet the particular needs of your site.

Note: Easy menus, such as EZUSS, cannot be customized.

- **View Customization**

With the MAINVIEW View Customization facility, you can organize your data in multiple ways. For example, you can

- sort on multiple columns
- rearrange columns
- graph the data
- modify the view so that certain columns are completely hidden, thus displaying only the data that you need

To enter the View Customization facility, type **CUSToM** on the **COMMAND** line.

- **Help text customization**

To create your own Help text, see the *MAINVIEW Administration Guide*. You can store this Help text in your own private Help text library or make it accessible to all MAINVIEW for UNIX System Services users at your site.

Getting Help on Views

MAINVIEW views are virtually self-documenting, meaning that no matter how you customize a view by using the CUSTom command, the online Help always draws from the most current information and is always accurate.

The different types of available online Help are described in Table 2-2.

Table 2-2 Online Help Available for MAINVIEW Products

To Display This	Do This
Help on a view	Place the cursor on the view name on the window information line and press PF1 . Alternatively, on the COMMAND line, type HELP viewName . View Help displays other topics that tell you which parameters are currently in effect, which fields are included and excluded within the view, which fields have hyperlinks (and to where), and so on.
Help on a field that appears on a view	Place the cursor on the field and press PF1 .
Help on a field on the window information line	Place the cursor on the field and press PF1 .
Help on a command or topic pertaining to the MAINVIEW window interface itself	On the COMMAND line, type HELP topicId , where <i>topicId</i> is the ID of the topic as listed in the <i>MAINVIEW Quick Reference</i> . For example, typing HELP ASU gives you Help for the ASU command. Alternatively, place the cursor on the COMMAND line and press PF1 to display the MAINVIEW Help tutorial. Select either Beginning or Advanced topics, or type INDEX to display all of the available topics.

Moving Around in MAINVIEW for UNIX System Services

The MAINVIEW for UNIX System Services product displays collected information in the form of views—one view for each type of activity, area of interest, and time frame.

There are three methods of displaying these views and the rest of the services that are provided by MAINVIEW for UNIX System Services:

- hyperlinks
- menus
- commands

Note: Type **VIEWS** on the **COMMAND** line to generate a list of most of the MAINVIEW for UNIX System Services views; you can hyperlink to all of them.

Using Hyperlinks

A hyperlink is a link from a field in a view to another view or a command. When you place your cursor on a field for which a hyperlink exists and press **Enter**, the underlying command is executed and its output is displayed.

Fields with hyperlink properties appear in a different color on your terminal. On monochrome terminals, hyperlinked fields appear in bold.

In every MAINVIEW window interface product, you can develop your own hyperlinks, which will save time and steps when going from one view to another view. For instructions on overriding the default hyperlinks and creating your own hyperlinks, type **HELP HYPERLINK** on the **COMMAND** line.

Figure 2-2 on page 2-15 demonstrates using a hyperlink for the PSOVERZ view.

Figure 2-2 PSOVERZ View

```

DDMMYYYY  HH:MM:SS  -----  MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS  -----
COMMAND  ==>
CURR WIN ==> 1          ALT WIN ==>
>H1 =PSOVERZ=====SJSC=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====64
C  ProcessId Command  Elapsed  Jobname  Stepname Multi- Total Total Total Total
-  -----  Name      ProcTime  -----  -----  Thread  Dly%  Run%  Zomb%  Othr%
      1 BPXPINPR 05:40:28 BPXOINIT BPXOINIT Yes      100  0.00  0.00  0.00
      6 inetd    05:40:11 INETD4   BPXAS   No       0.00  0.00  0.00  100
      7 EZACFALG 05:38:30 DC$TCPIP DC$TCPIP No      100  0.00  0.00  0.00
      8 EZASASUB 05:38:30 DC$TCPIP DC$TCPIP No      100  0.00  0.00  0.00
      9 EZBTMST  05:38:26 DC$TCPIP DC$TCPIP No       0.00  100  0.00  0.00
     11 FTPD    05:38:14 FTPD1    BPXAS   No      100  0.00  0.00  0.00
     12 BBM9SZ20 05:38:09 DC$PAS   PAS     Yes     0.00  100  0.00  0.00
16777218 BBM9SZ20 05:38:42 DC$CAS   CAS     No     0.00  100  0.00  0.00
16777219 EZBTCPIP  05:38:39 DC$TCPIP DC$TCPIP Yes     0.00  100  0.00  0.00
16777230 BBM9SZ20 04:32:12 SVSGD6FT SVSGD6FT No     0.00  100  0.00  0.00
33554436 EZBTMCTL  05:38:30 DC$TCPIP DC$TCPIP No     0.00  100  0.00  0.00
33554437 EZBTSSL   05:38:31 DC$TCPIP DC$TCPIP No     0.00  100  0.00  0.00
50331658 BBM9SZ20 02:48:33 XJONLPAS XJONLPAS Yes     0.00  100  0.00  0.00
83886095 BBM9SZ20 04:38:38 SVOS61FT SVOS61FT No     0.00  100  0.00  0.00

```

When you look at PSOVERZ, you see that the total delay percentage (**Total Dly%**) is exceptionally high for several processes, including the process with a job name of BPXOINIT.

To investigate why the usage is so high for BPXOINIT, split the screen to display two windows at once:

Step 1 On the **COMMAND** line, type **HSplit**.

HSplit indicates that the screen will be split horizontally into two windows.

Step 2 Move your cursor down to the position at which you want the next window to begin.

Step 3 Press **Enter**.

Your screen is now divided, as shown in Figure 2-3 on page 2-16.

Figure 2-3 Splitting the Screen

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 2          ALT WIN ==>
>H1 -PSOVERZ-----SJSC-----*-----DDMMYYYY--HH:MM:SS---MVUSS---D---64
C  ProcessId Command  Elapsed  Jobname  Stepname Multi- Total Total Total Total
-  ----- Name      ProcTime -----  ----- Thread  Dly%  Run%  Zomb%  Othr%
      1 BPXPINPR 05:40:28 BPXOINIT BPXOINIT Yes    100  0.00  0.00  0.00
      6 inetd    05:40:11 INETD4   BPXAS   No     0.00  0.00  0.00  100
      7 EZACFALG 05:38:30 DC$TCPIP DC$TCPIP No     100  0.00  0.00  0.00
      8 EZASASUB 05:38:30 DC$TCPIP DC$TCPIP No     100  0.00  0.00  0.00
      9 EZBTMST  05:38:26 DC$TCPIP DC$TCPIP No     0.00  100  0.00  0.00
     11 FTPD    05:38:14 FTPD1    BPXAS   No     100  0.00  0.00  0.00
     12 BBM9SZ20 05:38:09 DC$PAS   PAS     Yes    0.00  100  0.00  0.00
T2 =====

```

The empty space at the bottom of the screen will be replaced with the PSDELAYZ view when you hyperlink there. To execute the hyperlink for the **Total Dly%** field:

Step 4 In the ALT WIN field, type 2.

This action directs the output to window 2.

Step 5 Place the cursor on the value in the **Total Dly%** field for the process with the command name BPXPINPR.

Step 6 Press **Enter**.

Your screen now displays PSOVERZ in the top half and PSDELAYZ in the bottom half, as shown in Figure 2-4 on page 2-17.

Figure 2-4 Using a Split Screen with a Hyperlink

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>
CURR WIN ==> 2          ALT WIN ==>
+W1 -PSOVERZ-----SJSC-----*-----DDMMYYYY--HH:MM:SS---MVUSS---D---64
C  ProcessId Command  Elapsed  Jobname  Stepname Multi- Total Total Total Total
-  ----- Name      ProcTime ----- Thread  Dly%  Run% Zomb% Othr%
      1 BPXPINPR 05:40:28 BPXOINIT BPXOINIT Yes    100  0.00  0.00  0.00
      6 inetd    05:40:11 INETD4   BPXAS   No     0.00  0.00  0.00  100
      7 EZACFALG 05:38:30 DC$TCPIP DC$TCPIP No    100  0.00  0.00  0.00
      8 EZASASUB 05:38:30 DC$TCPIP DC$TCPIP No    100  0.00  0.00  0.00
      9 EZBTMST  05:38:26 DC$TCPIP DC$TCPIP No     0.00  100  0.00  0.00
     11 FTPD    05:38:14 FTPD1    BPXAS   No    100  0.00  0.00  0.00
     12 BBM9SZ20 05:38:09 DC$PAS   PAS     Yes   0.00  100  0.00  0.00
>W2 =PSDELAYZ=====SJSC=====*=====DDMMYYYY==HH:MM:SS===MVUSS===D===1
C  ProcessId Command  Elapsed  Jobname          Total Delay % Total Total %Delay
-  ----- Name      ProcTime -----          0....50...100 Zomb% Othr% MsgRcv
      1 BPXPINPR 07:44:24 BPXOINIT 100.00          0.00  0.00  0.00

```

You can continue to hyperlink to other views to gather additional information. You can either open them in new windows or replace the views in windows 1 and 2.

Using Easy Menus

An easy menu consists of a series of options that you can use to hyperlink either to data views or to other easy menus that are related to that particular option. All easy menus begin with the letters EZ. With these menus, you can locate specific information that you are interested in without having to know the name of the view containing the information.

EZUSS, shown in Figure 2-5, is the primary easy menu for MAINVIEW for UNIX System Services.

Figure 2-5 EZUSS Menu

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND  ==>                                     SCROLL ==> CSR
CURR WIN ==> 1          ALT WIN ==>
W1 =EZUSS=====EUSSM====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
                                     MVUSS Easy Menu

  Activity                                     Utilities
> System                                     +-----+ > Alarm Management
> Processes                                 | Place cursor on | > MAINVIEW Environment
> Filesystems                             | menu item and  | > MVUSS Fast Menu
> Users                                   | press ENTER   |
. USS Address Spaces                       +-----+ . Return...
. IPC Realtime Activity

  Action Views
> EZ Action Menu
> EZ zFS Administration
    
```

From EZUSS, you can hyperlink to a series of other easy menus that lead to specific views and data.

For example, hyperlink from the **Processes** option on the EZUSS menu to display EZUPRCS, the easy menu for processes, shown in Figure 2-6.

Figure 2-6 EZUPRCS Menu, the Easy Menu for Processes

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND  ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =EZUPRCS=====SJSC====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
                                     Processes Easy Menu

  Activity                                     General
. Overview                                 +-----+ . Current Status
. Resource Usage                           | Place cursor on | . Command Name
. Delays                                   | menu item and  | . Process Tree
. Execution State                           | press ENTER   |
                                             +-----+ . Return...
    
```

From EZUPRCS, you can access the process views and monitor the resource utilization, delays, and overall performance of a process.

Using Commands

To display a view by using commands, type the view name or command on the **COMMAND** line.

Note: To see what MAINVIEW window interface commands are available, see the *MAINVIEW Quick Reference*.

You can also filter data by specifying parameters with your view commands.

For example, to display the **PSOVERZ** view with only processes whose command names start with **EZB**, type **PSOVERZ EZB***, using the wildcard character ***** to represent any characters following **EZB**.

The output is displayed in Figure 2-7.

Figure 2-7 PSOVERZ Processes with EZB* Command Names

```

DDMMYYYY   HH:MM:SS  -----  MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS  -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
>W1 =PSOVERZ=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====4
C  ProcessId Command  Elapsed  Jobname  Stepname Multi-  Total  Total  Total  Total
-  -----  Name      ProcTime  -----  -----  Thread  Dly%   Run%  Zomb%  Othr%
      9  EZBTMST  05:38:26  DC$TCPIP  DC$TCPIP  No      0.00  100   0.00  0.00
    16777219  EZBTCPIP  05:38:39  DC$TCPIP  DC$TCPIP  Yes     0.00  100   0.00  0.00
    33554436  EZBTMCTL  05:38:30  DC$TCPIP  DC$TCPIP  No      0.00  100   0.00  0.00
    33554437  EZBTSSL  05:38:31  DC$TCPIP  DC$TCPIP  No      0.00  100   0.00  0.00

```

Displaying Multiple Views Simultaneously

While using commands to display views, you can also display multiple views at the same time. This feature is helpful when you are trying to diagnose a problem by comparing two views.

To display multiple views, follow these instructions:

Step 1 On the **COMMAND** line, type *viewName* **HSplit**, where *viewName* is the name of the view you want to display.

Note: Do not press **Enter** yet.

Step 2 Move the cursor to where you want the top of the second view to appear.

Step 3 Press **Enter**.

MAINVIEW for UNIX System Services sets the **CURRENT WINDOW** field to 2.

Step 4 On the **COMMAND** line, type the name of another view.

Step 5 Press **Enter**.

The two views now appear simultaneously.

When issuing a command with multiple views open, make sure the number in the **CURRENT WINDOW** field reflects the number of the target view for that command.

If you have multiple windows open, you can use a shortcut that is similar to the shortcut that is described in this section to enter multiple views and parameters at one time. Use the ISPF delimiter (usually a semicolon) as shown in the next example.

For example, to instruct PSUSE to appear in the top half of the screen and PSSTAT to appear in the bottom half of the screen, type the following command:

```
psuse;next;psstat
```

The results can be seen in Figure 2-8 on page 2-21.

Figure 2-8 ISPF Delimiter

```

DDMMYYYY  HH:MM:SS  -----  MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS  -----
COMMAND  ==>
CURR WIN ==> 2          ALT WIN ==>
>W1 -PSUSE-----SJSC-----*-----DDMMYYYY--HH:MM:SS---MVUSS---D---64
C  ProcessId Command  Elapsed  Jobname      Running %      Sys Call Interval#
-  -----  Name      ProcTime  -----      0...50...100      Rate Sys Calls
      8 EZBTCPIP  13:31:25 DC$TCPIP  100.0 *****      0.00000      0
     17 EZBTSSL  13:31:17 DC$TCPIP  100.0 *****      0.00000      0
     18 EZBTMCTL 13:31:17 DC$TCPIP  100.0 *****      0.00000      0
     25 GFSAMAIN 13:31:10 DC$NFS   100.0 *****      0.00000      0
     28 BBM9SZ20 13:31:07 DC$PAS   100.0 *****      3.76866      2209
     29 EZBTMST  13:31:04 DC$TCPIP  100.0 *****      2.66314      1561
     46 TCPMOMVS 02:28:29 XTSTIPAS 100.0 *****      0.99463      583
>W2 =PSSTAT=====SJSC=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D===64
C  ProcessId Command  Elapsed  Jobname  P Kernel Status      MVS  Proc
-  -----  Name      ProcTime  -----  S -----  Status Stop
      1 BPXPINPR 13:32:35 BPXOINIT F File System kernel wait  SWAPPED No
      6 inetd    13:32:13 INETD4   F File System kernel wait  SWAPPED No
      8 EZBTCPIP 13:31:55 DC$TCPIP R Not waiting for kernel    No
      9 GFSCRPCD 13:31:48 DC$NFSC  A IPC Message Receive wait  No
     10 GFSCRPCD 13:31:48 DC$NFSC  A IPC Message Receive wait  No
     11 GFSCRPCD 13:31:48 DC$NFSC  A IPC Message Receive wait  No

```

Using View Parameters

Most views have been defined with a set of parameters that can be used to filter the view. Use the view Help information to discover the parameters that are defined to a specific view.

Determining Positional Parameters

When you use positional parameters, you supply values for the parameters in a predetermined order.

To determine the parameters and their order for a given view, follow these steps:

- Step 1** Display the view's online Help by placing the cursor on the view name and pressing **PF1**.

In the example in Figure 2-9 on page 2-22, the view name is PSOVER.

Figure 2-9 Using the PSOVER View Online Help to Determine the Positional Parameters

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
>H1 =PSOVER=====SJSC=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D===64
C  ProcessId Command  Elapsed  Jobname  Stepname Multi-  Total  Total  Total  Total
-  -----  Name      ProcTime -----  -----  Thread  Dly%  Run%  Zomb%  Othr%
   1 BPX +-----+-----+-----+-----+-----+-----+ 0  0.00
   6 ine | Help          Interval Process Activity          Help | 0  100
   7 EZA | Command ==>                                     Scroll ==> CSR | 0  0.00
   8 EZA | -----+-----+-----+-----+-----+-----+ 0  0.00
   9 EZB |
  11 FTP | PSOVER is a tabular view that allows you to
  12 BBM | analyze the performance and utilization of
16777218 BBM | resources for selected processes. Use PSOVER to
16777219 EZB | monitor process activity during an interval.
16777231 OMV |
33554436 EZB | For more information on this view, place the
33554437 EZB | cursor on one of the following topics and press
33554445 BBM | ENTER.
                                     |
                                     | o Actions available from this view
                                     |
                                     | o Elements in this view
                                     |
                                     | o Positional parameters
                                     |
                                     | o Keyword parameters
                                     |
                                     | o Forms that are valid for this view
                                     |
                                     | o Sort information
                                     |
                                     | PSOVER is a TABULAR SUMMARY view.
                                     |
+-----+-----+-----+-----+-----+-----+

```

Step 2 Place the cursor on the **Positional parameters** field and press **Enter**.

The positional parameters are displayed, as shown in Figure 2-10 on page 2-23.

Figure 2-11 Filtering with Positional Parameters

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                               SCROLL ==> CSR
CURR WIN ==> 1          ALT WIN ==>
>W1 =PSOVER=====SJSE=====*=====DDMMYYYY==HH:MM:SS3====MVUSS====D====9
C  ProcessId Command  Elapsed  Jobname  Stepname Multi- Total Total Total Total
-  -----  Name      ProcTime -----  -----  Thread  Dly%  Run%  Zomb%  Othr%
      7 EZACFALG  09:30:33 DC$TCPIP DC$TCPIP No      100   0.00  0.00  0.00
      8 EZASASUB  09:30:33 DC$TCPIP DC$TCPIP No      100   0.00  0.00  0.00
      9 EZBTMST  09:30:29 DC$TCPIP DC$TCPIP No      0.00  100   0.00  0.00
     12 BBM9SZ20  09:30:18 DC$PAS   PAS      Yes     0.00  100   0.00  0.00
  16777218 BBM9SZ20  09:30:48 DC$CAS   CAS      No      0.00  100   0.00  0.00
  16777219 EZBTCPIP  09:30:42 DC$TCPIP DC$TCPIP Yes     0.00  100   0.00  0.00
  33554436 EZBTMCTL  09:30:33 DC$TCPIP DC$TCPIP No      0.00  100   0.00  0.00
  33554437 EZBTSSL  09:30:34 DC$TCPIP DC$TCPIP No      0.00  100   0.00  0.00
    
```

Even though Jobname is the fifth column, it is the second parameter.

When you specify a value for any view parameter other than the first parameter, all preceding parameters must be accounted for by the wildcard character, * (asterisk). In the example in Figure 2-11, you filtered the view by the Jobname parameter, so you placed an asterisk in the command to account for the Command Name parameter. This wildcard does not affect the output but serves as a placeholder so that you can use the positional parameters correctly.

Using Keyword Parameters

A keyword parameter is the element name of a column. An element name is the name by which the MAINVIEW for UNIX System Services product refers to a column internally. You can use the keyword parameter to achieve the same result as using the positional parameter.

To determine the keyword parameters, follow these steps:

- Step 1** Display PSOVER’s online Help by placing the cursor on the view name and pressing **PF1**. (See Figure 2-12 on page 2-25.)

Figure 2-12 Using the PSOVER View Online Help to Determine Keyword Parameters

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
>H1 =PSOVER=====SJSC=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D===64
C  ProcessId Command  Elapsed  Jobname  Stepname Multi- Total Total Total Total
-  -----  Name      ProcTime -----  -----  Thread  Dly%  Run%  Zomb%  Othr%
   1 BPX +-----+-----+-----+-----+-----+-----+-----+-----+
   6 ine | Help          Interval Process Activity          Help | 0 100
   7 EZA | Command ==>                               Scroll ==> CSR | 0 0.00
   8 EZA | -----+-----+-----+-----+-----+-----+-----+-----+
   9 EZB |
  11 FTP | PSOVER is a tabular view that allows you to
  12 BBM | analyze the performance and utilization of
16777218 BBM | resources for selected processes. Use PSOVER to
16777219 EZB | monitor process activity during an interval.
16777231 OMV |
33554436 EZB | For more information on this view, place the
33554437 EZB | cursor on one of the following topics and press
33554445 BBM | ENTER.
                                     |
                                     | o Actions available from this view
                                     |
                                     | o Elements in this view
                                     |
                                     | o Positional parameters
                                     |
                                     | o Keyword parameters
                                     |
                                     | o Forms that are valid for this view
                                     |
                                     | o Sort information
                                     |
                                     | PSOVER is a TABULAR SUMMARY view.
                                     +-----+-----+-----+-----+-----+-----+-----+

```

Step 2 Place your cursor on the **Keyword parameters** field and press **Enter**.

The keyword parameters are displayed, as shown in Figure 2-13 on page 2-26.

Figure 2-13 PSOVER View Keyword Parameters

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
>W1 =PSOVER=====SJSC=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D===64
C ProcessId Command Elapsed Jobname Stepname Multi- Total Total Total Total
- - - - - Name ProcTime - - - - - Thread Dly% Run% Zomb% Othr%
  1 BPX +-----+ 0 0.00
  6 ine | Help Interval Process Activity Help | 0 100
  7 EZA | +-----+ 0.00
  8 EZA | | Help Keyword Parameters Help | 0.00
  9 EZB | | Command ==> Scroll ==> CSR | 0.00
 11 FTP | |-----| 0.00
 12 BBM | |-----| 100
16777218 BBM | | The keyword parameters for this view are: | 0.00
16777219 EZB | |-----| 0.00
16777231 OMV | | Filter Condition: Keyword: | 0.00
22554436 EZB | |-----| 0.00
22554437 EZB | | E = '*' PRGCMDN | 0.00
22554445 BBM | | G = 'DC*' PRGJOBN | 0.00
|
| Any element may be used as a keyword parameter as
+-| long as it has a filter. Use the WHERE command or
| the L - Filter option in view customization to set
| a filter when necessary.
|
| For more information on using keyword parameters,
| see the keyword parameters topic.
+-----+

```

Figure 2-13 shows that the keyword parameter for Jobname is PRGJOBN. In addition to typing **PARm * DC***, you could also type the following text to display the same data:

PARm PRGJOBN (DC*)

Using the PARm Command

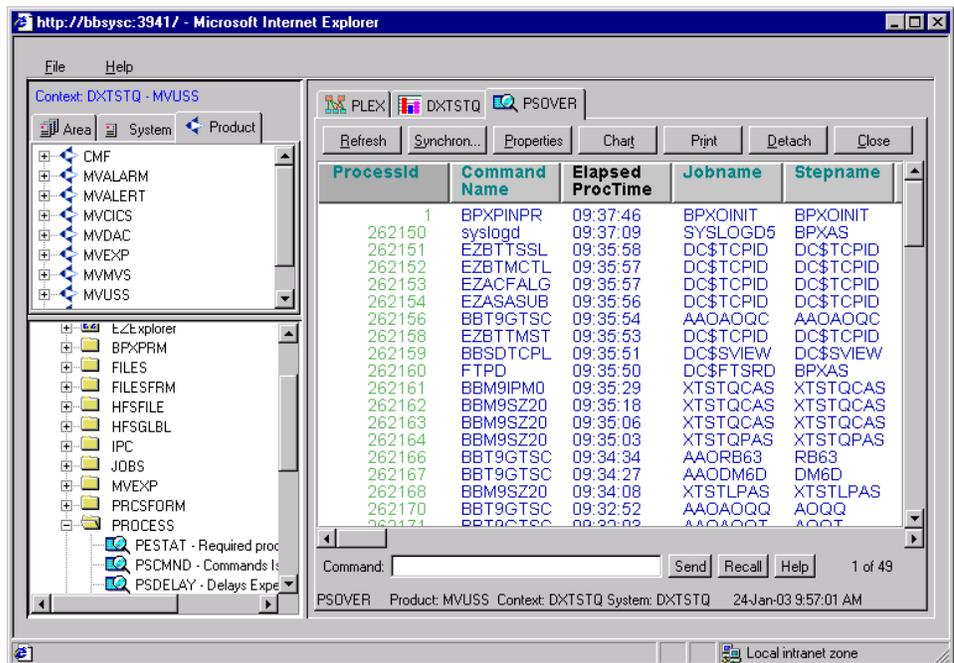
Because the view was already displayed, you used the PARm command in place of the view name to supply new parameters. PARm is much faster than using the view names because the PARm command places a filter on the existing data, rather than engaging the data collectors to gather new data.

PARm works for both positional and keyword parameters.

Using MAINVIEW Explorer to Access Views

If MAINVIEW Explorer is installed on your system, you can access MAINVIEW for UNIX System Services views through a web browser. For example, Figure 2-14 illustrates the PSOVER view accessed in this manner. Refer to *Using MAINVIEW* for information about using MAINVIEW Explorer to access MAINVIEW products.

Figure 2-14 PSOVER View Accessed Using MAINVIEW Explorer



Chapter 3 Solving Performance Problems

The MAINVIEW for UNIX System Services product is designed to detect performance problems or potential problems of UNIX System Services and take corrective action to resolve the issues. MAINVIEW easy menus allow you to easily access any MAINVIEW for UNIX System Services view without knowing the view name. After you access a view, you can obtain more detailed information regarding UNIX System Services. If you notice a potential problem in the data, you can use historical data to compare the current data to previous data to determine whether there is really a problem.

This chapter includes the following topics:

Using MAINVIEW Easy Menus	3-2
Using MAINVIEW for UNIX System Services Views	3-10

Using MAINVIEW Easy Menus

The MAINVIEW for UNIX System Services product provides a set of easy menus that you can use without having to remember all of the view names.

MAINVIEW for UNIX System Services Easy Menu

EZUSS, shown in Figure 3-1, is the primary easy menu for MAINVIEW for UNIX System Services. You can use the selections on this menu to access other high-level easy menus, such as EZUPRCS and EZUFSYS, to quickly locate information about various activities.

Figure 3-1 Primary Easy Menu, EZUSS

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                               SCROLL ==> CSR
CURR WIN ==> 1          ALT WIN ==>
W1 =EZUSS=====EUSM====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
                                MVUSS Easy Menu

  Activity                               Utilities
> System                                +-----+ > Alarm Management
> Processes                             | Place cursor on | > MAINVIEW Environment
> Filesystems                           | menu item and  | > MVUSS Fast Menu
> Users                                  | press ENTER   |
. USS Address Spaces                    +-----+ . Return...
. IPC Realtime Activity

  Action Views
> EZ Action Menu
> EZ zFS Administration

```

Options on this menu are grouped into two categories:

- Activity options

Activity options display submenus that give you an overview of some aspect of your system's performance. From these overview submenus, you can selectively display information about a particular element by hyperlinking to a menu that is specific to the element.

- Utilities options

Utilities options display submenus from which you can access a broad variety of information.

The MAINVIEW for UNIX System Services easy menu options are described in the following pages.

System Overview

From the EZUSS menu, select the **System** option to view the EZUSYS menu. The EZUSYS menu provides options that hyperlink to views regarding key performance areas of your system, as shown in Figure 3-2.

Figure 3-2 EZUSYS Menu

```

DDMMYYYY  HH:MM:SS  ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND  ==>
CURR WIN ==> 1      ALT WIN ==>
W1 =EZUSYS=====SJSC=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
                                System Easy Menu

Parameters                                     USS Address Space
. System Parameters          +-----+ . Overview
. IPCS System Parameters    | Place cursor on | . Delays
                            | menu item and   |
                            | press ENTER   |
                            +-----+ . Return...

```

From EZUSYS, you can hyperlink to information regarding your system parameters and the MAINVIEW for UNIX System Services address space overview information and delays.

Processes

Hyperlink from the **Processes** option of the EZUSS menu to access the Processes Easy Menu, EZUPRCS. From EZUPRCS, you can hyperlink to views that contain data regarding process activity. See Figure 3-3.

Figure 3-3 EZUPRCS Menu

```

DDMMYYYY  HH:MM:SS  ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND  ==>
CURR WIN ==> 1      ALT WIN ==>
W1 =EZUPRCS=====SJSC=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
                                Processes Easy Menu

Activity                                     General
. Overview          +-----+ . Current Status
. Resource Usage    | Place cursor on | . Command Name
. Delays            | menu item and   | . Process Tree
. Execution State   | press ENTER   |
                    +-----+ . Return...

```

EZUPRCS is divided into activity information and general information. The activity options lead you to information about specific process activity, including resource usage and delays. The general options provide more general information about a process, including the current status and command that is associated with that process.

File Systems

The file system menu, EZUFSYS, provides detailed information about all file systems, including HFS and zFS file systems, as shown in Figure 3-4.

Figure 3-4 EZUFSYS Menu

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =EZUFSYS=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
                                     Filesystems Easy Menu
. All Filesystems
. All Mounted Filesys  +-----+
. Directory Listing   | Place cursor on | . HFS Filesystems
                     | menu item and   | . Overview
                     | press ENTER    | . I/O Activity
. Req'd File Systems  +-----+ . Req'd HFS Files
                                     zFS Filesystems
                                     . Aggregates
                                     . File Systems
                                     . Req'd zFS Files
                                     . EZ zFS Administration
                                     . Return...
                                     HFS Global Data
                                     . Detail
                                     . Buffer Usage
                                     . HFS Data Spaces

```

EZUFSYS is divided into information about all

- mounted file systems

Data about all mounted file systems includes mount information and directory listings.

- HFS file systems

HFS file-system information includes space utilization, I/O activity, and any required HFS files that are not mounted.

- HFS global buffers

HFS global buffer data shows the global buffer usage. If you have the MAINVIEW for OS/390 product, you can hyperlink to see the data space view for global buffers.

- zFS file systems

zFS file-system information includes attached aggregates, mount status, usage, and quotas.

Users

The User Activity Easy Menu, EZUUSRS, contains hyperlinks to detailed information regarding individual users, group activities, and the number of idle users, as shown in Figure 3-5.

Figure 3-5 EZUUSRS Menu

```

DDMMYYYY  HH:MM:SS  -----  MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS  -----
COMMAND  ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =EZUUSRS=====SJSC=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
      User Activity Easy Menu

      Activity
      . User Summary          +-----+
      . Group Summary        | Place cursor on |
                              | menu item and  |
                              | press ENTER    |
      . Return...            +-----+

```

Realtime Activity

The **IPC Realtime Activity** option hyperlinks to IPCOVER, shown in Figure 3-6 on page 3-6, which contains a detailed view of the IPC message activity, semaphore activity, and shared-memory activity. If any activity exists, you can obtain more information by hyperlinking on

- IPC Type Message Qs—hyperlinks to IPCMSGR
- IPC Type Semaphores—hyperlinks to IPCSEMR
- IPC Type Shared Mem—hyperlinks to IPCSHMR

Figure 3-6 IPCOVER View

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> CSR
CURR WIN ==> 1           ALT WIN ==>
W1 =IPCOVER=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1

IPC Type..... Message Qs IPC Type..... Semaphores IPC Type..... Shared Mem
MSQs Allowed..      20000 SEMs Allowed..      500 SHMs Allowed..      500
MSQs Cur Max..      6 SEMs Cur Max..      SHMs Cur Max..
MSQs in use...      6 SEMs in use...      0 SHMs in use...      0
MSQs PRIVATE..      5 SEMs PRIVATE..      SHMs PRIVATE..
MSQs KEYed...      1 SEMs KEYed...      SHMs KEYed...
MSGGET Denied..      SEMGET Denied..      SHMGET Denied..
MAX Bytes/Que..      262144 MAX SEMs/Set..      25 MAX Pag/SysLmt      262144
MAX Msg/Que...      10000 MAX Ops/SEMOP..      25 MAX Pag/SegLmt      4096
MSGSNDS ENOMEM      Storage Limit..      100000000 MAX Pag/PrcLmt      10
                   Storage Count..      Cur Bytes Sys..
                   Largest Seg...

```

USS Address Spaces

The **USS Address Spaces** option is a hyperlink from EZUSS to ASOVERZ. ASOVERZ, shown in Figure 3-7, is a summarized view that displays process statistics that are summarized by the address space token. Use ASOVERZ to view resource usage for all UNIX System Services address spaces based on the processes that are running in those address spaces.

Figure 3-7 ASOVERZ View

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> CSR
CURR WIN ==> 1           ALT WIN ==>
>W1 =ASOVERZ=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====12
Jobname  Hex  T Service  Total Total Idle%  %Delay  Prcs Total      PrcsTot
----- ASID - Class    Dly%  Use%          Unknown AvgMem CPU Time      CPU%
AAOA061  60 S STCNRM   0.00 0.00 100.0   0.00  2.9Mi 00:04:03.46   0.06
AAOTC5B  7A S STCNRM   0.00 0.00 100.0   0.00  1.3Mi 00:00:03.84   0.06
AAOTC6E  7B S STCNRM   0.00 0.00 100.0   0.00  2.4Mi 00:00:02.96   0.04
BCVQ535E 175 S STCNRM   0.00 0.00 100.0   0.00 50.6Mi 00:00:03.25   0.01
BCVQ610E 75 S STCNRM  10.00 90.00  0.00   0.00 51.0Mi 00:17:50.06  24.27
BPXOINIT 173 S SYSTEM   0.00 0.00 100.0   0.00 98304 00:00:02.91   0.00
DB2JDIST 70 S SYSSTC   0.00 0.00 100.0   0.00  8.2Mi 00:00:00.24   0.00
DC$FTSRV 4A O SYSSTC   0.00 0.00 100.0   0.00  5.4Mi 00:00:00.02   0.00
DC$PAS   45 S STCNRM   0.00 0.00 100.0   0.00  5.7Mi 00:14:34.20   0.27
DC$PMAP  61 S STCNRM   0.00 0.00 88.89  11.11  5.0Mi 00:00:00.98   0.00
DC$TCPIP 4B S SYSSTC   0.00 0.00 100.0   0.00 15.8Mi 00:06:18.02   0.07
XUSSKPAS 73 S STCNRM   0.00 11.11 88.89   0.00  3.5Mi 00:00:11.13   0.30

```

MVUSS Easy Action Menu

The **EZ Action Menu** option is a hyperlink from EZUSS to the EZUACTS menu. You can take several actions from various views to control UNIX System Services. The EZUACTS menu, shown in Figure 3-8, summarizes these actions by indicating which view supplies the action and which line command or hyperlink provides the action. For more information, see Chapter 4, “Controlling UNIX System Services from MAINVIEW for UNIX System Services.”

Figure 3-8 Easy Action (EZUACTS) Menu

```

DDMMYYYY   HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> CSR
CURR WIN ==> 1           ALT WIN ==>
W1 =EZUACTS=====EUSM====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
                                MVUSS Easy Action Menu

Action View

> BPXPRM      Use the "Change Config" hyperlink to change BPXparms
> IPCBPXP     Use the "Change Config" hyperlink to change BPXparms
> PISOVERZ    Use the "Multi-Thread" hyperlink to view threads
               Use line cmd "f" to view files in use
               Use line cmd "k" to KILL a process
               Use line cmd "d" to DUMP a process
               Use line cmd "r" to display real time process/thread
               Use line cmd "l" to display/modify process limits
> HFSGINFO    Use the "Max Virtual Stor" or "Min Fixed Stor"
               hyperlink to modify these global parameters
> HFSSOVERZ   Use line cmd "u" to unmount the file system
               Use line cmd "m" to mount a new file system
> FSMOUNTZ    Use the "%Blks Free" hyperlink to extend the file
               Use line cmd "u" to unmount the file system
               Use line cmd "m" to mount a new file system
> EZUZADM     Use this link to see zFS administration functions
> FSPACE      Use line cmd "s" to drill down to desired file, then
               Use line cmd "co" to change file ownership
               Use line cmd "cm" to change file permissions

```

Alarm Management

Hyperlinking from the **Alarm Management** option takes you to a series of views, beginning with the Alarm Administration menu, EZALARM, as shown in Figure 3-9.

Figure 3-9 EZALARM Menu

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND  ==>                                     SCROLL ==> CSR
CURR WIN ==> 1          ALT WIN ==>
W1 =EZALARM=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVALARM==D====1
          Alarm Administration
    Set Up/Modify Alarms                               Advanced Options
    +-----+
    . List Alarm Groups      | Place cursor on      | . Add Alarm Definition
    . List Alarm Definitions | menu item and   | . Edit Alarm Definition
    . All Alarm Definitions  | press ENTER     | . View Alarm Definition
    +-----+
Alerts
    . Alert Management
                                     Alarm Diagnostics
                                     . Current Alarms
                                     . Alarm History
                                     . Alarm Summary

```

You can hyperlink from EZALARM to other views to display alarms or edit or view alarm definitions. When you add or edit an alarm definition, you can customize the alarm messages as well as threshold levels, monitoring frequency, and action that is taken when an alarm occurs.

For more information about MAINVIEW Alarm Manager, refer to Chapter 7, “MAINVIEW Alarm Manager.”

MAINVIEW Environment

MAINVIEW for UNIX System Services also provides an easy menu for your environmental settings called EZUENV, shown in Figure 3-10.

Figure 3-10 EZUENV Menu

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND  ===>                               SCROLL  ===> CSR
CURR WIN  ===> 1           ALT WIN  ===>
W1 =EZUENV=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1

                                Environment Settings

Change System                               Miscellaneous
. Select Target                             +-----+ . Data Collector Status
. Select SSI Context                         | Place cursor on | | . Historical Data Sets
. Select product                             | menu item and  | | . Request Status
                                              | press ENTER   | |
                                              +-----+ > All Views

```

With EZUENV, you can change your target, SSI context, and product, as well as view your data collector status, view historical data sets, and request status on any previously issued ad hoc views. For more information, see “Ad Hoc Views” on page 6-3.

MVUSS Fast Menu

The MVUSS Fast Menu, shown in Figure 3-11, provides an easy menu showing many of the most useful functions on one view.

Figure 3-11 MVUSS Fast Menu (EZUFAST)

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND  ===>                               SCROLL  ===> CSR
CURR WIN  ===> 1           ALT WIN  ===>
>W1 =EZUFAST=====EUSM=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1

                                MVUSS Fast Menu

System                                         Utilities
. System Parameters                           +-----+ > Alarm Management
. IPCS System Parameters                       | Place cursor on | | > MAINVIEW Environment
. Address Space Overview                       | menu item and  | |
. Address Space Delays                         | press ENTER   | |
. IPC Realtime Activity                       +-----+

Processes                                     Filesystems
. Overview                                     . All Mounted Filesys
. Resource Usage                               . Directory Listing
. Delays                                       . HFS Global Detail
. Execution State                             . HFS I/O Activity
                                              . Reqd HFS Files

Product Hyperlinks
Action Views                                  > TCP/IP performance
> EZ Action Menu                             > WEBSPHERE performance . Return
> EZ zFS Administration

```

Using MAINVIEW for UNIX System Services Views

This section provides a list of views and examples on how to use the MAINVIEW for UNIX System Services product to monitor your UNIX System Services.

Process and Thread Activity

MAINVIEW for UNIX System Services monitors your UNIX System Services processes and related activities. Use the following views to obtain both summarized and detailed information about every aspect of the processes.

Table 3-1 Process Views (Part 1 of 2)

View	Description
PESTAT	displays the status of processes specified in DD PARMLIB member BBUTSRP0
PSSTAT	provides the current status for selected processes
PSCMDPRM	displays up to 1024 bytes of the command that initiated a single process, including all parameters
PSCMND	summarizes all the process command information
PSCTTY	displays up to 1024 bytes of the name of the terminal device from which the process was initiated
PSDELAY	consists of a tabular view that you can use to see how much of the total delay is attributable to each of the major resource categories for selected processes
PSDELAYZ	consists of a summarized view that you can use to see how much of the total delay is attributable to each of the major resource categories for selected processes during multiple intervals
PSEXPATH	displays up to 1024 bytes of the full path name of the command that initiated the process
PSFOPEN	lists the files that are currently open for a process
PSINFO	consists of a detailed process overview for a single process, including status, resource usage, and delay reason statistics for the interval
PSOVER	consists of a tabular view that you can use to analyze the performance and utilization of resources for the selected processes
PSOVERZ	consists of a summarized view of process activity that you can use to analyze the performance and utilization of resources for the selected processes over multiple intervals
PSTREE	helps illustrate the relationship between parent and child processes in the system

Table 3-1 Process Views (Part 2 of 2)

View	Description
PSUSE	consists of a tabular view of processor and storage utilization for selected processes during particular intervals
PSUSEZ	consists of a summarized view of process utilization, which displays processor and storage utilization for selected processes over multiple intervals
PSWRKDIR	displays up to 1024 bytes of the working directory for the process
THREAD	provides information about CPU usage and state for threads associated with a given process

HFS, zFS, and Other File Systems Statistics

To help you monitor statistics for your file systems, such as storage allocation and I/O, the MAINVIEW for UNIX System Services product offers the views that are listed in Table 3-2.

Table 3-2 HFS, zFS, and Other File-System Views (Part 1 of 2)

View	Description
FSDIRNM	displays the full directory name for a file
FSFILENM	displays the full name for a file
FSINFO	provides detailed information for a single file system
FSLIST	displays a detailed file listing for a file
FSLISTH	displays a hexadecimal listing for a file
FSMNTPRM	displays a detailed view for the full mount parms for a file system
FSMNTPT	displays a detailed view for the full mount point for a file system
FSMOUNT	lists the file systems that are currently mounted for an interval
FSMOUNTZ	provides a summarized list of the file systems that are currently mounted for multiple intervals
FSPACE	displays detailed information for all files and directories within a specified directory
FSSTAT	displays the status of required file systems specified in DD PARMLIB member BBUTSRH0
HFSGBUF	displays interval HFS global buffer pool statistics
HFSGBUFZ	displays summary HFS global buffer pool statistics
HFSGINFO	displays detailed HFS global statistics
HFSINFO	provides detailed information for a single HFS file system

Table 3-2 HFS, zFS, and Other File-System Views (Part 2 of 2)

View	Description
HFSIO	displays interval HFS file-system I/O statistics
HFSIOZ	displays summary HFS file-system I/O statistics
HFSOVER	provides interval HFS file-system statistics, including storage allocation, I/O, and caching data
HFSOVERZ	provides summary HFS file-system statistics, including storage allocation, I/O, and caching data
HFSSTAT	displays the status of any required HFS files specified in DD PARMLIB member BBUTSRH0
ZFADETL	displays detailed information about a zFS attached aggregate
ZFATTACH	displays all zFS aggregates
ZFFDETL	displays detailed information about a zFS file system
ZFFILSYS	displays all zFS file systems in an aggregate
ZFFSTAT	shows the status of required zFS files specified in DD PARMLIB member BBUTSRH0

Address Space Information and System Parameters

The address space views, as listed in Table 3-3, contain activity information about the address spaces, including delays. The data is available in both summarized and tabular form. In addition, the BPXPRM view provides information about system parameter settings.

Table 3-3 Address Space Views

View	Description
ASDELAYZ	summarized view of address space delays over multiple intervals
ASINFOZ	detailed information about an address space and the processes running on that address space
ASOVERZ	summarized view of address space activity over multiple intervals
BPXPRM	interval UNIX System Services parameter settings, average counts, and number of attempts to exceed limits
IPCBPXP	interval interprocess communication information, such as shared memory usage and semaphore activity

User and Group Views

User and group views provide a series of user views that summarize process data by a user or group. Table 3-4 lists these views.

Table 3-4 User and Group Views

View	Description
GRPOVERZ	summarizes process activity by group ID
USRJOBZ	summarizes process statistics by job name within session ID and within SAF user ID
USROVERZ	summarizes process activity by user ID
USRSESSZ	summarizes process statistics by session ID within SAF user ID

Utility View

The utility view, listed in Table 3-5, provides information about ad hoc view requests for a user.

Table 3-5 Utility View

View	Description
REQSTAT	lists pending and completed ad hoc view requests for a user Certain views that a user selects might not be able to return data immediately and will run, in essence, in the background. Using the REQSTAT view, a user can check the status of requests running in the background. Actions are provided so that the user can view the data if the request has finished or purge the request if the data is no longer needed.

Chapter 4 **Controlling UNIX System Services from MAINVIEW for UNIX System Services**

Several views have actions that you can use to execute UNIX System Services commands from within the MAINVIEW for UNIX System Services product. This chapter describes how to set up your system so that you can use those commands. The chapter includes the following topics:

Setting System and IPCS Parameters	4-2
Extending an HFS File Size	4-5
Setting Global Buffer Limits	4-8
Displaying Real-time Process/Thread Status	4-10
Killing a Process	4-12
Dumping a Process	4-13
Displaying Files for a Process	4-13
Browsing Files and Producing a Hexadecimal Listing.....	4-14
Changing Limits for a Process	4-16
Mounting and Unmounting File Systems.....	4-16
Viewing the Details of a zFS File	4-17

Setting System and IPCS Parameters

System BPX and IPCS parameters can be changed from within the MAINVIEW for UNIX System Services product. Follow these procedures:

- Step 1** From the EZUSS menu, select **System**, which brings up the EZUSYS view.
- Step 2** Hyperlink from either the **System Parameters** option, which brings up the BPXPRM view (as shown in Figure 4-1 on page 4-3), or the **IPCS System Parameters** option, which brings up the IPCBPXP view (as shown in Figure 4-2 on page 4-4).
- Step 3** Hyperlink from **Change Config** to bring up the Change UNIX Configuration Settings ISPF panel (shown in Figure 4-3 on page 4-4), on which you can type over the current settings.
- Step 4** When you type **END**, a standard SETOMVS operator command is issued to implement any changes that you made to the screen.

You will receive either an ISPF panel, informing you of the success of each parameter that you attempted to change, or an error report.

Note: If you are viewing an historical time frame, these hyperlinks will still work, and you can change the CURRENT settings of the BPX and IPCS limits that are displayed.

Figure 4-1 BPXPRM View

```

DDMMYYYY   HH:MM:SS  ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =BPXPRM=====SJSC=====*=====DDMMYYYY==HH:MM:SS====MVUSS====U====1
System Name.....      SJSC
Sysplex Name.....    BMCPLPXX  Change Config....      <- Hyperlink
-Processes/System-
MAXPROCSYS.....      200  ---UIDs/System---
Current #.....       27  MAXUIDS.....          200
Current %.....      13.5  Current #.....        1
Interval Maximum.    27  Current %.....        0.5
Interval Average.    27  Interval Maximum.     1
Intvl Exceed Cnt.    0   Interval Average.     1
Intvl Exceed Rate    0.00  Intvl Exceed Cnt.     0
--Files/Process--
MAXFILEPROC.....     256  --Processes/UID--
Current #.....        1  MAXPROCUSER.....     100
Current %.....        0.4  Current #.....        4
Interval Maximum.    1   Current %.....        4.0
Interval Average.    1   Interval Maximum.     4
-Threads/Process--
MAXTHREADTASKS...    500  Interval Average.     4
MAXTHREADS.....     10000  Intvl Exceed Cnt.     0
Intvl Exceed Rate    0.00  Intvl Exceed Rate     0.00
----MMap Pages----
MAXMMAPAREA.....    40960  ---Pseudo TTYS---
Current #.....        0  ---Remote TTYS---
Current %.....        0.0  MAXRTYS.....          256
Interval Maximum.    0   MAXFILESIZE.....     UNLIMITED
Interval Average.    0   MAXCORESIZE.....     4.0Mi
Intvl Exceed Cnt.    0   MAXASSIZE.....        1.0Gi
Intvl Exceed Rate    0.00  MAXCPUTIME.....       7200
----SharePages----
MAXSHAREPAGES....   131072  --Shared Lib Rgn--
Current #.....        5284  MAXSHRLIBRGN.....     64
Current %.....        4.0  Current #.....         0
Interval Maximum.    5284  Current %.....         0.0
Interval Average.    5284  Interval Maximum.     0
Intvl Exceed Cnt.    0   Interval Average.     0
Intvl Exceed Rate    0.00  Intvl Exceed Cnt.     0
Intvl Exceed Rate    0.00  Intvl Exceed Rate     0.00
----QueuedSigs----
MAXQUEUEDSIGS....   1000  --SharedLibPages--
Intvl Exceed Cnt.    0   SHRLIBMAXPAGES...    4096
Intvl Exceed Rate    0.00

```

Figure 4-2 IPCBXP View

```

DDMMYYYY   HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> CSR
CURR WIN ==> 1           ALT WIN ==>
W1 =IPCBXP=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
System Name....      SJSE
Sysplex Name.... BBPLEX01  Change Config..          <- Hyperlink
-Msg Queue Ids..      -Shr Mem Segmnts          -Semaphore Sets.
IPCMSGNIDS....      500 IPCSHMNIDS....      500 IPCSEMNIDS....      500
Current #.....      0 Current #.....      0 Current #.....      0
Current %.....      0.0 Current %.....      0.0 Current %.....      0.0
Interval Max...      0 Interval Max...      0 Interval Max...      0
Interval Avg...      0 Interval Avg...      0 Interval Avg...      0
Intvl Exceed Ct      0 Intvl Exceed Ct      0 Intvl Exceed Ct      0
Intvl Exceed Rt      0 Intvl Exceed Rt      0 Intvl Exceed Rt      0
-Messages/Msg Q.     -Shrd Mem Pages..      -Semaphores/Set.
IPCMSGQMNUM....     10000 IPCSHMSPAGES...     262144 IPCSEMNSEMS....     1000
-Bytes/Msg Queue     Current #.....      0 -Semaphores Ops.
IPCMSGQBYTES...     2.0Gi Current %.....      0.0 IPCSEMNOPTS....     25
Interval Max...      0
Interval Avg...      0
Intvl Exceed Ct      0
Intvl Exceed Rt      0
-ShrMemPags/Sgmt
IPCSHMMPAGES...     8192
-Segmnts/AddrSpc
IPCSHMNSEGS....     500

```

Figure 4-3 Change UNIX Configuration Settings Panel

```

----- Change UNIX Configuration Settings -----
COMMAND ==>
Change one or more of the following limits.

MAXASSIZE      1073741824      IPCMSGQBYTES      2147483647
MAXCORESIZE    4194304      IPCMSGNIDS        500
MAXCPUPTIME    7200      IPCMSGQMNUM       10000
MAXFILEPROC    256
MAXFILESIZE    UNLIMITED      IPCSEMNIDS        500
MAXMMAPAREA    40960      IPCSEMNSEMS       1000
MAXPROCSYS     200      IPCSEMNOPTS       25
MAXPROCUSER    100
MAXPTY         256      IPCSHMNIDS        500
MAXQUEUEDSIGS 1000      IPCSHMMPAGES      8192
MAXSHAREPAGES 131072      IPCSHMNSEGS       500
MAXTHREADS     10000      IPCSHMSPAGES      262144
MAXTHREADTASKS 500
MAXUIDS        200
SHRLIBRGNSIZE 67108864      SHRLIBMAXPAGES    4096

Type END to modify any changed values,
Cancel to quit without making changes.

```

Extending an HFS File Size

Several views have hyperlinks that you can use to extend an HFS file system, if possible.

Note: If you are viewing an historical time frame, the hyperlinks that are described in this section will still work, and you can change the CURRENT size of an HFS file.

From the FSMOUNT or FSMOUNTZ View

To extend an HFS file system from the FSMOUNT or FSMOUNTZ view, follow these instructions:

- Step 1** From the MVUSS Easy Menu, select **Filesystems**.
- Step 2** From the Filesystems Easy Menu (EZUFSYS), select **All Mounted Filesys** to see the FSMOUNTZ view, as shown in Figure 4-4.

Note: You can also use the FSMOUNT view.

Figure 4-4 FSMOUNTZ View

```

DDMMYYYY   HH:MM:SS  -----  MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS  -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
>W1 =FSMOUNTZ=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====8
C File System Dataset Name                               Type FS  Read   Total %Blks %B
- -----
*AMD/home                                               MVS  AUTO No     1  0.00
USS.SHRD.ROOT.ZOS101                                    MVS  HFS  Yes  199080 19.79
USS.SJSE.ETC                                             MVS  HFS  No   720  57.78
USS.SJSE.VAR                                             MVS  HFS  No   192  73.96
USS.SJSE.TMP                                             MVS  HFS  No   180  92.22
BMVUSS.OMVS.SJSE.FS                                     MVS  HFS  No   360  96.94
USS.SJSE.DEV                                             MVS  HFS  No   192  97.40
BMVJOJ.OMVS.SJSE.FS                                    MVS  HFS  No   720  98.75
    
```

- Step 3** Hyperlink on a value under **%Blks Free**.

The Extend File System ISPF panel is displayed, as shown in Figure 4-5 on page 4-6.

Figure 4-5 Extend File System Panel

```

Extend File System

HFS => USS.SJSE.VAR
Size =>      192      (pages)
          0.750 (MB)

Enter desired extension, then press the End key.

New VOLUME  N      (Y/N)
Extent Unit  C      (M/T/C)
Extent Amt   1

F1=Help  F3=End  F12=Cancel
    
```

The Extend File System panel shows the chosen HFS file and its current size in pages and megabytes.

Step 4 If the HFS file has more than one candidate volume, place the extension on a new volume.

- 4.A** In the **New Volume** field, specify **Y**.
- 4.B** Select the **Extent Unit** (M for Megabytes, T for Track, or C for Cylinder).
- 4.C** Select the **Extent Amt**.
- 4.D** Press **PF3** to execute the command or **PF12** to cancel the request.

From the HFSSOVERZ View

Alternatively, to extend an HFS file system from the HFSSOVERZ view, follow these instructions:

- Step 1** From the EZUFSYS menu, select **Overview** under HFS Filesystems to see the HFSSOVERZ view, as shown in Figure 4-6.

Figure 4-6 HFSSOVERZ View

```
DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> CSR
CURR WIN ==> 1          ALT WIN ==>
>W1 =HFSSOVERZ=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====7
C File System Dataset Name          Owing      Mount      Mount      File
- -----          System      Time      Date      Size
BMVJOJ.OMVS.SJSE.FS          SJSD      06:21:23  10JULYYYY      720
BMVUSS.OMVS.SJSE.FS          SJSD      06:21:12  10JULYYYY      360
USS.SHRD.ROOT.ZOS101          SJSD      00:40:19  10JULYYYY      199080
USS.SJSE.DEV                  SJSE      00:40:19  10JULYYYY      192
USS.SJSE.ETC                  SJSE      00:40:19  10JULYYYY      720
USS.SJSE.TMP                  SJSE      00:40:19  10JULYYYY      180
USS.SJSE.VAR                  SJSE      00:40:19  10JULYYYY      552
```

- Step 2** Perform *one* of the following actions:

- Hyperlink on **File Size**.

The Extend File System ISPF panel is displayed, as shown in Figure 4-5 on page 4-6. (This same hyperlink can be made from HFSSOVER.)

or

- From HFSSOVERZ, hyperlink on **File System Dataset Name** (shown in Figure 4-6 on page 4-7).

The HFSINFO view (shown in Figure 4-7 on page 4-8) is displayed. Hyperlink on the **File Sys Sz** field.

The Extend File System ISPF panel is displayed.

Figure 4-7 HFSINFO View

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> CSR
CURR WIN ==> 1           ALT WIN ==>
>W1 =HFSOVERZ=HFSINFO==SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
                                           Interval Average
File Name..... BMVJOJ.OMVS.SJSE.FS          Seq I/O Rate....
File Sub Typ.... HFS                        Random I/O Rt...
File Type..... MVS                          Lookup Hit Ratio
File System Stat ACTIVE                    Page 1 Hit Ratio
Directory..... /home/bmvjoj                Indx Hit Ratio..
Mount Parns.....                            Index New Tops..
Mount Time..... 06:21:23                    Index Splits....
Mount Date..... 10JULYYYY                  Index Joins.....
File Sys Sz.....          720 ←
Used Pages.....          9
Attrib Pages....          1
Cached Pages....          0
FileSys ID.....          13

```

Setting Global Buffer Limits

The Virtual Storage Maximum and the Fixed Storage Minimum values of the global buffer limits can be changed from the HFSGINFO view.

To change the values, follow these steps:

- Step 1** From the MVUSS menu, select **Filesystems**.
- Step 2** From the HFS Global Data section of the EZUFSYS menu, select **Detail**.

The HFSGINFO view is displayed, as shown in Figure 4-8 on page 4-9.

Figure 4-8 HFSGINFO View

```

DDMMYYYY   HH:MM:SS  ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                               SCROLL ==> CSR
CURR WIN ==> 1           ALT WIN ==>
>W1 =HFSGINFO=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
Global HFS Info.           Timeframe Intvl.           Timeframe Curr..
System Name..... SJSE     -Avg Virt Stor--           -Virtual Storage
Sysplex Name.... BBPLEX01  In Pages.....           400.00   In Pages.....           400
# Buffer Pools..          4   In Megabytes...           1.56   In Megabytes...           1.56
Max Virtual Stor          377 % of Max.....           0.41   % of Max.....           0.41
Min Fixed Stor..          0  -Avg Fixed Stor-           -Fixed Storage--
                               In Pages.....           0.00   In Pages.....           0
                               In Megabytes...           0.00   In Megabytes...           0.00
                               % of Min.....           0.00   % of Min.....           0.00
--Buffering-----           --Buffering-----
Cache Hit Ratio.          1.0000 Cache Hit Ratio.           0.0000
Total Attempts..          43   Total Attempts..           0
Hit Ratio 1st Pg          0.0000 Hit Ratio 1st Pg           0.0000
Total Attempts..          0   Total Attempts..           0

```

Step 3 Hyperlink on either the **Max Virtual Stor** field or the **Min Fixed Stor** field.

The Set Global Buffer Limits ISPF panel is displayed, as shown in Figure 4-9.

Figure 4-9 Set Global Buffer Limits Panel

```

Set Global Buffer Limits

Enter desired values, then press the End key.

      VMAX      377 (mb)
      FMIN       0 (mb)

F1=Help  F3=End  F12=Cancel

```

This panel displays the storage limits for the HFS buffers that are currently in effect, specifically the VMAX and FMIN values.

Step 4 Change one or both of these values.

Step 5 Press the **End** key.

Displaying Real-time Process/Thread Status

Several UNIX System Services actions are available from the EZUPRC view. To display the real-time status of a process and its threads, follow these instructions:

Step 1 Display the PSOVERZ view, as shown in Figure 4-10.

Figure 4-10 Displaying the Status of a Process Using the PSOVERZ View

```

DDMMYYYY   HH:MM:SS  ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>
CURR WIN ==> 1      ALT WIN ==>
>W1 =PSOVERZ=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D===59
C ProcessId Command  Elapsed  Jobname  Stepname Multi- Total Total Total Total
- - - - - Name      ProcTime  - - - - - Thread  Dly%  Run%  Zomb%  Othr%
      1 BPXPINPR  05:40:28 BPXOINIT BPXOINIT Yes    100   0.00  0.00  0.00
      6 inetd    05:40:11 INETD4   BPXAS   No     0.00  0.00  0.00  100
      7 EZACFALG 05:38:30 DC$TCPIP DC$TCPIP No     100   0.00  0.00  0.00
      8 EZASASUB 05:38:30 DC$TCPIP DC$TCPIP No     100   0.00  0.00  0.00
      9 EZBTMST  05:38:26 DC$TCPIP DC$TCPIP No     0.00  100   0.00  0.00
     11 FTPD    05:38:14 FTPD1    BPXAS   No     100   0.00  0.00  0.00
     12 BBM9SZ20 05:38:09 DC$PAS   PAS     Yes    0.00  100   0.00  0.00
    107 BBM9SZ20 05:38:42 DC$CAS   CAS     No     0.00  100   0.00  0.00
  16777219 EZBTCPIP  05:38:39 DC$TCPIP DC$TCPIP Yes    0.00  100   0.00  0.00
  16777230 BBM9SZ20  04:32:12 SVSGD6FT SVSGD6FT No     0.00  100   0.00  0.00
  33554436 EZBTMCTL  05:38:30 DC$TCPIP DC$TCPIP No     0.00  100   0.00  0.00
  33554437 EZBTSSL   05:38:31 DC$TCPIP DC$TCPIP No     0.00  100   0.00  0.00
  50331658 BBM9SZ20  02:48:33 XJONLPAS XJONLPAS Yes    0.00  100   0.00  0.00
  83886095 BBM9SZ20  04:38:38 SVOS61FT SVOS61FT No     0.00  100   0.00  0.00
    
```

Step 2 To display detailed information about a process, hyperlink on a value in the **ProcessId** column.

The EZUPRC view is displayed, as shown in Figure 4-11 on page 4-11. (The Process ID used in this example is 107.)

Figure 4-11 EZUPRC View

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> CSR
CURR WIN ==> 1          ALT WIN ==>
W1 =PSOVERZ==EZUPRC===SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
          Process Easy Menu

Current Pid ->                107
Dubbed Time ->                08:53:20
Dubbed Date ->               13JULYYYY

Activity                                General
. Overview                            +-----+ . Current Status
. Resource Usage                       | Place cursor on | . Command Name
. Delays                               | menu item and  | . Detail
                                       | press ENTER   |
Actions                                +-----+
. Process/Thread
. Kill Process                          . Return...
. Display Files
. Process Limits
. Dump Process
    
```

Step 3 To display the real-time status of this process and its threads, hyperlink on **Process/Thread**.

The product issues the Operator console command to display the process and its threads; the result is displayed in a scrollable ISPF panel, as shown in Figure 4-12.

Figure 4-12 Scrollable ISPF Panel

```

                                Console Response (USSM)
Command ==>                                     Scroll ==> CSR
-----
D OMVS,PID=107
BPXO040I 10.27.04 DISPLAY OMVS 809
OMVS      000E ACTIVE          OMVS=(F1)
USER      JOBNAME  ASID      PID      PPID STATE  START  CT_SECS
OMVS      BPXOINIT 001E      1        0 MFI--- 00.16.28  2.57
  LATCHWAITPID= 0 CMD=BPXPINPR
  SERVER=Init Process          AF= 0 MF=00000 TYPE=FILE
  THREAD_ID      TCB@      PRI_JOB  USERNAME  ACC_TIME SC  STATE
10F26B200000000 008FB800          .006 FRK  X
10F278100000001 008FB5E0 OMVS          1.286 WAT  W
10F291F00000002 008FB328          .001 VRT  Y
10F29EE00000003 008EC678 OMVS          .001 KIN  K
10F2ABD00000004 008EC3D0 OMVS          .002 ACP  F

F1=Help  F3=End  F12=Cancel
    
```

Killing a Process

To kill a process, follow these instructions:

- Step 1** Hyperlink on the **Kill Process** field in the EZUPRC view (see Figure 4-11 on page 4-11).

Several options of the KILL command are presented in an ISPF panel, as shown in Figure 4-13.

- Step 2** Enter your choice and press **PF3** (End).

Figure 4-13 Options of the KILL Command

```

----- Signal (KILL) A Process -----
COMMAND  ==>

You have made a request to signal process id 107.
Type the signal you wish to send and press the END key.
Valid signals are described below.

Enter Choice:  0

0  SIGNULL   The NULL Signal
1  SIGHUP   Hangup detected on controlling terminal
2  SIGINT   Interactive attention
3  SIGQUIT  Terminate with a dump - can be intercepted
4  SIGILL   Termination
5  SIGPOLL  Pollable event
6  SIGABRT  Abnormal termination
7  SIGSTOP  Stop (cannot be intercepted or ignored)
8  SIGFPE  Erroneous arithmetic operation
9  SIGKILL  Termination (cannot be intercepted or ignored)
10 SIGBUS   Bus error

F1=Help  F3=End  F12=Cancel
More:    +

```

Dumping a Process

To dump a process, hyperlink on the **Dump Process** field in the EZUPRC view (see Figure 4-11 on page 4-11).

The BPXOINIT,DUMP modify command is issued for the process, as shown in Figure 4-14.

Figure 4-14 Dumping a Process

```

Console Response (USSM)
COMMAND ==>                                SCROLL ==> CSR
-----
F BPXOINIT,DUMP=107
  BPXM027I COMMAND ACCEPTED.

F1=Help  F3=End  F12=Cancel

```

Displaying Files for a Process

To display the open files for a process, hyperlink on the **Display Files** field in the EZUPRC view (see Figure 4-11 on page 4-11).

An ISPF panel is displayed, showing the files that are open for the process; see Figure 4-15.

Figure 4-15 Displaying Open Files for a Process

```

DDMMYYYY  HH:MM:SS  -----  MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS  -----
COMMAND  ===>                                SCROLL  ===> CSR
CURR WIN  ===> 1          ALT WIN  ===>
>W1 =PSFOPEN=====SJSE=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D====9
C  ProcessId FilSer DeviceId Dir  File Open          File
-  -----  Number  -----  Type Type Flags          Name
      23      0      4 cd  /          /etc
      23 25913      3 fd      O_RDWR          /dev/nu
      23 25913      3 fd      O_RDWR          /dev/nu
      23 25913      3 fd      O_RDWR          /dev/nu
      23 44      10 fd      O_RDONLY          /usr/li
      23 0      13 fd  =          O_RDWR          Not Ava
      23 25913      3 fd      O_CREAT|O_TRUNC|O_WRONLY          /dev/nu
      23 22      15 fd  =          O_RDWR          Not Ava
      23 0      0 rd          Not App

```

Browsing Files and Producing a Hexadecimal Listing

You can use two line commands on the FSPACE view to browse normal and executable files.

- Step 1** To display the FSPACE view, first select **All Mounted Filesys** from the EZUFSYS menu, as shown in Figure 3-4 on page 3-4. This action will display the FSMOUNTZ view.
- Step 2** Place the **S** line command on a line for any mounted file system on the FSMOUNTZ view, and press **Enter** to display the FSPACE view, as shown in Figure 4-16.

The FSPACE view shows you all of the files and directories from the root of the mounted file system.

Figure 4-16 FSPACE View

```

DDMMYYYY   HH:MM:SS  ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>
CURR WIN ==> 1      ALT WIN ==>
>Wl =FSPACE=====SJSEUSSQ=*=====DDMMYYYY==HH:MM:SS====MVUSS====D==
C  File or Dir Name Type      File Ser Number      Size Size Block      Owner
-- -----
.      DIR      11      8192  2  4096  0
..     DIR      6      8192  2  4096  0
auto.bmvuss EXEC      278     1      41    1  4096  0
auto.master EXEC      236     1      29    1  4096  0
bmvuss.map EXEC      279     1      254   1  4096  0
bmvussx.map NORM      280     1      254   1  4096  0
bpa    DIR      5       2      8192  2  4096  0
cmx    DIR      6       2      8192  2  4096  0
dce    DIR      7       9      8192  2  4096  0
dfs    DIR      170     8      8192  2  4096  0
home.map EXEC      237     1      125   1  4096  0
httpd.conf EXEC      223     1     126258 31  4096  0
httpd.conf.bkup EXEC      256     1     125792 31  4096  0

```

Note: All files and directories have an owner user ID (UID), identifying a Unix user, and an owner group ID (GID), identifying a Unix group. If the user ID or Group ID is not found in its respective user ID or group ID database, MAINVIEW for UNIX System Services takes longer to process these files. If these IDs are not found, their corresponding numbers will be highlighted in the **Owner UserID #** or **Owner GroupID #** field in the FSPACE view. (You will have to scroll to the right to see these fields in their entirety.)

Step 3 Place the **S** line command on a line that has **NORM** or **EXEC** in the **Type** field, and press **Enter** to display the **FLIST** view.

You will see the contents of that file, as shown in Figure 4-17.

Figure 4-17 **FLIST View**

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND  ==>                               SCROLL ==> CSR
CURR WIN ==> 1          ALT WIN ==>
>W1 =FLIST=====SJSEUSSQ=*=====DDMMYYYY==HH:MM:SS====MVUSS====D==
Line Data
****
1 name      janet
2 type      HFS
3 filesystem BMVUSS.SJSE.AUTOMNT.JANET
4 mode      rdwr
5 duration  nolimit
6 delay     0
7 /*
8 name      jon
9 type      HFS
10 filesystem BMVUSS.SJSE.AUTOMNT.JON
11 mode     rdwr
12 duration  2
13 delay     0
14 /*

```

Step 4 To display a hexadecimal listing for a file, place the **H** line command on a line that has **NORM** or **EXEC** in the **Type** field, and press **Enter**.

You will see the **FLISTH** view, as shown in Figure 4-18.

Figure 4-18 **FLISTH View**

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND  ==>                               SCROLL ==> CSR
CURR WIN ==> 1          ALT WIN ==>
>W1 =FLISTH=====SJSEUSSQ=*=====DDMMYYYY==HH:MM:SS====MVUSS====D=
Offset Hex Data                                     Dsplay Data
*****
000000 95819485 40404040 40404040 40918195 *name      jan*
000010 85A315A3  A8978540 40404040 40404040 *et.type   *
000020 C8C6E215  86899385 A2A8A2A3  85944040 *HFS.filesystem *
000030 40C2D4E5  E4E2E24B E2D1E2C5  4BC1E4E3 * BMVUSS.SJSE.AUT*
000040 D6D4D5E3  4BD1C1D5 C5E31594  96848540 *OMNT.JANET.mode *
000050 40404040 40404040 9984A699  1584A499 *          rdwr.dur*
000060 81A38996  95404040 40409596  93899489 *ation     nolimi*
000070 A3158485  9381A840 40404040 404040F0 *t.delay   0*
000080 15615C15  95819485 40404040 40404040 *./*.name  *
000090 40919695  15A3A897 85404040 40404040 * jon.type  *
0000A0 4040C8C6  E2158689 9385A2A8  A2A38594 * HFS.filesystem*
0000B0 404040C2  D4E5E4E2 E24BE2D1  E2C54BC1 * BMVUSS.SJSE.A*
0000C0 E4E3D6D4  D5E34BD1 D6D51594  96848540 *UTOMNT.JON.mode *
0000D0 40404040 40404040 9984A699  1584A499 *          rdwr.dur*
0000E0 81A38996  95404040 4040F215  84859381 *ation     2.dela*

```

Changing Limits for a Process

To display an ISPF view where you can change the limits for a process, hyperlink on the **Process Limits** field in the EZUPRC view (see Figure 4-11 on page 4-11).

An ISPF panel showing the current limits is displayed, as seen in Figure 4-19; you can type over these limits.

Figure 4-19 Changing Limits for a Process

```

----- Change UNIX Process Limit Settings -----
COMMAND  ===>

SAF User: WEBSRV          PID : 23
Jobname : DC$FTSRV       ASID: 008C

Change one or more of the following limits.

Attribute          Current      MAX      Limit
-----
MAXFILEPROC        7           8       1001 *
MAXFILESIZE        ---         ---     NOLIMIT
MAXPROCUSER        56          57     NOLIMIT
MAXQUEUEDSIGS     1           1       1000
MAXTHREADS         0           0       1001 *
MAXTHREADTASKS    0           0       1000
IPCshmNSEGS       0           0       1000
MAXCORESIZE        ---         ---     4194304

Type END to modify any changed values,
      CANCEL to quit without making changes.

```

Mounting and Unmounting File Systems

To mount or unmount a file system, issue the **U** or **M** line commands from the HFSOVER or FSMOUNT view.

To unmount a file system, place the **U** line command on the line of the file that you want to unmount. You will be presented with a confirmation panel.

To mount a new file system, place the **M** line command on any line. You will be presented with an ISPF dialog so that you can enter the mount point and the MVS data set name.

Viewing the Details of a zFS File

Introducing the zFS File System

The z/OS Distributed File Service (DFS) zSeries File System (zFS) is a z/OS Unix file system that can be used in addition to the Hierarchical File System (HFS). zFS provides significant performance gains in accessing files approaching 8 K in size that are frequently accessed and updated. For smaller files, the access performance with zFS is equivalent to HFS. zFS provides a reduced exposure to loss of updates by writing data blocks asynchronously and not waiting for a sync interval.

zFS is a physical file system (PFS) that is started by UNIX System Services during the IPL. A physical file system is the part of the operating system that handles the actual storage and manipulation of data on a storage medium.

zFS logs metadata updates. If system failure occurs, zFS replays the log when the system is operational again to ensure that the file system is consistent.

Displaying All zFS Aggregates

You can use the ZFATTACH view to see all zFS aggregates, as shown in Figure 4-20.

Figure 4-20 ZFATTACH View

```

DDMMYYYY   HH:MM:SS  ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND   ==>
CURR WIN  ==> 1      ALT WIN  ==>
W1 =ZFATTACH=====USSJSF=*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
C  zFS Aggregate Name          Aggregate File Type
-----ID---- Systems -----
BMVJOJ.COMPAT.AGGR003          100000      13 MULT

```

After a zFS aggregate is defined and formatted, you can use ZFATTACH to create one or more zFS file systems in the aggregate. The ZFATTACH view supports the following line commands:

- a—for attach
- dt—for detach
- cr—for create
- g—for grow

To see details about a specific aggregate, hyperlink on its **zFS Aggregate Name** value to get to the ZFADETL view. See “Displaying Detailed Information about a zFS Attached Aggregate.”

To see all of the zFS file systems for a specific aggregate, hyperlink on the **File Systems** value for that aggregate to get to the ZFFILSYS view. See “Displaying Detailed Information about a zFS File System” on page 4-20.

Displaying Detailed Information about a zFS Attached Aggregate

You can use the ZFADETL view to display detailed information about a zFS attached aggregate. For example, Figure 4-21 shows you information about the BMVJOJ.COMPAT.AGGR003 aggregate.

Figure 4-21 ZFADETL View

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND  ==>                               SCROLL ==> CSR
CURR WIN ==> 1          ALT WIN ==>
>W1 =ZFATTACH=ZFADETL==USSJSF==*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1

Aggregate Name..... BMVJOJ.COMPAT.AGGR003
Status..... (MULT R/W NoMon NoNBS)

Aggr ID.....          100000
File Count.....          13
Full Threshold....          0
Full Increment....          0
Block Count.....       22320
Fragment Size.....       1024
Block Size.....          8192
Blocks Usable.....     20312
Used Kilobytes....          510
Used Percentage...          2.51
Minimum Free KB...       2000

```

To see all of the zFS file systems in the specified aggregate, hyperlink on the **File Count** field to get to the ZFFILSYS view.

Displaying All zFS File Systems in an Aggregate

You can use the ZFFILSYS view to see all zFS file systems in an aggregate, as shown in Figure 4-22. File system names are unique across all attached aggregates on a system.

You can also create a zFS file system by using this view.

Figure 4-22 ZFFILSYS View

```
DDMMYYYY   HH:MM:SS  ----- MAINVIEW WINDOW INTERFACE (Vv.r.mm)MVUSS -----
COMMAND   ==>
CURR WIN  ==> 1      ALT WIN  ==>
>W1 =ZFATTACH=ZFFILSYS=USSSJSF==*=====DDMMYYYY==HH:MM:SS====MVUSS====D===13
C  zFS File System Name          FT Mount Alloc Quota Aggregate
-- -----
a_file_system                    RW R/W      9    9    100000
f1234567.f1234567.f1234567.f1234567.f123  RW ---      8    9    100000
f1234567.f1234567.f1234567.f1234567.f123.bak BK ---      9    9    100000
f3.renamed                       RW ---      9    9    100000
gamma.baker                      RW ---     146  146  100000
my.file.test                    RW ---      9    9    100000
newersystem                     RW ---      9    9    100000
newFile                         RW ---      9    9    100000
renamed.filesystem              RW ---      9    9    100000
try1320                         RW ---      9    9    100000
zepher                          RW ---      9    9    100000
Fe.BAK                          RW ---      9    9    100000
F2                              RW ---     41   41    100000
```

After a zFS file system is defined and formatted, you can take the following actions by using these line commands:

- a—for attach
- m—for mount
- u—for unmount
- d—for delete
- cr—for create (creates a new zFS file system)
- cl—for clone
- r—for rename

To see details about a specific aggregate, hyperlink on the **Aggregate ID** value (a number that is associated with each aggregate) to get to the ZFADETL view, as shown in Figure 4-21 on page 4-18.

To see detailed information about a specific file system, hyperlink on the **zFS File System Name** value to get to the ZFFDETL view, as shown in Figure 4-23 on page 4-20.

Displaying Detailed Information about a zFS File System

You can use the ZFFDETL view to display detailed information about a zFS file system. For example, Figure 4-23 shows you information about the a_file_system file system.

Figure 4-23 ZFFDETL View

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> CSR
CURR WIN ==> 1          ALT WIN ==>
W1 =ZFFILSYS=ZFFDETL==USSJSF==*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1

File System Name... a_file_system
High Id..... 100000
Low Id..... 16
Allocation Limit. 4.3G
Allocation Usage. 9
Quota Limit..... 400
Quota Usage..... 9
Access Error.... 24854
Access Status.... 10
State Bits..... 10010005
Maximum Node.... 4.3G
Minimum Quota... 0
Type..... 1
Monitor Threshold 0
Monitor Increment 0
Mount Status.... 01
Owning Aggregate. BMVJOJ.COMPAT.AGGR003
Clone Date.....
Clone Time..... 00:00:00
Create Date..... 24APR2002
Create Time..... 11:07:47
Update Date..... 29APR2002
Update Time..... 10:02:26
Access Date..... 29APR2002
Access Time..... 10:02:26

```

Viewing All of the zFS Administrative Actions

The MVUSS Easy zFS Administration Menu (EZUZADM), shown in Figure 4-24, lists all of the zFS administrative actions that are available in the MAINVIEW for UNIX System Services product. From this menu, you can hyperlink to the ZFATTACH and ZFFILSYS views, where you can perform any of the actions.

Figure 4-24 MVUSS Easy zFS Administration Menu (EZUZADM)

```

DDMMYYYY  HH:MM:SS  ----- MAINVIEW WINDOW INTERFACE (Vv.r.mm) MVUSS -----
COMMAND  ===>                                     SCROLL  ===>  CSR
CURR WIN  ===>  1          ALT WIN  ===>
  W1 =EZUZADM=====USSJSF==*=====DDMMYYYY==HH:MM:SS====MVUSS====D====1
          MVUSS Easy zFS Administration Menu

  Action View

> ZFATTACH  Use cmd ATTachzf  to Attach  a zFS Aggregate
            Use line cmd "a"  to Attach  a zFS Aggregate
            Use line cmd "dt"  to Detach  a zFS Aggregate
            Use line cmd "cr"  to Create  a File System
            Use line cmd "g"   to Grow   a zFS Aggregate
> ZFFILSYS  Use cmd ATTachzf  to Attach  a zFS Aggregate
            Use line cmd "a"  to Attach  a zFS Aggregate
            Use line cmd "m"  to Mount   a File System
            Use line cmd "u"  to Unmount a File System
            Use line cmd "d"  to Delete  a File System
            Use line cmd "cr"  to Create  a File System
            Use line cmd "cl"  to Clone   a File System
            Use line cmd "r"  to Rename  a File System

```

Chapter 5 Comparing Performances with Historical Data

With the Historical Data feature, discussed in this chapter, you can look at the past performances of your system to verify that the current performance is normal.

This chapter includes the following topics:

Displaying Historical Data	5-2
Using Dynamic Fields with Historical Data	5-3
Issuing the TIME Command	5-4
Controlling Thread History Data Collection	5-7

Displaying Historical Data

When you access historical data, the MAINVIEW for UNIX System Services product presents data from the most recent specified interval, as well as any preceding intervals for which data exists.

If you are unsure of which intervals have available data, type **DSL** on the **COMMAND** line to display the DSLIST view.

Note: If typing DSLIST does not work, type **VIEW DSLIST**.

The **From Date** and **To Date** fields of the DSLIST view contain data that is available for the specified time frames. Data from periods outside of these categories might not be immediately available for one of the following reasons:

- Data was not collected.
- Data was archived.
- Data was overwritten by new data.

If you need access to data that is not immediately available, see your product administrator. Administrators should see the discussion of archiving and retrieving historical data in the *MAINVIEW Administration Guide*.

Using Dynamic Fields with Historical Data

With historical data, you can use dynamic fields to see the time, date, and hour that the data was collected.

Dynamic fields include

- **Interval Date**—Date that the data was collected.
- **Intvl Time**—Ending time of the interval during which data was collected.
- **Hr (hour)**—Hour of the day that data was collected.

This value does not include minutes; for example, when **Intvl Time** shows 8:30, **Hr** shows 8.

If the dynamic fields do not appear automatically when you access historical data, you can include the fields by performing the following steps:

- Step 1** On the **COMMAND** line, type **CUST** and press **Enter** to enter the View Customization facility.
- Step 2** On the **COMMAND** line, type **E** (Show excluded) and press **Enter** to see all excluded fields.
- Step 3** On the **OPTION** line, type **MVParms** for the MAINVIEW Parameter Editors view.
- Step 4** Select Option 2, **DISPLAY - Information Display Parameters** to see a list of display fields.
- Step 5** In the **Show Time** and **Show Date** fields, type **Y**.

or

If you do not want the fields to appear automatically, type **N**.
- Step 6** Press **END** to save your updates.

Issuing the TIME Command

When you issue the TIME command with no parameters, the MAINVIEW for UNIX System Services product prompts you for the parameters on a pop-up panel.

The syntax for the TIME command is

```
TIME [date time [duration | NEXT | PREV]] [dowMask todMask]
```

The following table lists the various elements in the TIME command.

<i>date</i>	Is the ending date of the data you want to view. This parameter is required. An asterisk (*) gives you the default value, the current date. Specify the date in the same format as the current date, which always appears in the upper left corner of the screen. Note: To change the format of the date, select Option 0 on the MAINVIEW Selection Menu, and then select Option 4 on the MAINVIEW Parameter Editors screen.
<i>time</i>	Is the ending time of the data you want to view. This parameter is required. An asterisk (*) gives you the default value, the current time. Specify the time in the format <i>hh:mm</i> .
<i>duration</i>	Is the time period over which you want your data to be summarized. This parameter is optional. The default is one recording interval (usually 15 or 30 minutes). Specify the duration in the format <i>nnnnu</i> , where <i>nnnn</i> Indicates the number of hours, minutes, or intervals in the duration <i>u</i> Indicates the unit of time: I (intervals), M (minutes), H (hours), D (up to 416 days), or W (up to 59 weeks) TODAY or TDAY Specifies today's intervals since midnight MONTH Specifies one month
NEXT	Is specified <i>instead</i> of the duration parameter. NEXT uses the duration value currently in effect to cycle forward by the duration amount.
PREV	Is specified <i>instead</i> of the duration parameter. PREV uses the duration value currently in effect to cycle backward by the duration amount.
<i>dowMask</i>	Limits the selected intervals to end on specific days of the week.
<i>todMask</i>	Limits the selected intervals to end within a specific time of day.

In place of the date, time, or duration parameters, you can use an asterisk (*) to specify the default value of the parameter, or an equal sign (=) to specify the most recently requested date, time, or duration.

Examples of Using the TIME Command

The following examples demonstrate several different uses of the TIME command. The appearance of the date depends on the date format that is in use. The format for the date in these examples is *mm/dd/yyyy*.

Example 1

Assume that today is June 10, YYYY. To retrieve data from one week ago at 9:25 A.M., type

```
TIME 06/03/YYYY 09:25
```

This command displays data from the end of the interval that contains 9:25 A.M. (that is, the interval between 9:15 A.M. and 9:30 A.M.).

Example 2

To display data from the next interval starting on the same date and time as the previously specified interval, type

```
TIME == NEXT
```

The NEXT parameter steps forward one Extractor interval (the default behavior) from the previously specified date and time. Specifically, data from June 3 during the interval 9:30–9:45 is displayed.

Note: You might find it useful to set one **PF** key to issue TIME == NEXT and another **PF** key to issue TIME == PREV. With this shortcut, you can cycle quickly through recording intervals without having to manually type the TIME command and all of its parameters.

Example 3

To display data from the three-hour period ending on June 6, YYYY, at 12 noon, type

```
TIME 06/06/YYYY 12:00 3h
```

Assuming 15-minute intervals, the duration field contains 180M (four intervals per hour).

Example 4

To display data from the next day during the same time period, type

```
TIME 06/07/YYYY ==
```

The equal sign in this position retains the time that you previously specified, 12:00, and the duration that you previously specified, 3h.

Example 5

To display data that includes the 30-minute interval ending at 8:00 A.M. on June 16, type

```
TIME 06/16/YYYY 08:00 30M
```

Example 6

To display data from earlier today at 9:00 A.M., type

```
TIME * 9:00
```

The asterisk in this position indicates the current date.

Example 7

To reestablish the current time frame, type

```
TIME * * *
```

Example 8

To display data that includes all intervals ending during prime shifts on weekdays from last month, type

```
TIME ENDOFMONTH 23:59 MONTH WEEKDAYS PRIMESH
```

If you need more information about the TIME command, you might want to work through “Using the TIME Command” in Chapter 4 of *MAINVIEW for UNIX System Services Getting Started*.

Controlling Thread History Data Collection

In some systems, accessing thread history data for MAINVIEW for UNIX System Services processes can take a long time. If you find that collecting thread history is taking too much CPU, you can use one of these methods to disable the process:

- THREADHistory command
- UBBPARAM dataset modification

Using the THREADHistory Command

Use the THREADHistory command to temporarily disable thread history data collection.

To Disable Data Collection

- Step 1** In the **COMMAND** line, type **THREADH N**.
- Step 2** Press **Enter**.

This command disables thread history collection until you bring the PAS up again or issue the **THREADH Y** command.

To Enable Data Collection

- Step 1** In the **COMMAND** line, type **THREADH Y**.
- Step 2** Press **Enter**.

This command enables thread history collection again.

Changing the UBBPARAM Dataset

To disable thread history collection on a more permanent basis, add a **THREAD=N** parameter to the **PRCS** control statement in member **BBDTDCDL** of the **UBBPARAM** dataset. You can still use the **THREADH Y** command to temporarily enable data collection during a session.

Chapter 6 Controlling Data Collectors

The MAINVIEW for UNIX System Services data collectors are programs that extract system information from the Unix System Services control blocks. The information is then stored in interval records and available to display in one or more views. You can activate and deactivate the data collectors to control which information is collected.

Warning! When a data collector is deactivated, there is no data available to display in the views that use that data collector. Use caution when deactivating data collectors.

This chapter includes the following topics:

Understanding Data Collectors	6-2
Controlling the Collectors	6-4
Data Collectors and Product Views	6-6

Understanding Data Collectors

At least one data collector exists for each aspect of system performance. For example, the PRCS collector collects only data that is associated with processes, while the FMNT collector focuses on data that is related to file systems.

Here is how the data collectors work:

1. At the beginning of every interval, an interval record is created for each category of data to be collected. An interval record is what data collectors use to store the data that is collected during the interval.

Each category of data has its own uniquely named record (the process collector stores its data in the PRRE record, the file-system collector uses the FMRE record, and so on).

2. As soon as the interval begins, each collector starts collecting its data by using the OE data gatherer.

From then on, each collector periodically collects data. A preset rate called a sample rate (also called a collector rate) determines how often a collector collects data. Each collector has its own sample rate associated with it.

A sample rate is simply a multiple of the base cycle, which is preset by the MAINVIEW for UNIX System Services product at one second. Therefore, if a collector's sample rate is 15, the collector gathers its data once every 15 seconds.

3. The data collectors deposit their data in their records. This data is permanent and updated continuously throughout the interval. At the end of the interval, the record is written to the historical database, where it can be referenced by the TIME command.

Steps in Requesting a View

When you request a view from the MAINVIEW for UNIX System Services product, the following actions occur:

1. MAINVIEW for UNIX System Services checks the view's definition to see what data the view requires.

For example, the PSOVERZ view definition tells MAINVIEW for UNIX System Services to get data from the PRRE, P1RE, P3RE, and MTRE interval records (which contain data that is gathered by the PRCS and WADR collectors).

2. MAINVIEW for UNIX System Services accesses the current interval records (for example, PRRE, P1RE, P3RE, and MTRE).
3. MAINVIEW for UNIX System Services formats the data according to the specifications in the view definition.

This formatted data is now considered a complete view.

4. The view is displayed on your monitor.

Ad Hoc Views

Some views only provide information that is collected at the time that the view is requested. The selectors for these views directly request the data to be gathered instead of accessing interval data that was collected by data collectors. For example, PSFOPEN and FSPACE are ad hoc views.

The REQSTAT view shows the status of data requests that have been made by ad hoc selectors.

Controlling the Collectors

Table 6-1 describes how you can control the data collectors.

Table 6-1 Controlling Data Collectors

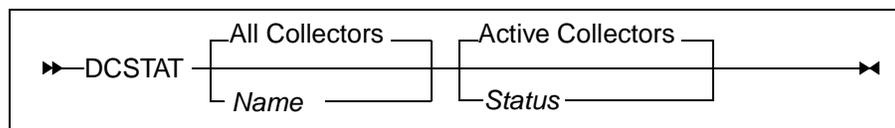
Task	Procedure
Start or stop all of the MAINVIEW for UNIX System Services data collectors at once	Specify the DC=START or DC=STOP parameter in the JCL that is used to initialize the PAS. If the PAS is already active, issue one of the following MVS MODIFY commands against the PAS: <ul style="list-style-type: none"> • F PASName,DC=START or • F PASName,DC=STOP where <i>PASName</i> is the name of the PAS.
Start or stop individual MAINVIEW for UNIX System Services data collectors	Use the DCSTAT view. (See "Using DCSTAT.")

Using DCSTAT

Use DCSTAT to display the current status of the MAINVIEW for UNIX System Services data collectors and to enable or disable any collector.

To Display Data Collectors

To use DCSTAT to display data collectors, use the following syntax:



The following table explains the variables in the DCSTAT syntax.

<i>Name</i>	Is the name of the data collector to be displayed. See the Name field in the default view.
<i>Status</i>	Is the status of the data collector, either Active or Inactive. See the Status field in the default view. Wildcard selections can be used.

The DCSTAT view is shown in Figure 6-1 on page 6-5.

Figure 6-1 DCSTAT View

```

DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1 ALT WIN ==>
Wl =DCSTAT=====SJSC=====*=====DDMMYYYY==HH:MM:SS=====MVUSS=====D====4
C Name Data Collector Description          Status
-----
BPXP USS System Parameters                Active
HFSG HFS Global                           Active
FMNT Mounted Filesystems                  Active
PRCS Process Activity                     Active
WADR WLM Address Space                    Active

```

The **Name** and **Status** fields should reflect the data that you specified in the DCSTAT command. The **Data Collector Description** field identifies the type of collected data.

If either MAINVIEW for OS/390 or CMF MONITOR is installed, the DCSTAT view also displays the data collectors for that product.

To Enable and Disable Collectors

Table 6-2 provides the procedures for enabling and disabling collectors through DCSTAT.

Table 6-2 Enabling and Disabling Collectors with DCSTAT

Task	Procedure
Activate an inactive collector	Type A next to the collector name, and then press Enter . The collector becomes active immediately. Note: Because the collector was not active throughout the current interval, the data for the current interval could be inaccurate.
Deactivate a collector	Type D next to the collector name, and then press Enter . The collector is deactivated immediately.

Warning! A collector can only be activated if it was turned off through DCSTAT *after* initialization of the MAINVIEW for UNIX System Services PAS. You cannot activate a collector that was not originally activated when the PAS was initialized.

Data Collectors and Product Views

Table 6-3 lists the views that are affected by turning off each of the MAINVIEW for UNIX System Services data collectors. No data is available for display in the corresponding view when the data collector is turned off.

Table 6-3 Data Collectors and Product Views (Part 1 of 3)

Collector	View
PRCS	ASDELAYZ
	ASINFOZ
	ASOVERZ
	EZUPRC
	EZUPRD
	GRPOVERZ
	PESTAT
	PSCMDPRM
	PSCMND
	PSCTTY
	PSDELAY
	PSDELAYZ
	PSEXPAT
	PSINFO
	PSOVER
	PSOVERZ
	PSSTAT
	PSTREE
	PSUSE
	PSUSEZ
	PSWRKDIR
	THREAD
	USRJOBZ
	USROVERZ
USRSESSZ	

Table 6-3 Data Collectors and Product Views (Part 2 of 3)

Collector	View
ZFMNT	FSFILENM
	FSINFO
	FSMNTPRM
	FSMNTPT
	FSMOUNT
	FSMOUNTZ
	FSSTAT
	FSSTAT1
	HFSINFO
	HFSIO
	HFSIOZ
	HFSOVER
	HFSOVERZ
	HFSSTAT
	HFSSTAT1
	ZFADETL
	ZFATTACH
	ZFFDETL
	ZFFILSYS
	ZFSSTAT
ZFSSTAT1	
HFSG	HFSGBUF
	HFSGBUFZ
	HFSGINFO
	SYSOVER

Table 6-3 Data Collectors and Product Views (Part 3 of 3)

Collector	View
WADR	ASDELAYZ
	ASINFO
	ASINFOZ
	ASOVERZ
	EZUPRC
	EZUPRD
	GRPOVERZ
	PSCMND
	PSDELAY
	PSDELAYZ
	PSINFO
	PSOVER
	PSOVERZ
	PSSTAT
	PSTREE
	PSUSE
	PSUSEZ
	USRJOBZ
	USROVERZ
	USRSESSZ
BXP	BPXPRM
	EZUACTS
	EZUZADM
	IPCBXP
	SYSOVER

Chapter 7 **MAINVIEW Alarm Manager**

MAINVIEW Alarm Manager works in conjunction with the MAINVIEW for UNIX System Services product, as well as other MAINVIEW products, to provide alarms. These alarms display messages that can alert you when system resources are overutilized.

This chapter includes the following topics:

Alarm Definitions	7-3
MAINVIEW Alarm Manager Views	7-3
Alarm Reporting	7-4
Additional Information	7-4

Products that use MAINVIEW Alarm Manager are

- CMF MONITOR
- MAINVIEW for CICS
- MAINVIEW for DB2
- MAINVIEW for IMS
- MAINVIEW for WebSphere MQ
- MAINVIEW for OS/390
- MAINVIEW for UNIX System Services
- MAINVIEW VistaPoint

MAINVIEW Alarm Manager is capable of simultaneously monitoring multiple systems, which means that MAINVIEW Alarm Manager installed on one system keeps track of your entire sysplex.

The MAINVIEW for UNIX System Services product contains a number of prepackaged alarms that you can customize to meet your specific monitoring needs. The following alarms are available:

Table 7-1 MAINVIEW for UNIX System Services Alarms

Alarm	Triggered When
PROCSHI	current number of processes has exceeded a specified percentage of the maximum allowable concurrent processes on the system
PROCUHI	current number of processes for any one user has exceeded a specified percentage of the maximum allowable concurrent processes for a user
UIDSYSHI	current number of user IDs on the system has exceeded a specified percentage of the maximum allowable concurrent user IDs on the system
FILEPRHI	current number of open files for a process has exceeded a specified percentage of the maximum allowable open files for a process
FSFREELO	percent of unprivileged free blocks for a file system falls below a specified value
HFSLULOW	interval lookup cache hit ratio for an HFS file system falls below a specified value
HFSP1LOW	interval page one cache hit ratio for an HFS file system falls below a specified value
HFSIRLOW	interval index read cache hit ratio for an HFS file system falls below a specified value
HFSIWLOW	interval index write cache hit ratio for an HFS file system falls below a specified value
HFSILOW	interval index I/O cache hit ratio for an HFS file system falls below a specified value
HFGHTLOW	interval cache hit ratio for global HFS falls below a specified value
HFGP1LOW	interval page one cache hit ratio for global HFS falls below a specified value
REQDPRCS	one or more processes listed in the PESTAT view have a status of Missing
REQDHFS	one or more HFS files listed in the HFSSTAT view have a status of Missing
REQDHFFSM	one or more HFS files listed in the HFSSTAT view have a Match Indicator of N, indicating that the desired HFS file is mounted but is not on the required mount point

Alarm Definitions

Alarm definitions consist of the following parameters:

- threshold and filter criteria
- view, product, and context for which the criteria are established
- message IDs and message text
- monitoring frequency and time intervals
- hyperlinks to views, extended Help, or MAINVIEW AutoOPERATOR commands

Alarm definitions are stored in a parameter library member that is read by MAINVIEW Alarm Manager at MVALARM PAS initialization.

Threshold conditions are defined as one of five priority levels:

- Informational
- Warning
- Minor
- Major
- Critical

MAINVIEW Alarm Manager Views

MAINVIEW Alarm Manager is structured with a hierarchy of views, beginning with the Alarm Administration menu, EZALARM, as shown in Figure 7-1.

Figure 7-1 Using the EZALARM Menu to Display Alarms

```

DDMMYYYY  HH:MM:SS  -----  MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS  -----
COMMAND  ===>
CURR WIN  ===> 1
ALT WIN  ===>
W1 =EZALARM=====DXTSTH=====*****DDMMYYYY==HH:MM:SS=====MVALARM==D====1
Alarm Administration
Set Up/Modify Alarms
+-----+
. List Alarm Groups | Place cursor on | . Add Alarm Definition
. List Alarm Definitions | menu item and | . Edit Alarm Definition
. All Alarm Definitions | press ENTER | . View Alarm Definition
+-----+
Alerts
Alert Management
Alarm Diagnostics
. Current Alarms
. Alarm History
. Alarm Summary

```

Hyperlink from EZALARM to other views to display alarms or to view or edit alarm definitions. When you add or edit an alarm definition, you can customize the alarm messages, as well as the threshold levels, monitoring frequency, and action that is taken when an alarm occurs.

Alarm Reporting

Alarms can be reported in one of the following ways:

- as WTOs on the OS/390 image where MAINVIEW Alarm Manager is executing
- as a list of alarm messages displayed in MAINVIEW Alarm Manager ALARM or ALARMH views
- by being passed directly to the MAINVIEW AutoOPERATOR Rules Processor interface, if MAINVIEW AutoOPERATOR is running on the same OS/390 image as MAINVIEW Alarm Manager

Note: MAINVIEW Alarm Manager also issues End messages when alarm conditions cease. End messages can also be reported in any of the three preceding destinations that were listed in this section.

Additional Information

For complete information about the MAINVIEW Alarm Manager, please refer to the *MAINVIEW Alarm Manager User Guide*.

Chapter 8 Before Calling Customer Support

Before calling BMC Software Customer Support for help with a problem, see if the problem is described in this chapter. The chapter includes the following topics:

No Data in Any View	8-2
Error Messages during OS/390 PAS Initialization	8-3

No Data in Any View

If a view does not contain data, the data collector for that view might be inactive. Table 6-3 on page 6-6 lists the data collectors that are used for each view.

Use the DCSTAT view to determine whether the data collectors are active.

Step 1 On the **COMMAND** line, type **DCSTAT** and press **Enter**.

The DCSTAT view is displayed, as shown in Figure 8-1.

Figure 8-1 DCSTAT View

```
DDMMYYYY  HH:MM:SS ----- MAINVIEW WINDOW INTERFACE(Vv.r.mm)MVUSS -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1 ALT WIN ==>
W1 =DCSTAT=====SJSC=====*=====DDMMYYYY==HH:MM:SS====MVUSS====D=====5
C Name Data Collector Description          Status
-----
a BXPX USS System Parameters              Inactive
  HFSG HFS Global                          Active
  FMNT Mounted Filesystems                Active
  PRCS Process Activity                    Active
  WADR WLM Address Space                   Active
```

Step 2 If the **Status** column indicates that a data collector is Inactive, type **A** in the line command field, as shown above, and press **Enter** to activate the data collector.

Step 3 If the data collector continues to display a status of Inactive, check the MAINVIEW for UNIX System Services PAS job log for messages that indicate a problem with OEDG or data collectors.

Step 4 If you cannot resolve the problem, retain the job log messages and contact BMC Software Customer Support.

Error Messages during OS/390 PAS Initialization

If the following messages occur during initialization of the OS/390 PAS, a user ID has not been properly defined for the PAS:

```
ICH408I      JOB(PASName) STEP(stepName) CL(PROCESS) OMVS  
             SEGMENT NOT DEFINED
```

```
BBUGC001E   OEDG severe error: OEDG is not running with  
             superuser authority, test 1 failed
```

```
BBUGC004I   OEDG initialization complete, UXGB=19521E70
```

To correct the problem, define a user ID with superuser authority, as described in “Define a User ID for the Product Address Space (Required)” on page 1-3.

Appendix A Understanding View Field Terminology

A standard set of terms and measurements is used to describe the information that is displayed in a view. Numeric values can appear differently, depending on the number of spaces that are provided for display.

This appendix includes the following topics:

Displaying Numeric Values	A-2
Understanding Intervals	A-2

Displaying Numeric Values

When a number is smaller than the width of a field, it is displayed appropriately in the view. When a number is larger than the width of a field, asterisks (*) appear in the view rather than data. Asterisks (*) indicate that a numeric value is too large for the width of a field. (To view the field, you must customize the display.)

Decimal values are rounded to accommodate the width of a field. Insignificant decimal places are truncated to show as much useful data as possible.

Understanding Intervals

Interval values have different meanings, depending on whether the data is historical or current.

The PAS refreshes the current data in common storage once every 15 seconds, so a current interval value is the value that was recorded at the end of the last 15-second interval.

In historical mode, the interval value is equal to the number of minutes defined to the INTERVAL parameter of the REPORT Extractor control statement. The value that is displayed is an average over the entire interval.

Glossary

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

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

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

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

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

See also indicates an entry that contains related information.

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

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

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

CMF MONITOR Extractor

Component of CMF that collects performance statistics for CMF MONITOR Analyzer, CMF MONITOR Online, MAINVIEW for OS/390, and RMF postprocessor. *See* CMF MONITOR Analyzer, CMF MONITOR Online, MAINVIEW for OS/390.

CMF MONITOR Online

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

CMF Type 79 API

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

CMFMON

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

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

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

CMRDETL

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

CMRSTATS

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

column

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

collection interval

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

command delimiter

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

COMMAND line

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

Command MQ Automation D/S

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

Command MQ Automation S/390

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

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

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

Command MQ for D/S

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

Command MQ for S/390

See MAINVIEW for WebSphere MQ.

COMMON STORAGE MONITOR

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

composite workload

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

constituent workload

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

contention

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

context	In a Plex Manager view, field that contains the name of a target or group of targets specified with the CONTEXT command. <i>See</i> scope, service point, SSI context, target context.
CONTEXT command	Specifies either a MAINVIEW product and a specific target for that product (<i>see</i> target context) or a MAINVIEW product and a name representing one or more targets (<i>see</i> SSI context) for that product.
control statement	(1) Statement that interrupts a sequence of instructions and transfers control to another part of the program. (2) Statement that names samplers and other parameters that configure the MAINVIEW components to perform specified functions. (3) In CMF MONITOR, statement in a parameter library member used to identify a sampler in the extractor or a report in the analyzer, or to describe either component's processing requirements to the operating system.
coupling facility monitoring (CFMON)	Coupling facility views that monitor the activity of your system's coupling facilities.
current data	Data that reflects the system in its current state. The two types of current data are real-time data and interval data. <i>Contrast with</i> historical data. <i>See also</i> interval data, real-time data.
current window	In the MAINVIEW window environment, window where the main dialog with the application takes place. The current window is used as the default window destination for commands issued on the COMMAND line when no window number is specified. <i>Contrast with</i> alternate window. <i>See</i> active window, window.
DASD	(Direct Access Storage Device) (1) A device with rotating recording surfaces that provides immediate access to stored data. (2) Any device that responds to a DASD program.
DASD ADVISOR	An interactive software tool that diagnoses DASD performance problems and makes recommendations to reduce overall service time. This tool measures and reports on the operational performance of IBM and IBM-compatible devices.
data collector	Program that belongs to a MAINVIEW product and that collects data from various sources and stores the data in records used by views. For example, MAINVIEW for OS/390 data collectors obtain data from OS/390 or z/OS services, OS/390 or z/OS control blocks, CMF MONITOR Extractor control blocks, and other sources. <i>Contrast with</i> extractor.

delta mode	(1) In MAINVIEW for DB2 analyzer displays, difference between the value sampled at the start of the current statistics interval and the value sampled by the current analyzer request. <i>See also</i> statistics interval. (2) In CMFMON, usage mode wherein certain columns of data reflect the difference in values between one sample cycle and the next. Invoked by the DELta ON command. <i>See also</i> collection interval, sample cycle, total mode.
DFSMS	(Data Facility Storage Management System) Data management, backup, and HSM software from IBM for OS/390 or z/OS mainframes.
DMR	<i>See</i> MAINVIEW for DB2.
DMS	(Data Management System) <i>See</i> CA-Disk.
DMS2HSM	<i>See</i> MAINVIEW SRM DMS2HSM.
DSO	(Data Set Optimizer) CMF MONITOR Extractor component that uses CMF MONITOR Extractor data to produce reports specifying the optimal ordering of data sets on moveable head devices.
EasyHSM	<i>See</i> MAINVIEW SRM EasyHSM.
EasyPOOL	<i>See</i> MAINVIEW SRM EasyPOOL.
EasySMS	<i>See</i> MAINVIEW SRM EasySMS.
element	(1) Data component of a data collector record, shown in a view as a field. (2) Internal value of a field in a view, used in product functions.
element help	Online help for a field in a view. The preferred term is <i>field help</i> .
Enterprise Storage Automation	<i>See</i> MAINVIEW SRM Enterprise Storage Automation.
event	A message issued by Enterprise Storage Automation. User-defined storage occurrences generate events in the form of messages. These events provide an early warning system for storage problems and are routed to user-specified destinations for central viewing and management.
Event Collector	Component for MAINVIEW for IMS Online, MAINVIEW for IMS Offline, and MAINVIEW for DBCTL that collects data about events in the IMS environment. This data is required for Workload Monitor and optional for Workload Analyzer (except for the workload trace service). This data also is recorded as transaction records (X'FA') and program records (X'F9') on the IMS system log for later use by the MAINVIEW for IMS Offline components: Performance Reporter and Transaction Accountant.
expand	Predefined link from one display to a related display. <i>See also</i> hyperlink.

extractor	Program that collects data from various sources and keeps the data control blocks to be written as records. Extractors obtain data from services, control blocks, and other sources. <i>Contrast with</i> data collector.
extractor interval	<i>See</i> collection interval.
fast path	Predefined link between one screen and another. To use the fast path, place the cursor on a single value in a field and press Enter . The resulting screen displays more detailed information about the selected value. <i>See also</i> hyperlink.
field	Group of character positions within a screen or report used to type or display specific information.
field help	Online help describing the purpose or contents of a field on a screen. To display field help, place the cursor anywhere in a field and press PF1 (HELP). In some products, field help is accessible from the screen help that is displayed when you press PF1 .
filter	Selection criteria used to limit the number of rows displayed in a view. Data that does not meet the selection criteria is not displayed. A filter is composed of an element, an operator, and an operand (a number or character string). Filters can be implemented in view customization, through the PARM/QPARM commands, or through the Where/QWhere commands. Filters are established against elements of data.
fire	The term used to indicate that an event has triggered an action. In MAINVIEW AutoOPERATOR, when a rule selection criteria matches an incoming event and <i>fires</i> , the user-specified automation actions are performed. This process is also called <i>handling</i> the event.
fixed field	Field that remains stationary at the left margin of a screen that is scrolled either right or left.
FOCAL POINT	MAINVIEW product that displays a summary of key performance indicators across systems, sites, and applications from a single terminal.
form	One of two constituent parts of a view; the other is query. A form defines how the data is presented; a query identifies the data required for the view. <i>See also</i> query, view.
full-screen mode	Display of a MAINVIEW product application or service on the entire screen. There is no window information line. <i>Contrast with</i> windows mode.
global command	Any MAINVIEW window interface command that can affect all windows in the window area of a MAINVIEW display.

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

interval data	<p>Cumulative data collected during a collection interval. Intervals usually last from 15 to 30 minutes depending on how the recording interval is specified during product customization. <i>Contrast with</i> historical data.</p> <p>Note: If change is made to the workloads, a new interval will be started.</p> <p><i>See also</i> current data and real-time data.</p>
InTune	Product for improving application program performance. It monitors the program and provides information used to reduce bottlenecks and delays.
IRUF	IMS Resource Utilization File (IRUF). IRUFs can be either detail (one event, one record) or summarized (more than one event, one record). A detail IRUF is created by processing the IMS system log through a program called IMFLEDIT. A summarized IRUF is created by processing one or more detail IRUFs, one or more summarized IRUFs, or a combination of both, through a sort program and the TASCOSTR program.
job activity view	Report about address space consumption of resources. <i>See</i> view.
journal	Special-purpose data set that stores the chronological records of operator and system actions.
Journal log	<p>Collection of messages. Journal logs are created for both the BBI-SS PAS and the BBI terminal session (TS).</p> <p>The BBI-SS PAS Journal log consists of two data sets that are used alternately: as one fills up, the other is used. Logging to the BBI-SS PAS Journal log stops when both data sets are filled and the first data set is not being processed by the archive program.</p> <p>The TS Journal log is a single data set that wraps around when full.</p>
line command	Command that you type in the line command column in a view or display. Line commands initiate actions that apply to the data displayed in that particular row.
line command column	Command input column on the left side of a view or display. <i>Contrast with</i> COMMAND line.
Log Edit	In the MAINVIEW for IMS Offline program named IMFLEDIT, function that extracts transaction (X'FA') and program (X'F9') records from the IMS system log. IMFLEDIT also extracts certain records that were recorded on the system log by IMS. IMFLEDIT then formats the records into a file called the IMS Resource Utilization File (IRUF).
MAINVIEW	BMC Software integrated systems management architecture.

MAINVIEW Alarm Manager (MV ALARM)

In conjunction with other MAINVIEW products, notifies you when an exception occurs. MAINVIEW Alarm Manager is capable of monitoring multiple systems simultaneously, which means that MAINVIEW Alarm Manager installed on one system keeps track of your entire sysplex. You can then display a single view that shows exceptions for all MAINVIEW performance monitors within your OS/390 or z/OS enterprise.

MAINVIEW Alternate Access

Enables MAINVIEW products to be used without TSO by providing access through EXCP and VTAM interfaces.

MAINVIEW Application Program Interface (MVAPI)

A CLIST- or REXX-based, callable interface that allows MAINVIEW AutoOPERATOR EXECs to access MAINVIEW monitor product view data.

MAINVIEW AutoOPERATOR

Product that uses tools, techniques, and facilities to automate routine operator tasks and provide online performance monitoring, and that achieves high availability through error minimization, improved productivity, and problem prediction and prevention.

MAINVIEW control area

In the MAINVIEW window environment, first three lines at the top of the view containing the window information line and the COMMAND, SCROLL, CURR WIN, and ALT WIN lines. The control area cannot be customized and is part of the information display. *Contrast with* MAINVIEW display area, MAINVIEW window area.

MAINVIEW Desktop Version of the MAINVIEW window interface designed to run on OS/2 and Windows workstations.

MAINVIEW display area

See MAINVIEW window area.

MAINVIEW Explorer Product that provides access to MAINVIEW products from a Web browser running under Windows. MAINVIEW Explorer replaces MAINVIEW Desktop.

MAINVIEW for CICS Product (formerly MV MANAGER for CICS) that provides real-time application performance analysis and monitoring for CICS system management.

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

MAINVIEW for DBCTL (MVDBC)

Product that provides real-time application performance analysis and monitoring for DBCTL management.

MAINVIEW for IMS (MVIMS) Offline

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

MAINVIEW for IMS (MVIMS) Online

Product that provides real-time application performance analysis and monitoring for IMS management.

MAINVIEW for IP

Product that monitors OS/390 and z/OS mission-critical application performance as it relates to TCP/IP stack usage. Collected data includes availability, connections, response times, routers, service levels, storage, traffic, Web cache, and so on.

MAINVIEW for Linux–Servers

Product that allows you to monitor the performance of your Linux systems from the MAINVIEW windows interface.

MAINVIEW for MQSeries

See MAINVIEW for WebSphere MQ.

MAINVIEW for OS/390

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

MAINVIEW for UNIX System Services

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

MAINVIEW for VTAM

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

MAINVIEW for WebSphere Application Server (formerly known as MAINVIEW for WebSphere)

Product that provides extensive information for managing the IBM WebSphere Application Server for z/OS and OS/390 environment. At the user's option, information is displayed about multiple or single HTTP servers, WAS plug-ins, or J2EE/CORBA containers. The product also provides JVM profiling capability.

MAINVIEW for WebSphere MQ

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

MAINVIEW for WebSphere MQ Integrator

Licensed feature of MAINVIEW for WebSphere MQ that provides comprehensive configuration, administration, performance monitoring, and operations management capabilities for an IBM WebSphere MQ Integrator message broker network.

MAINVIEW Selection Menu

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

MAINVIEW SRM *See* MAINVIEW Storage Resource Manager (SRM).

MAINVIEW SRM DMS2HSM

Product that facilitates the conversion of CA-Disk, formerly known as DMS, to HSM.

MAINVIEW SRM EasyHSM

Product that provides online monitoring and reporting to help storage managers use DFHSM efficiently.

MAINVIEW SRM EasyPOOL

Product that provides control over data set allocation and enforcement of allocation and naming standards. EasyPOOL functions operate at the operating system level to intercept normal job processing, thus providing services without any JCL changes.

MAINVIEW SRM EasySMS

Product that provides tools that aid in the conversion to DFSMS and provides enhancement to the DFSMS environment after implementation. EasySMS consists of the EasyACS functions, the SMSACSTE function, and the Monitoring and Positioning Facility.

MAINVIEW SRM Enterprise Storage Automation

Product that delivers powerful event generation and storage automation technology across the storage enterprise. Used in conjunction with MAINVIEW AutoOPERATOR, automated solutions to perform pool, volume, application, or data set-level manipulation can be created and used in response to any condition or invoked to perform ad hoc requests.

MAINVIEW SRM SG-Auto

Product that provides early warning notification of storage anomalies and automated responses to those anomalies based on conditions in the storage subsystem.

MAINVIEW SRM SG-Control

Product that provides real-time monitoring, budgeting, and control of DASD space utilization.

MAINVIEW SRM StopX37/II

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

MAINVIEW SRM StorageGUARD

Product that monitors and reports on DASD consumption and provides historical views to help control current and future DASD usage.

MAINVIEW Storage Resource Manager (SRM)

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

MAINVIEW SYSPROG Services

See SYSPROG services.

MAINVIEW VistaPoint

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

MAINVIEW window area

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

monitor

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

Multi-Level Automation (MLA)

The user-defined, multiple step process in Enterprise Storage Automation that implements solutions in a tiered approach, where solutions are invoked one after another until the condition is resolved.

MVALARM	<i>See</i> MAINVIEW Alarm Manager.
MVAPI	<i>See</i> MAINVIEW Application Program Interface.
MVCICS	<i>See</i> MAINVIEW for CICS.
MVDB2	<i>See</i> MAINVIEW for DB2.
MVDBC	<i>See</i> MAINVIEW for DBCTL.
MVIMS	<i>See</i> MAINVIEW for IMS.
MVIP	<i>See</i> MAINVIEW for IP.
MVLNX	<i>See</i> MAINVIEW for Linux–Servers.
MVMQ	<i>See</i> MAINVIEW for WebSphere MQ or MAINVIEW for WebSphere MQ Integrator.
MVMVS	<i>See</i> MAINVIEW for OS/390.
MVScope	MAINVIEW for OS/390 application that traces both CPU usage down to the CSECT level and I/O usage down to the channel program level.
MVSRM	<i>See</i> MAINVIEW Storage Resource Manager (SRM).
MVSRMHSM	<i>See</i> MAINVIEW SRM EasyHSM.
MVSRMSGC	<i>See</i> MAINVIEW SRM SG-Control.
MVSRMSGD	<i>See</i> MAINVIEW SRM StorageGUARD.
MVSRMSGP	<i>See</i> MAINVIEW SRM StorageGUARD.
MVUSS	<i>See</i> MAINVIEW for UNIX System Services.
MVVP	<i>See</i> MAINVIEW VistaPoint.
MVVTAM	<i>See</i> MAINVIEW for VTAM.
MVWEB	<i>See</i> MAINVIEW for WebSphere Application Server.

nested help	Multiple layers of help pop-up windows. Each successive layer is accessed by clicking a hyperlink from the previous layer.
object	<p>Anything you can manipulate as a single unit. MAINVIEW objects can be any of the following: product, secondary window, view, row, column, or field.</p> <p>You can issue an action against an object by issuing a line command in the line command column to the left of the object. <i>See</i> action.</p>
OMVS workload	Workload consisting of OS/390 OpenEdition address spaces.
online help	Help information that is accessible online.
OS/390 and z/OS Installer	BMC Software common installation system for mainframe products.
OS/390 product address space (PAS)	Address space containing OS/390 or z/OS data collectors, including the CMF MONITOR Extractor. Used by MAINVIEW for OS/390, MAINVIEW for UNIX System Services, and CMF MONITOR products. <i>See</i> PAS.
parameter library	<p>Data set consisting of members that contain parameters for specific MAINVIEW products or a support component There can be several versions:</p> <ul style="list-style-type: none"> • the distributed parameter library, called BBPARM • a site-specific parameter library or libraries <p>These can be</p> <ul style="list-style-type: none"> • a library created by AutoCustomization, called UBBPARM • a library created manually, with a unique name
PAS	Product address space. Used by the MAINVIEW products. Contains data collectors and other product functions. <i>See also</i> OS/390 product address space (PAS) <i>and</i> BBI subsystem product address space (BBI-SS PAS).
performance group workload	Collection of address spaces defined to OS/390 or z/OS. If you are running OS/390 or z/OS with WLM in compatibility mode, MAINVIEW for OS/390 creates a performance group workload instead of a service class.
PERFORMANCE MANAGER	MAINVIEW for CICS online service for monitoring and managing current performance of CICS regions.
Performance Reporter (MVIMS)	MVIMS Offline component that organizes data and prints reports that can be used to analyze IMS performance.

Performance Reporter

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

- MAINVIEW for DB2
- MAINVIEW for CICS

Plex Manager

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

pop-up display

Full-screen panel that displays additional information about a selected event in a detail trace.

pop-up window

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

PRGP workload

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

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

- the distributed parameter library, called BBPROC
- a site-specific parameter library or libraries

These can be

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

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

product address space

See PAS.

profile library

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

- the distributed profile library, called BBPROF
- a site-specific profile library or libraries

These can be

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

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

query

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

real-time data

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

Resource Analyzer

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

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

screen definition	Configuration of one or more views that have been stored with the SAVEScr command and assigned a unique name. A screen includes the layout of the windows and the view, context, system, and product active in each window.
selection view	In MAINVIEW products, view displaying a list of available views.
service class workload	<p>Collection of address spaces defined to OS/390 or z/OS. If you are running Workload Manager (WLM) in goal mode, MAINVIEW for OS/390 creates a service class workload for each service class that you define through WLM definition dialogs.</p> <p>If you are running MVS 4.3 or earlier, or MVS/SP 5.1 or later with WLM in compatibility mode, OS/390 creates a performance group workload instead of a service class. <i>See</i> performance group workload.</p>
service objective	Workload performance goal, specified in terms of response time for TSO workloads or turnaround time for batch workloads. Performance group workloads can be measured by either objective. Composite workload service objectives consist of user-defined weighting factors assigned to each constituent workload. For compatibility mode, neither OS/390 nor z/OS provides any way to measure service.
service point	<p>Specification, to MAINVIEW, of the services required to enable a specific product. Services can be actions, selectors, or views. Each target (for example, CICS, DB2, or IMS) has its own service point.</p> <p>The PLEX view lists all the defined service points known to the CAS to which the terminal session is connected.</p>
service request block (SRB)	Control block that represents a routine to be dispatched. SRB mode routines generally perform work for the operating system at a high priority. An SRB is similar to a task control block (TCB) in that it identifies a unit of work to the system. <i>See also</i> task control block.
service select code	Code entered to invoke analyzers, monitors, and general services. This code is also the name of the individual service.
session	Total period of time an address space has been active. A session begins when monitoring can be performed. If the product address space (PAS) starts after the job, the session starts with the PAS.
SG-Auto	<i>See</i> MAINVIEW SRM SG-Auto.
SG-Control	<i>See</i> MAINVIEW SRM SG-Control.

single system image (SSI)

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

Skeleton Tailoring Facility

A facility in MAINVIEW AutoOPERATOR that allows skeleton JCL to be used during job submission. Skeleton JCL can contain variables within the JCL statements to be substituted with data values at job submission time. Directive statements can be used in the skeleton JCL to cause the repetition of a set of skeleton statements. This facility functions similar to the TSO skeleton tailoring facility.

SRB *See* service request block.

SSI *See* single system image.

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

started task workload

Address spaces running jobs that were initiated programmatically.

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

stem variables A REXX facility, supported in MAINVIEW AutoOPERATOR REXX EXECs and the Skeleton Tailoring Facility, where variable names end with a period followed by a number, such as &POOL.1. This configuration allows each variable to actually represent a table or array of data, with the zero variable containing the number of entries in the array. For example, &POOL.0 = 5 would indicate variables &POOL.1 through &POOL.5 exist.

StopX37/II *See* MAINVIEW SRM StopX37/II.

StorageGUARD *See* MAINVIEW SRM StorageGUARD.

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

SYSPROG services	Component of MAINVIEW for OS/390. Over 100 services that detect, diagnose, and correct OS/390 or z/OS system problems as they occur. Accessible from the OS/390 Performance and Control Main Menu. Note that this component is also available as a stand-alone product MAINVIEW SYSPROG Services.
system resource	<i>See</i> object.
target	Entity monitored by one or more MAINVIEW products, such as an OS/390 or z/OS image, an IMS or DB2 subsystem, a CICS region, or related workloads across systems. <i>See</i> context, scope, SSI context.
target context	Single target/product combination. <i>See</i> context.
TASCOSTR	MAINVIEW for IMS Offline program that summarizes detail and summary IMS Resource Utilization Files (IRUFs) to be used as input to the offline components.
task control block (TCB)	Address space-specific control block that represents a unit of work that is dispatched in the address space in which it was created. <i>See also</i> service request block.
TCB	<i>See</i> task control block.
terminal session (TS)	Single point of control for MAINVIEW products, allowing data manipulation and data display and providing other terminal user services for MAINVIEW products. The terminal session runs in a user address space (either a TSO address space or a stand-alone address space for EXCP/VTAM access).
TDIR	<i>See</i> trace log directory.
threshold	Specified value used to determine whether the data in a field meets specific criteria.
TLDS	<i>See</i> trace log data set.
total mode	Usage mode in CMFMON wherein certain columns of data reflect the cumulative value between collection intervals. Invoked by the DELta OFF command. <i>See also</i> collection interval, delta mode.
trace	(1) Record of a series of events chronologically listed as they occur. (2) Online data collection and display services that track transaction activity through DB2, IMS, or CICS.

trace log data set (TLDS)

Single or multiple external VSAM data sets containing summary or detail trace data for later viewing or printing. The trace log(s) can be defined as needed or dynamically allocated by the BBI-SS PAS. Each trace request is assigned its own trace log data set(s).

trace log directory (TDIR)

VSAM linear data set containing one entry for each trace log data set. Each entry indicates the date and time of data set creation, the current status of the data set, the trace target, and other related information.

transaction

Specific set of input data that initiates a predefined process or job.

Transaction Accountant

MVIMS Offline component that produces cost accounting and user charge-back records and reports.

TS

See terminal session.

TSO workload

Workload that consists of address spaces running TSO sessions.

UAS

See user address space.

UBBPARM

See parameter library.

UBBPROC

See procedure library.

UBBSAMP

See sample library.

user address space

Runs a MAINVIEW terminal session (TS) in TSO, VTAM, or EXCP mode.

User BBPROF

See profile library.

view

Formatted data within a MAINVIEW window, acquired from a product as a result of a view command or action. A view consists of two parts: query and form. *See also* form, job activity view, query.

view definition

Meaning of data that appears online, including source of data, selection criteria for data field inclusion and placement, data format, summarization, context, product, view name, hyperlink fields, and threshold conditions.

view command

Name of a view that you type on the COMMAND line to display that view.

view command stack

Internal stack of up to 10 queries. For each command, the stack contains the filter parameters, sort order, context, product, and time frame that accompany the view.

view help	Online help describing the purpose of a view. To display view help, place the cursor on the view name on the window information line and press PF1 (HELP).
window	Area of the MAINVIEW screen in which views and resources are presented. A window has visible boundaries and can be smaller than or equal in size to the MAINVIEW window area. <i>See</i> active window, alternate window, current window, MAINVIEW window area.
window information line	Top border of a window. Shows the window identifier, the name of the view displayed in the window, the system, the scope, the product reflected by the window, and the tomfooleries for which the data in the window is relevant. <i>See also</i> window status field.
window number	Sequential number assigned by MAINVIEW to each window when it is opened. The window number is the second character in the window status field. <i>See also</i> window status field.
window status	One-character letter in the window status field that indicates when a window is ready to receive commands, is busy processing commands, is not to be updated, or contains no data. It also indicates when an error has occurred in a window. The window status is the first character in the window status field. <i>See also</i> window information line, window status field.
window status field	Field on the window information line that shows the current status and assigned number of the window. <i>See also</i> window number, window status.
windows mode	Display of one or more MAINVIEW product views on a screen that can be divided into a maximum of 20 windows. A window information line defines the top border of each window. <i>Contrast with</i> full-screen mode.
WLM workload	In goal mode in MVS/SP 5.1 and later, a composite of service classes. MAINVIEW for OS/390 creates a workload for each WLM workload defined in the active service policy.
workflow	Measure of system activity that indicates how efficiently system resources are serving the jobs in a workload.
workload	(1) Systematic grouping of units of work (for example, address spaces, CICS transactions, IMS transactions) according to classification criteria established by a system administrator. (2) In OS/390 or z/OS, a group of service classes within a service definition.
workload activity view	Tracks workload activity as the workload accesses system resources. A workload activity view measures workload activity in terms of resource consumption and how well the workload activity meets its service objectives.

-
- Workload Analyzer** Online data collection and display services used to analyze IMS workloads and determine problem causes.
- workload definition** Workload created through the WKLIST view. Contains a unique name, a description, an initial status, a current status, and selection criteria by which address spaces are selected for inclusion in the workload. *See* Workload Definition Facility.
- Workload Definition Facility**
In MAINVIEW for OS/390, WKLIST view and its associated dialogs through which workloads are defined and service objectives set.
- workload delay view**
Tracks workload performance as the workload accesses system resources. A workload delay view measures any delay a workload experiences as it contends for those resources.
- Workload Monitor** Online data collection services used to monitor IMS workloads and issue warnings when defined thresholds are exceeded.
- workload objectives**
Performance goals for a workload, defined in WKLIST. Objectives can include measures of performance such as response times and batch turnaround times.

Index

A

- ad hoc views 2-9, 6-3
- address spaces
 - See also* jobs
 - ASOVERZ view 3-6
 - communications between 2-3
 - coordinating 2-2
 - monitoring 3-12
 - product 2-3
 - required 2-2
 - user 2-3
- Alarm Administration menu 3-8, 7-3
- Alarm Manager
 - description 7-1
 - EZALARM view 3-8, 7-3
- alarms
 - definitions 7-3
 - list of 7-2
 - reporting 7-4
- ASOVERZ view 3-6
- AutoCustomization 1-2
- automatic purging of ad hoc data requests 2-9
- AutoOPERATOR, MAINVIEW 7-4

B

- background processing 2-9
- BBDTDCDL member, changing parameters in 5-7
- BBUTAHS0 member
 - changing parameters in 2-9
 - copying to UBBPARM 1-3
- BBUTSRH0 member 1-3
- BBUTSRP0 member 1-3
- BPXPRM view 4-3
- browsing files 4-14

C

- CAS (coordinating address space) 2-2
- changing limits for a process 4-16
- collector rate 6-2
- commands
 - modify 2-5
 - THREADHistory 5-7
 - TIME 5-5
 - using 2-19
- configuration settings, changing 4-4
- conventions
 - document xvi
 - typographical xvi
- coordinating address space (CAS) 2-2
- customization, manual 1-2

D

- data collectors
 - affected views 6-6
 - controlling 6-1, 6-4
 - sample rate 6-2
- data displayed in tabular form 2-10
- data requests, purging 2-9
- data, historical 2-8
- data, thread history 5-7
- DATE parameter, for TIME command 5-4
- DC=START 2-5
- DC=STOP 2-5
- DCSTAT view, using 2-5, 6-4
- displaying information
 - files for a process 4-13
 - overview 2-10
 - real-time process/thread status 4-10
- document conventions xvi
- documentation
 - electronic, online help xv
 - online xv
- dumping a process 4-13

E

- easy menus 3-2
- Easy zFS Administration Menu 4-21
- electronic documentation, online help xv
- environmental settings 3-9
- error messages during initialization of OS/390
 - PAS 8-3
- Explorer, view accessed using 2-27
- Extend File System Panel 4-5
- EZALARM menu 3-8
- EZUACTS menu 3-7
- EZUENV menu 3-9
- EZUFAST menu 3-9
- EZUFSYS menu 3-4
- EZUPRC view 4-11
- EZUPRCS menu 3-3
- EZUSS menu 2-18, 3-2
- EZUSYS menu 3-3
- EZUUSRS menu 3-5
- EZUZADM menu 4-21

F

- file systems
 - EZUFSYS menu 3-4
 - monitoring 3-11
 - mounting 4-16
 - unmounting 4-16
- Filesystems Easy Menu, EZUFSYS 3-4
- FLIST view 4-15
- FLISTH view 4-15
- FSMOUNTZ view 4-5
- FSPACE view 4-14

G

- global buffer limits, setting 4-8
- group views 3-13

H

- hexadecimal listing of files 4-14
- HFS file system
 - compared to zFS file system 4-17
 - description 3-4
 - extending size 4-5
 - monitoring 3-11
- HFSINFO view 4-8
- HFSOVERZ view 4-7
- historical data 2-8, 4-5, 5-2, 5-7
- hyperlinks, using 2-14

I

- interface, EDM ISPF, online help xv
- interval record 6-2
- intervals, system-monitored 2-8
- IPCBXP view 4-4
- IPCOVER view 3-6
- IPCS parameters, changing 4-2
- ISPF delimiter 2-20

K

keyword parameters, using 2-24
killing a process 4-12

M

MAINVIEW

- activities monitored 2-6
- address spaces 2-2
- environmental settings 3-9
- organization 2-2
- window interface 2-5, 2-10

MAINVIEW Alarm Manager

- alarm definitions 7-3
- alarms 7-2
- description 7-1
- views 7-3

MAINVIEW Explorer, view accessed using 2-27

MAINVIEW for UNIX System Services

- introduction 2-1
- moving around in 2-14
- views 3-10

manual customization 1-2

manual purging of ad hoc data requests 2-9

menus, easy 2-18, 3-2

modify commands 2-5

monitoring

- address space information 3-12
- file systems 3-11
- system parameters 3-12

multiple views, displaying 2-20

MVS support xiii

MVUSS Easy Action Menu 3-7

MVUSS Easy Menu 3-2

MVUSS Fast Menu 3-9

O

OEDG severe error 8-3

online documentation xv

online help xv

OS/390

- support xiii

P

parameters

- keyword 2-24
- positional 2-21
- view 2-21

PARM command 2-26

PAS (product address space)

- description 2-3
- modify commands 2-5

positional parameters, determining 2-21

process

- changing limits for 4-16
- description 2-6
- displaying files for 4-13
- dumping 4-13
- killing 4-12
- views 3-10

process/thread status, displaying 4-10

Processes Easy Menu, EZUPRCS 3-3

processing, background 2-9

product address space (PAS)

- description 2-3
- modify commands 2-5

PSOVER view

- keyword parameters 2-26
- online Help 2-22
- online help 2-25
- positional parameters 2-23

PSOVERZ view 2-15, 2-19

purging of ad hoc data requests 2-9

R

real-time process/thread status, displaying 4-10

records, interval 6-2

REFRGID 2-5

REFRUID 2-5

related documentation xv

release notes xv

S

sample rate 6-2

screen, splitting 2-16

setting global buffer limits 4-8

splitting a screen 2-16
system BPX parameters, changing 4-2
System Easy Menu, EZUSYS 3-3
system-monitored intervals 2-8

T

tabular form of data 2-10
thread
 activity 3-10
 description 2-7
 history data collection 5-7
 status 4-10
THREADHistory command 5-7
threshold alarms 2-8
TIME command, examples 5-5 to 5-6
troubleshooting 8-1
typographical conventions xvi

U

UAS (user address space) 2-3
UNIX configuration settings, changing 4-4
User Activity Easy Menu 3-5, 3-6
user address space (UAS) 2-3
user views 3-13
USS Address Spaces option 3-6
USSJPRCS member 1-3
utility view 3-13

V

views
 ad hoc 6-3
 categories of 2-11
 customizing 2-12
 getting help 2-13
 IPCOVER 3-6
 MAINVIEW Alarm Manager 7-3
 MAINVIEW for UNIX System Services
 3-10
 multiple 2-20
 using parameters 2-21

W

window information line, description 2-10
window interface
 control area 2-10
 definition 2-5
 display area 2-10
 window information line 2-10

Z

z/OS support xiii
ZFADETL view 4-18
ZFATTACH view 4-17
ZFFDETL view 4-20
ZFFILSYS view 4-19
zFS administrative actions 4-17
zFS aggregates
 detailed information about a file system 4-20
 detailed information about an attached
 aggregate 4-18
 displaying a list of 4-17
 displaying all file systems 4-19
zFS file system
 compared to HFS file system 4-17
 description 3-5, 4-17
 monitoring 3-11

END USER LICENSE AGREEMENT NOTICE

BY OPENING THE PACKAGE, INSTALLING, PRESSING "AGREE" OR "YES" OR USING THE PRODUCT, THE ENTITY OR INDIVIDUAL ENTERING INTO THIS AGREEMENT AGREES TO BE BOUND BY THE FOLLOWING TERMS. IF YOU DO NOT AGREE WITH ANY OF THESE TERMS, DO NOT INSTALL OR USE THE PRODUCT, PROMPTLY RETURN THE PRODUCT TO BMC OR YOUR BMC RESELLER, AND IF YOU ACQUIRED THE LICENSE WITHIN 30 DAYS OF THE DATE OF YOUR ORDER CONTACT BMC OR YOUR BMC RESELLER FOR A REFUND OF LICENSE FEES PAID. IF YOU REJECT THIS AGREEMENT, YOU WILL NOT ACQUIRE ANY LICENSE TO USE THE PRODUCT.

This Agreement ("**Agreement**") is between the entity or individual entering into this Agreement ("**You**") and BMC Software Distribution, Inc., a Delaware corporation located at 2101 CityWest Blvd., Houston, Texas, 77042, USA or its affiliated local licensing entity ("**BMC**"). "**You**" includes you and your Affiliates. "**Affiliate**" is defined as an entity which controls, is controlled by or shares common control with a party. IF MORE THAN ONE LICENSE AGREEMENT COULD APPLY TO THE PRODUCT, THE FOLLOWING ORDER OF LICENSE AGREEMENT PRECEDENCE APPLIES: (1) WEB BASED LICENSE AGREEMENT WITH BMC, (2) WRITTEN LICENSE AGREEMENT WITH BMC, (3) SHRINK-WRAP LICENSE AGREEMENT WITH BMC PROVIDED WITH THE PRODUCT, AND (4) THIS ELECTRONIC LICENSE AGREEMENT WITH BMC. In addition to the restrictions imposed under this Agreement, any other usage restrictions contained in the Product installation instructions or release notes shall apply to Your use of the Product.

PRODUCT AND CAPACITY. "**Software**" means the object code version of the computer programs provided, via delivery or electronic transmission, to You. Software includes computer files, enhancements, maintenance modifications, upgrades, updates, bug fixes, and error corrections.

"**Documentation**" means all written or graphical material provided by BMC in any medium, including any technical specifications, relating to the functionality or operation of the Software.

"**Product**" means the Software and Documentation.

"**License Capacity**" means the licensed capacity for the Software with the pricing and other license defining terms, including capacity restrictions, such as tier limit, total allowed users, gigabyte limit, quantity of Software, and/or other capacity limitations regarding the Software. For licenses based on the power of a computer, You agree to use BMC's current computer classification scheme, which is available at <http://www.bmc.com> or can be provided to You upon request.

ACCEPTANCE. The Product is deemed accepted by You, on the date that You received the Product from BMC.

LICENSE. Subject to the terms of this Agreement, as well as Your payment of applicable fees, BMC grants You a non-exclusive, non-transferable, perpetual (unless a term license is provided on an order) license for each copy of the Software, up to the License Capacity, to do the following:

- (a) install the Software on Your owned or leased hardware located at a facility owned or controlled by You in the country where You acquired the license;
- (b) operate the Software solely for processing Your own data in Your business operations; and
- (c) make one copy of the Software for backup and archival purposes only (collectively a "**License**").

If the Software is designed by BMC to permit you to modify such Software, then you agree to only use such modifications or new software programs for Your internal purposes or otherwise consistent with the License. BMC grants You a license to use the Documentation solely for Your internal use in Your operations.

LICENSE UPGRADES. You may expand the scope of the License Capacity only pursuant to a separate agreement with BMC for such expanded usage and Your payment of applicable fees. There is no additional warranty period or free support period for license upgrades.

RESTRICTIONS: You agree to **NOT**:

- (a) disassemble, reverse engineer, decompile or otherwise attempt to derive any Software from executable code;
- (b) distribute or provide the Software to any third party (including without limitation, use in a service bureau, outsourcing environment, or processing the data of third parties, or for rental, lease, or sublicense); or
- (c) provide a third party with the results of any functional evaluation or benchmarking or performance tests, without BMC's prior written approval, unless prohibited by local law.

TRIAL LICENSE. If, as part of the ordering process, the Product is provided on a trial basis, then these terms apply: (i) this license consists solely of a non-exclusive, non-transferable evaluation license to operate the Software for the period of time specified from BMC or, if not specified, a 30 day time period ("**Trial Period**") only for evaluating whether You desire to acquire a capacity-based license to the Product for a fee; and (ii) Your use of the Product is on an AS IS basis without any warranty, and **BMC, ITS AFFILIATES AND RESELLERS, AND LICENSORS DISCLAIM ANY AND ALL WARRANTIES (INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT) AND HAVE NO LIABILITY WHATSOEVER RESULTING FROM THE USE OF THIS PRODUCT UNDER THIS TRIAL LICENSE ("Trial License").** BMC may terminate for its convenience a Trial License upon notice to You. When the Trial Period ends, Your right to use this Product automatically expires. If You want to continue Your use of the Product beyond the Trial Period, contact BMC to acquire a capacity-based license to the Product for a fee.

TERMINATION. This Agreement shall immediately terminate if You breach any of its terms. Upon termination, for any reason, You must uninstall the Software, and either certify the destruction of the Product or return it to BMC.

OWNERSHIP OF THE PRODUCT. BMC or its Affiliates or licensors retain all right, title and interest to and in the BMC Product and all intellectual property, informational, industrial property and proprietary rights therein. BMC neither grants nor otherwise transfers any rights of ownership in the BMC Product to You. Products are protected by applicable copyright, trade secret, and industrial and intellectual property laws. BMC reserves any rights not expressly granted to You herein.

CONFIDENTIAL AND PROPRIETARY INFORMATION. The Products are and contain valuable confidential information of BMC (“**Confidential Information**”). Confidential Information means non-public technical and non-technical information relating to the Products and Support, including, without limitation, trade secret and proprietary information, and the structure and organization of the Software. You may not disclose the Confidential Information to third parties. You agree to use all reasonable efforts to prevent the unauthorized use, copying, publication or dissemination of the Product.

WARRANTY. Except for a Trial License, BMC warrants that the Software will perform in substantial accordance with the Documentation for a period of one year from the date of the order. This warranty shall not apply to any problems caused by software or hardware not supplied by BMC or to any misuse of the Software.

EXCLUSIVE REMEDY. BMC’s entire liability, and Your exclusive remedy, for any defect in the Software during the warranty period or breach of the warranty above shall be limited to the following: BMC shall use reasonable efforts to remedy defects covered by the warranty or replace the defective Software within a reasonable period of time, or if BMC cannot remedy or replace such defective copy of the Software, then BMC shall refund the amount paid by You for the License for that Software. BMC’s obligations in this section are conditioned upon Your providing BMC prompt access to the affected Software and full cooperation in resolving the claim.

DISCLAIMER. EXCEPT FOR THE EXPRESS WARRANTIES ABOVE, THE PRODUCT IS PROVIDED “AS IS.” BMC, ITS AFFILIATES AND LICENSORS SPECIFICALLY DISCLAIM ALL OTHER WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. BMC DOES NOT WARRANT THAT THE OPERATION OF THE SOFTWARE WILL BE UNINTERRUPTED OR ERROR FREE, OR THAT ALL DEFECTS CAN BE CORRECTED.

DISCLAIMER OF DAMAGES. IN NO EVENT IS BMC, ITS AFFILIATES OR LICENSORS LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO OR ARISING OUT OF THIS AGREEMENT, SUPPORT, AND/OR THE PRODUCT (INCLUDING, WITHOUT LIMITATION, LOST PROFITS, LOST COMPUTER USAGE TIME, AND DAMAGE OR LOSS OF USE OF DATA), EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND IRRESPECTIVE OF ANY NEGLIGENCE OF BMC OR WHETHER SUCH DAMAGES RESULT FROM A CLAIM ARISING UNDER TORT OR CONTRACT LAW.

LIMITS ON LIABILITY. BMC’S AGGREGATE LIABILITY FOR DAMAGES IS LIMITED TO THE AMOUNT PAID BY YOU FOR THE LICENSE TO THE PRODUCT.

SUPPORT. If Your order includes support for the Software, then BMC agrees to provide support (24 hours a day/7 days a week) (“**Support**”). You will be automatically re-enrolled in Support on an annual basis unless BMC receives notice of termination from You as provided below. There is a free support period during the one year warranty period.

(a) **Support Terms.** BMC agrees to make commercially reasonable efforts to provide the following Support: (i) For malfunctions of supported versions of the Software, BMC provides bug fixes, patches or workarounds in order to cause that copy of the Software to operate in substantial conformity with its then-current operating specifications; and (ii) BMC provides new releases or versions, so long as such new releases or versions are furnished by BMC to all other enrolled Support customers without additional charge. BMC may refuse to provide Support for any versions or releases of the Software other than the most recent version or release of such Software made available by BMC. Either party may terminate Your enrollment in Support upon providing notice to the other at least 30 days prior to the next applicable Support anniversary date. If You re-enroll in Support, BMC may charge You a reinstatement fee of 1.5 times what You would have paid if You were enrolled in Support during that time period.

(b) **Fees.** The annual fee for Support is 20% of the Software’s list price less the applicable discount or a flat capacity based annual fee. BMC may change its prices for the Software and/or Support upon at least 30 days notice prior to Your support anniversary date.

VERIFICATION. If requested by BMC, You agree to deliver to BMC periodic written reports, whether generated manually or electronically, detailing Your use of the Software in accordance with this Agreement, including, without limitation, the License Capacity. BMC may, at its expense, perform an audit, at your facilities, of Your use of the Software to confirm Your compliance with the Agreement. If an audit reveals that You have underpaid fees, You agree to pay such underpaid fees. If the underpaid fees exceed 5% of the fees paid, then You agree to also pay BMC’s reasonable costs of conducting the audit.

EXPORT CONTROLS. You agree not to import, export, re-export, or transfer, directly or indirectly, any part of the Product or any underlying information or technology except in full compliance with all United States, foreign and other applicable laws and regulations.

GOVERNING LAW. This Agreement is governed by the substantive laws in force, without regard to conflict of laws principles: (a) in the State of New York, if you acquired the License in the United States, Puerto Rico, or any country in Central or South America; (b) in the Province of Ontario, if you acquired the License in Canada (subsections (a) and (b) collectively referred to as the “**Americas Region**”); (c) in Singapore, if you acquired the License in Japan, South Korea, Peoples Republic of China, Special Administrative Region of Hong Kong, Republic of China, Philippines, Indonesia, Malaysia, Singapore, India, Australia, New Zealand, or Thailand (collectively, “**Asia Pacific Region**”); or (d) in the Netherlands, if you acquired the License in any other country not described above. The United Nations Convention on Contracts for the International Sale of Goods is specifically disclaimed in its entirety.

ARBITRATION. ANY DISPUTE BETWEEN YOU AND BMC ARISING OUT OF THIS AGREEMENT OR THE BREACH OR ALLEGED BREACH, SHALL BE DETERMINED BY BINDING ARBITRATION CONDUCTED IN ENGLISH. IF THE DISPUTE IS INITIATED IN THE AMERICAS REGION, THE ARBITRATION SHALL BE HELD IN NEW YORK, U.S.A., UNDER THE CURRENT COMMERCIAL OR INTERNATIONAL, AS APPLICABLE, RULES OF THE AMERICAN ARBITRATION ASSOCIATION. IF THE DISPUTE IS INITIATED IN A COUNTRY IN THE ASIA PACIFIC REGION, THE ARBITRATION SHALL BE HELD IN SINGAPORE, SINGAPORE UNDER THE CURRENT UNCITRAL ARBITRATION RULES. IF THE DISPUTE IS INITIATED IN A COUNTRY OUTSIDE OF THE AMERICAS REGION OR ASIA PACIFIC REGION, THE ARBITRATION SHALL BE HELD IN AMSTERDAM, NETHERLANDS UNDER THE CURRENT UNCITRAL ARBITRATION RULES. THE COSTS OF THE ARBITRATION SHALL BE BORNE EQUALLY PENDING THE ARBITRATOR’S AWARD. THE AWARD RENDERED SHALL BE FINAL AND BINDING UPON THE PARTIES AND SHALL NOT BE SUBJECT TO APPEAL TO ANY COURT, AND MAY BE ENFORCED IN ANY COURT OF COMPETENT JURISDICTION. NOTHING IN THIS AGREEMENT SHALL BE DEEMED AS PREVENTING EITHER PARTY FROM SEEKING INJUNCTIVE RELIEF FROM ANY COURT HAVING JURISDICTION OVER THE PARTIES AND THE SUBJECT MATTER OF

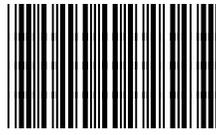
THE DISPUTE AS NECESSARY TO PROTECT EITHER PARTY'S CONFIDENTIAL INFORMATION, OWNERSHIP, OR ANY OTHER PROPRIETARY RIGHTS. ALL ARBITRATION PROCEEDINGS SHALL BE CONDUCTED IN CONFIDENCE, AND THE PARTY PREVAILING IN ARBITRATION SHALL BE ENTITLED TO RECOVER ITS REASONABLE ATTORNEYS' FEES AND NECESSARY COSTS INCURRED RELATED THERETO FROM THE OTHER PARTY.

U.S. GOVERNMENT RESTRICTED RIGHTS. The Software under this Agreement is "commercial computer software" as that term is described in 48 C.F.R. 252.227-7014(a)(1). If acquired by or on behalf of a civilian agency, the U.S. Government acquires this commercial computer software and/or commercial computer software documentation subject to the terms of this Agreement as specified in 48 C.F.R. 12.212 (Computer Software) and 12.211 (Technical Data) of the Federal Acquisition Regulations ("**FAR**") and its successors. If acquired by or on behalf of any agency within the Department of Defense ("**DOD**"), the U.S. Government acquires this commercial computer software and/or commercial computer software documentation subject to the terms of this Agreement as specified in 48 C.F.R. 227.7202 of the DOD FAR Supplement and its successors.

MISCELLANEOUS TERMS. You agree to pay BMC all amounts owed no later than 30 days from the date of the applicable invoice, unless otherwise provided on the order for the License to the Products. You will pay, or reimburse BMC, for taxes of any kind, including sales, use, duty, tariffs, customs, withholding, property, value-added (VAT), and other similar federal, state or local taxes (other than taxes based on BMC's net income) imposed in connection with the Product and/or the Support. This Agreement constitutes the entire agreement between You and BMC and supersedes any prior or contemporaneous negotiations or agreements, whether oral, written or displayed electronically, concerning the Product and related subject matter. No modification or waiver of any provision hereof will be effective unless made in a writing signed by both BMC and You. You may not assign or transfer this Agreement or a License to a third party without BMC's prior written consent. Should any provision of this Agreement be invalid or unenforceable, the remainder of the provisions will remain in effect. The parties have agreed that this Agreement and the documents related thereto be drawn up in the English language. Les parties exigent que la présente convention ainsi que les documents qui s'y rattachent soient rédigés en anglais.

SW Click EULA 071102

Notes



25614