MAINVIEW® for IMS Online
Customization Guide

Version 3.3.20

November 2002

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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

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How to Use This Book

This book contains procedures for customizing MAINVIEW® for IMS (MVIMS) Online. MVIMS is based on the MAINVIEW environment, which allows a single terminal session (TS) to monitor and manage multiple local or remote targets, whether OS/390 itself (sysplex and nonsysplex) or subsystems like CICS, IMS, and DB2.

For information about what's new in the current release of MVIMS Online, see the product Release Notes, which are available on the BMC Software Support Web pages.

You can view this book online with Adobe Acrobat Reader. Contact your system administrator if you need assistance.

To install and customize MVIMS Online, follow the instructions in the following books.

- *MAINVIEW Installation Requirements Guide* – to determine software, storage, and system requirements
- *OS/390 and z/OS Installer Guide* – to load the product libraries
- *MAINVIEW Common Customization Guide*—to set up the operational environment of all MAINVIEW products at your site
- *Implementing Security for MAINVIEW Products*—to secure MAINVIEW product resources with your external security manager (ESM), such as CA-ACF2, CA-TOP SECRET, or RACF
- *MAINVIEW for IMS Online – Customization Guide* (this book)—to tailor MAINVIEW for IMS to your site's requirements
- *MAINVIEW Administration Guide*—to maintain the MAINVIEW environment

The *MAINVIEW Common Customization Guide* and the *MAINVIEW Administration Guide* consolidate the instructions for implementing and administering the environment for all MAINVIEW products.

You must customize the MAINVIEW operational environment as described in the *MAINVIEW Common Customization Guide* before customizing MVIMS Online.

If you used AutoCustomization as described in the *OS/390 and z/OS Installer Guide*, you do not need to customize the MAINVIEW environment and MAINVIEW for DBCTL; that process is already done. You can use the *MAINVIEW Common Customization Guide*, the *MAINVIEW Administration Guide*, and this *MAINVIEW for DBCTL Customization Guide* as references during AutoCustomization or manual customization.

If you are installing MVIMS Online or MAINVIEW AutoOPERATOR for IMS, please note that there are some common steps between this guide and the *MAINVIEW AutoOPERATOR Customization Guide* (see Chapter 5, "Implementing MAINVIEW Products in IMS" on page 21).

MAINVIEW for IMS Product Library

The MAINVIEW for IMS product library contains the following documents:

MAINVIEW for IMS Online – Customization Guide

MAINVIEW for IMS Online – Analyzers Reference Manual

MAINVIEW for IMS Online – Monitors and Traces Reference Manual

MAINVIEW for IMS Online – IPSM Reference Manual

MAINVIEW for IMS Online – Release Notes

MAINVIEW for IMS Offline – Customization and Utilities Guide

MAINVIEW for IMS Offline – Performance Reporter Reference Manual

MAINVIEW for IMS Offline – Transaction Accountant Reference Manual

MAINVIEW for IMS Offline – Release Notes

How This Book Is Organized

This book is intended for the system programmer who needs to know how to modify the basic MAINVIEW product installation to include MVIMS Online functions.

This book is organized into the following parts:

- Part 1, “Migration Considerations” on page 1, contains release updates that must be considered if you have a previous release of MVIMS online products.
- Part 2, “Customizing MAINVIEW for IMS Functions” on page 17, describes how to tailor the MAINVIEW for IMS product components.
- Part 3, “Implementing Product Security” on page 79, contains instructions for allowing user access to MVIMS services.
- Part 4, “Appendixes” on page 83, provides supplemental information for MVIMS use.

Recommended Reading

Before using this book to customize MVIMS Online, you must

1. install the product as described in the *OS/390 and z/OS Installer Guide*
2. tailor the MAINVIEW environment for the MAINVIEW for IMS functions as described in the *MAINVIEW Common Customization Guide*

Related MAINVIEW Product Libraries

Other MAINVIEW products that work with MAINVIEW for IMS include:

MAINVIEW® AutoOPERATOR™
MAINVIEW® for CICS
MAINVIEW® for DB2®
MAINVIEW® FOCAL POINT
MAINVIEW® for IMS
MAINVIEW® for MQSeries
MAINVIEW® for OS/390
MAINVIEW® VistaPoint™

The following manuals document product-specific customization instructions:

MAINVIEW AutoOPERATOR Customization Guide
MAINVIEW for CICS Customization Guide
MAINVIEW for DB2 Customization Guide
MAINVIEW for DBCTL Customization Guide
MAINVIEW for OS/390 Customization Guide

The following books document the use of general services common to MAINVIEW for IMS and to some of the products listed above:

MAINVIEW AutoOPERATOR Basic Automation Guide
MAINVIEW AutoOPERATOR Advanced Automation Guide for CLIST EXECS
MAINVIEW AutoOPERATOR Advanced Automation Guide for REXX EXECS
MAINVIEW for CICS PERFORMANCE REPORTER User Guide
MAINVIEW for DB2 User Guide (Volumes 1, 2, and 3)
MAINVIEW for DBCTL Analyzers, Monitors, and Traces Reference Manual

IBM Publications

OS/390 Initialization and Tuning Guide
IMS Operations Guide

Conventions Used in This Book

The following symbols are used to define command syntax, are ***not*** part of the command, and should not be typed as part of the command:

- Brackets [ ] enclose optional parameters.
- Braces { } enclose a list of parameters; one must be chosen.
- A line | separates alternative options; one can be chosen.
- An underlined parameter is the default.

The following command syntax conventions apply:

- An ITEM IN CAPITAL LETTERS must be typed exactly as shown.
- Items in *italicized, lowercase* letters are values that you supply.
- When a command is shown in uppercase and lowercase letters, such as **HSplit**, the uppercase letters show the command abbreviation that you can use (**HS**, for example). The lowercase letters complete the entire command name. Typing the entire command name is an optional, alternative way of entering the command.
- Commands that do not have an abbreviation (**END**, for example) appear in all uppercase letters.

Note: Although MAINVIEW for IMS is often referred to as “MVIMS” in this book, the abbreviation is used for brevity only and does not represent a legal product name of BMC Software.

Part 1. Migration Considerations

This part of the book provides update considerations for migrating from a previous version of MAINVIEW for IMS Online.

Chapter 1. Migrating to Version 3.3.20 from Version 3.3.10 or 3.3.00

This chapter describes new options and features that you should review if you are migrating to MAINVIEW for IMS (MVIMS) Online version 3.3.20 from version 3.3.00 or 3.3.10.

Migrating from Version 3.3.10

This section describes product options and features that were introduced with version 3.3.20 of MVIMS Online.

Java and ODBA Region Support

Version 3.3.20 of MVIMS Online added support for Java region types and ODBA threads. The IPSM views and the analyzers, monitors, and traces services that show dependent region statistics now display the Java region types and ODBA threads. The parameters used to filter region information include the Java region types and ODBA threads.

Note: Support for Java region types is provided with IMS 7.1 (after application of PTFs UQ61540, UQ61541, and UQ61542) and later.

IMSplex Views

Version 3.3.20 of MVIMS Online has two new IPSM IMSplex views, IPXSUMR and IMSSPLXR. The IPXSUMR view is a realtime or past interval tabular view that shows the structure and status of IMSplex group members, including both IMS control region members and Structured Call Interface (SCI) component members. The IMSSPLXR view is a realtime or past interval detail view that shows information about the IMSplex connectivity and utilization of a specific IMS system.

The IMSDTL* and IMSPL* views have a new IMSplex group name field that hyperlinks to the IPXSUMR view. Hyperlinks to the IMSplex views were also added to the EZIMS, EZISSI, and EZIFAST menus.

Note: Support for the IMSplex views is provided with IMS 8.1 and later.

Recoverability Status for DEDB Databases

IMS 8.1 added the capability of defining DEDB databases as nonrecoverable. In version 3.3.20 of MVIMS Online, the IPSM Fast Path DEDB area views (IFP*) and the database views (IDB*) were enhanced to show which DEDB databases are defined as nonrecoverable.

End-User Significant Status Settings

In version 3.3.20 of MVIMS Online, the following fields were added to the IUDETAIL Communication Activity and Status Detail view so that you can determine the end-user significant status settings for specific users and nodes.

- Status Recovery Mode. This field shows the end-user significant status recovery mode, which can be Global, Local, None, or Unknown.
- Recover CONV/STSN/FP. This field shows the recoverability status of specific resources: conversations, STSN, and Fast Path.

Note: Support for end-user significant status fields is provided with IMS 8.1 and later.

DLIDB and DLIDC Diagnostic Dump Parameter

In version 3.3.20 of MVIMS Online, a new MONDUMPS parameter was added to IMFBEX00. You can use the MONDUMPS parameter to specify whether DLIDB, DLIDC, or both will take a diagnostic dump when the monitor threshold is met. These diagnostic dumps can be used by IBM or BMC Software support to help diagnose long-running DLI calls. (See BBPARM member IMFBEX00 for parameter options.)

Migrating from Version 3.3.00

This section describes product options and features that were introduced with version 3.3.10 of MVIMS Online.

Product Authorization

MVIMS Online version 3.3.10 added support for the use of product authorization tables to activate products on individual CPUs.

Version 3.3.20 continues to support the product keys method of product activation, and you can continue to use the product keys listed in Table 1.

Table 1. MVIMS Online Product Keys

Key	Product or Component
ION	MAINVIEW for IMS Online
IPX	IMSPlex System Manager
IRA	IMS Resource Analyzer
IRM	IMS Resource Monitor
IWA	IMS Workload Analyzer
IWM	IMS Workload Monitor
IAD	IMS Workload Analyzer Extension for DB2
IMD	IMS Workload Monitor Extension for DB2
ILM	IMS Resource Analyzer and Resource Monitor Extensions for IRLM

If MVIMS finds one of the product keys listed in Table 1 during product initialization and the key is valid, MVIMS will not look for a product authorization table. Therefore, if you want to use a product authorization table to activate MVIMS Online, you must remove all MVIMS Online product keys from the BBKEYS member of the BBPARM data set.

If no valid product key is found during initialization, MVIMS looks for the MVIMS Online product authorization table, IONTBL3P, in the data set pointed to by the BMCPSWD DD statement in the startup JCL for the IMS control region. If the BMCPSWD DD is not present, MVIMS looks in the STEPLIB, JOBLIB, and LNKLST data sets. If the IONTBL3P table is not located in those data sets, MVIMS looks in the data set pointed to by the BBILOAD DD. If the IONTBL3P table is found, its authorization information is used to determine whether the CPU is licensed to run MVIMS Online.

Note: If a product key brings MVIMS up in the IMS control region and a product authorization table brings MVIMS up in the product address space (PAS) *or vice versa*, MVIMS will still work properly as long as the provided authorization is consistent. In other words, you will encounter no initialization problems if you bring up one with a product key and the other with a product authorization table.

The procedure required to use a product authorization table to activate MVIMS Online is provided on page 30.

For more information about product authorization tables and the Product Authorization utility, see the *OS/390 and z/OS Installer Guide*.

Shared Message Queue Statistics

Version 3.3.10 of MVIMS Online added enhanced support for IMS shared message queues, providing improved realtime and historical shared queues statistics in several of the IPSM workflow, CQS information, transaction, and terminal and user views. Several CQS information views have been added, including the new CQS object menu ISQMR.

When the new Shared Queues Data Server is operating, the views provide shared message queue statistics for IMS systems that use shared queues. You can use the ISQQUERY parameter, in BBPARM member IMFBEX00, to turn the Shared Queues Data Server on or off. You can also use the ISQQUERY parameter to control the amount of resources used to collect and display shared queues statistics.

For information about how to use the ISQQUERY parameter, see “Controlling Shared Message Queue Data Collection” on page 46.

MSC Clock Synchronization

Version 3.3.10 of MVIMS Online provided support for controlling the handling of the arrival timestamp for MSC systems that originate on a remote system. With IMS 6.1 and later, you can define MSC systems that are synchronized to the local IMS system clock, and you can qualify workload monitor and trace requests to include either

- *all* transactions from systems synchronized to the clock of the local IMS

  or

- *only nonlocal* transactions from MSC systems synchronized to the clock of the local IMS

New Event Collector Parameter MSCCLOCK

Version 3.3.10 added a new Event Collector parameter, MSCCLOCK, in BBPARM member IMFECP00. With IMS 6.1 and later, you can use the MSCCLOCK parameter to specify whether or not MSC systems will, by default, be considered synchronized to the clock of the local IMS system. The MSC systems can be in the same time zone or a different time zone.

If an MSC transaction originates from an MSC system with a clock that is synchronized to the clock of the local IMS, the Event Collector will convert its arrival date and time (set by the originating MSC system) to local time. The converted time is then stored in the transaction arrival date and time fields of the transaction log record (X'FA').

If a transaction originates from an MSC system that is not defined as synchronized with the local IMS clock, no conversion is done and the transaction *arrival* date and time are set to the *start* date and time on the local IMS.

Additional MSCCLOCK values (*xxxx*,SYNC and *xxxx*,NOSYNC) are provided so that you can specify IDs for individual MSC systems that will be exceptions to the default you use.

For more information about how to use the MSCCLOCK Event Collector parameter, see page 59.

New TERM Parameter Operands SYNCLOCK and MSCCLOCK

The MSCCLOCK Event Collector parameter works in conjunction with the new monitor TERM parameter operands SYNCLOCK and MSCCLOCK, which are used to qualify workload monitor and trace requests.

TERM=SYNCLOCK defines a workload monitor or trace request to include *all* MSC transactions from systems that are synchronized to the clock of the local IMS (including all MSC transactions that originated on the local IMS). TERM=MSCCLOCK defines the request to include *only nonlocal* transactions from MSC systems synchronized that are to the clock of the local IMS.

UBBPARM Customization Capabilities

Version 3.3.10 added the capability of using the UBBPARM data set to include unique IMFSYS00 and IMFECP00 parameter members for individual IMS systems, which eliminates the need to create and allocate an *ibbparm* data set for each IMS system. The IMS-specific settings are defined in members that must have the following name formats:

*imsid*SYS	for IMS-specific IMFSYS00 system parameters
*imsid*ECP	for IMS-specific IMFECP00 Event Collector parameters

The name of each IMS-specific parameter member must begin with the identification code for the IMS system.

For more information about the IMS-specific UBBPARM members, see “Setting Up BBPARM Data Sets” on page 23.

Product Initialization Messages

Product initialization messages were changed for version 3.3.10. If you have automation that depends on the initialization messages or the sequencing of the messages, please see Appendix E on page 99.

Chapter 2. Migrating to Version 3.3.20 from Version 3.2

This chapter describes new options and features that you should review if you are migrating to MAINVIEW for IMS (MVIMS) Online version 3.3.20 from version 3.2.

Java and ODBA Region Support

Version 3.3.20 of MVIMS Online added support for Java region types and ODBA threads. The IPSM views and the analyzers, monitors, and traces services that show dependent region statistics now display the Java region types and ODBA threads. The parameters used to filter region information include the Java region types and ODBA threads.

Note: Support for Java region types is provided with IMS 7.1 (after application of PTFs UQ61540, UQ61541, and UQ61542) and later.

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IMS 8.1 added the capability of defining DEDB databases as nonrecoverable. In version 3.3.20 of MVIMS Online, the IPSM Fast Path DEDB area views (IFP*) and the database views (IDB*) were enhanced to show which DEDB databases are defined as nonrecoverable.

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In version 3.3.20 of MVIMS Online, the following fields were added to the IUDETAIL Communication Activity and Status Detail view so that you can determine the end-user significant status settings for specific users and nodes.

- Status Recovery Mode. This field shows the end-user significant status recovery mode, which can be Global, Local, None, or Unknown.
- Recover CONV/STSN/FP. This field shows the recoverability status of specific resources: conversations, STSN, and Fast Path.

Note: Support for end-user significant status fields is provided with IMS 8.1 and later.

DLIDB and DLIDC Diagnostic Dump Parameter

In version 3.3.20 of MVIMS Online, a new MONDUMPS parameter was added to IMFBEX00. You can use the MONDUMPS parameter to specify whether DLIDB, DLIDC, or both will take a diagnostic dump when the monitor threshold is met. These diagnostic dumps can be used by IBM or BMC Software support to help diagnose long-running DLI calls. (See BBPARM member IMFBEX00 for parameter options.)

Product Authorization

MVIMS Online version 3.3.10 added support for the use of product authorization tables to activate products on individual CPUs.

Version 3.3.20 continues to support the product keys method of activation, and you can use the product keys listed in Table 2 to activate the product.

Table 2. MVIMS Online Product Keys

Key	Product or Component
ION	MAINVIEW for IMS Online
IPX	IMSPlex System Manager
IRA	IMS Resource Analyzer
IRM	IMS Resource Monitor
IWA	IMS Workload Analyzer
IWM	IMS Workload Monitor
IAD	IMS Workload Analyzer Extension for DB2
IMD	IMS Workload Monitor Extension for DB2
ILM	IMS Resource Analyzer and Resource Monitor Extensions for IRLM

If MVIMS finds one of the product keys listed in Table 2 during product initialization and the key is valid, MVIMS will not look for a product authorization table. Therefore, if you want to use a product authorization table to activate MVIMS Online, you must remove all MVIMS Online product keys from the BBKEYS member of the BBPARM data set.

If no valid product key is found during initialization, MVIMS looks for the MVIMS Online product authorization table, IONTBL3P, in the data set pointed to by the BMCPSWD DD statement in the startup JCL for the IMS control region. If the BMCPSWD DD is not present, MVIMS looks in the STEPLIB, JOBLIB, and LNKLST data sets. If the IONTBL3P table is not located in those data sets, MVIMS looks in the data set pointed to by the BBILOAD DD. If the IONTBL3P table is found, its authorization information is used to determine whether the CPU is licensed to run MVIMS Online.

Note: If a product key brings MVIMS up in the IMS control region and a product authorization table brings MVIMS up in the product address space (PAS) *or vice versa*, MVIMS will still work properly as long as the provided authorization is consistent. In other words, you will encounter no initialization problems if you bring up one with a product key and the other with a product authorization table.

The procedure required to use a product authorization table to activate MVIMS Online is provided on page 30.

For more information about product authorization tables and the Product Authorization utility, see the *OS/390 and z/OS Installer Guide*.

Product Packaging and Keys

The following MVIMS online components, which were packaged separately in version 3.2, became part of the MVIMS Online product with the release of MVIMS Online version 3.3.00.

IMS Resource Analyzer	IMS Resource Analyzer Extensions for IRLM
IMS Resource Monitor	IMS Resource Monitor Extensions for IRLM
IMS Workload Analyzer	IMS Workload Analyzer Extension for DB2
IMS Workload Monitor	IMS Workload Monitor Extension for DB2
IMSPlex System Manager	

If you have licensed MVIMS Online and you decide to use product keys, rather than product authorization, to run the product, you should use the product key **ION** to enable all the components listed above.

If you have not licensed MVIMS Online and you decide to use product keys, rather than product authorization, to run online components, you can continue to use your product keys from version 3.2.

The product keys you use must be specified in both the PAS BBPARM member BBKEYS and in the IMS control region IMFPARM member BBKEYS.

Detail Trace

Three levels of information are collected by detail trace: CALLS, I/O, and DATA. The DATA level was added in version 3.3.00, and it includes segment search argument (SSA), key feedback area (KFB), and I/O area (IOA) data. Inclusion of the SSA, KFB and IOA data can significantly affect detail trace buffer usage. To help prevent potential buffer size problems, a maximum of 66 bytes is allocated to each of the three record types. The fact that a single call can have multiple SSAs, however, can cause the buffers to fill quickly.

You can choose not to collect the SSA, KFB, and IOA data by setting TRDATA=NO in the BBPARM member IMFBEX00.

Shared Message Queue Statistics

Version 3.3.10 of MVIMS Online added enhanced support for IMS shared message queues, providing improved realtime and historical shared queues statistics in several of the IPSM workflow, CQS information, transaction, and terminal and user views. Several CQS information views have been added, including the new CQS object menu ISQMR.

When the new Shared Queues Data Server is operating, the views provide shared message queue statistics for IMS systems that use shared queues. You can use the ISQQUERY parameter, in BBPARM member IMFBEX00, to turn the Shared Queues Data Server on or off. You can also use the ISQQUERY parameter to control the amount of resources used to collect and display shared queues statistics.

For information about how to use the ISQQUERY parameter, see “Controlling Shared Message Queue Data Collection” on page 46.

UBBPARM Customization Capabilities

Version 3.3.10 added the capability of using the UBBPARM data set to include unique IMFSYS00 and IMFECP00 parameter members for individual IMS systems, which eliminates the need to create and allocate an *ibbparm* data set for each IMS system. The IMS-specific settings are defined in members that must have the following name formats:

*imsid*SYS	for IMS-specific IMFSYS00 system parameters
*imsid*ECP	for IMS-specific IMFECP00 Event Collector parameters

The name of each IMS-specific parameter member must begin with the identification code for the IMS system.

For more information about the IMS-specific UBBPARM members, see “Setting Up BBPARM Data Sets” on page 23.

MSC Clock Synchronization

Version 3.3.10 of MVIMS Online provides support for controlling the handling of the arrival timestamp for MSC systems that originate on a remote system. With IMS 6.1 and later, you can define MSC systems that are synchronized to the local IMS system clock, and you can qualify workload monitor and trace requests to include either

- *all* transactions from systems synchronized to the clock of the local IMS

  or

- *only nonlocal* transactions from MSC systems synchronized to the clock of the local IMS

New Event Collector Parameter MSCCLOCK

A new Event Collector parameter, MSCCLOCK, is provided in BBPARM member IMFECP00. With IMS 6.1 and later, you can use the MSCCLOCK parameter to specify whether or not MSC systems will, by default, be considered synchronized to the clock of the local IMS system. The MSC systems can be in the same time zone or a different time zone.

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Additional MSCCLOCK values (*xxxx*,SYNC and *xxxx*,NOSYNC) are provided so that you can specify IDs for individual MSC systems that will be exceptions to the default you use.

For more information about how to use the MSCCLOCK Event Collector parameter, see page 59.

New TERM Parameter Operands SYNCLOCK and MSCCLOCK

The MSCCLOCK Event Collector parameter works in conjunction with the new monitor TERM parameter operands SYNCLOCK and MSCCLOCK, which are used to qualify workload monitor and trace requests.

TERM=SYNCLOCK defines a workload monitor or trace request to include *all* MSC transactions from systems that are synchronized to the clock of the local IMS (including all MSC transactions that originated on the local IMS). TERM=MSCCLOCK defines the request to include *only nonlocal* transactions from MSC systems that are synchronized to the clock of the local IMS.

Event Collector Option

A new FEATURE=NOEC parameter option was added in version 3.3.00 to allow you to disable the Event Collector if the MVIMS components you use can function without it.

The only MVIMS components that can function without the Event Collector are the Resource Analyzer and the Resource Monitor. If you use only the Resource Analyzer and Resource Monitor components and you want to prevent Event Collector initialization, you can set FEATURE=NOEC in the PARMLIB member IMFSYS00.

Note: Refer to PARMLIB member IMFSYSBB for additional information.

Product Initialization Messages

Product initialization messages were changed for versions 3.3.10 and 3.3.00, and new messages were added for version 3.3.00. If you have automation that depends on the initialization messages or the sequencing of the messages, please see Appendix E on page 99.

Easy Menus

The EZIMS, EZIFAST, and EZISSI Easy Menus were redesigned in version 3.3.00 to improve access to product functions and to incorporate the new features of the release.

Chapter 3. Release Compatibility

This chapter lists the products packaged with the current BBI release and describes MVIMS Online compatibility with previous MVIMS releases.

Compatibility with BBI

MVIMS Online and the following products are packaged with the current BBI 2.6.0 release:

MAINVIEW AutoOPERATOR
MAINVIEW for CICS
MAINVIEW FOCAL POINT
MAINVIEW for DB2
MAINVIEW for DBCTL

Compatibility with Previous Release Levels of MVIMS

The UAS (user address space) must be at the same release and service level as the BBI-SS PAS (product address space) and CAS (coordinating address space) to which it connects.

Downward Compatibility

You can access a previous MVIMS version from a UAS running the current version, but the new features and functions of the current version will not be available.

Help panels for services from a previous release might not be accessible from a UAS at the current release level.

Upward Compatibility

You can access the current version of MVIMS Online from a UAS running an earlier version. However, if a current version of a service was changed to support a new IMS function, that service may not be available to you.

The help panels for services added with a new MVIMS Online version and the help panels modified for revised services cannot be accessed from a UAS at an earlier version level.

To review a list of features or services that are new or have changed with the current version of MVIMS Online, see the release notes, which are available on the BMC Software Web site at **http://www.bmc.com/support.html**.

AO Exit

If a previous version of the BMC Software AO exit was installed on the target IMS, make sure that all remnants of the previously installed version are removed by following the instructions in the section “Deleting Modules from a Prior Release” on page 22.

Part 2. Customizing MAINVIEW for IMS Functions

This part of the book describes how to tailor MAINVIEW for IMS Online to meet your site's needs.

Chapter 4. Resource Utilization

This chapter summarizes the options that can be used to control usage of CPU by

- the Event Collector
- IPSM samplers

For more information about the Event Collector options, see Chapter 8, “Using the Event Collector” on page 49. For more information about options that can be used to control IPSM sampler usage of CPU, see the *MAINVIEW for IMS Online – IPSM Reference Manual.*

CPU Usage – Event Collector

The Event Collector is always active, even when there are no active traces or workload monitors. The default Event Collector option, CPU=DEP, provides a reasonable balance between CPU usage and the detail level of the data the Event Collector collects. If the default option results in too much CPU usage for your site, you can change the CPU option in BBPARM member IMFECP00 to reduce CPU usage.

The CPU options that control Event Collector data collection are listed below in order of hightest to lowest CPU usage.

CPU=ALL **(highest CPU usage)**
Collects all CPU time data

CPU=DEP
Collects CPU time data from dependent regions.

CPU=DEPDB2
Functions the same as the DEPPGM default option except that CPU for DB2 events is reported separately from dependent region CPU time. CPU usage depends upon the number of SQL calls issued by the transaction.

CPU=DEPPGM (the default)
Collects CPU time data only from dependent region activities, including DB2 CPU time, and times the entire transaction as a single event. This option reduces overhead significantly.

CPU=NONE **(lowest CPU usage)**
CPU time data is not collected.

For more information about how the CPU options work, see “Event Collector Parameters” on page 49.

Note: The Resource Analyzer and Resource Monitor components can function without the Event Collector. If you use only the Resource Analyzer and Resource Monitor components and you want to prevent Event Collector initialization, you can set FEATURE=NOEC in the PARMLIB member IMFSYS00. (For more information, see the PARMLIB member IMFSYSBB.)

CPU Usage – IPSM Samplers

IPSM collects target system sampling for the components of response time (CORT) and workflow views. Samplers must run continually in the BBI-SS PAS if you want to collect this information. The distributed sampler default provides for a sampling period of 24 hours a day at 2 times per second.

If the default results in too much CPU usage for your site, you can reduce CPU usage by creating and adding a sampler target definition. For more information, see the *MAINVIEW for IMS Online – IPSM Reference Manual*.

CSA Usage

The *MAINVIEW Installation Requirements Guide* lists the virtual storage requirements for all MAINVIEW products.

Chapter 5. Implementing MAINVIEW Products in IMS

This chapter describes how to install and implement BMC Software modules, which are required for

MAINVIEW AutoOPERATOR for IMS

MAINVIEW for IMS (MVIMS) Online

Follow the procedures in this chapter if you are customizing one or both of these products and you have not performed AutoCustomization. AutoCustomization tailors your products automatically.

You can refer to the manual customization steps in this chapter if you need help during AutoCustomization.

Note: If you have multiple IMSs, you may want to allocate a BBPARM data set that is unique to an IMS, as described in “Setting Up BBPARM Data Sets” on page 23 and “Modifying the IMS Control Region JCL” on page 29.

For information about how to use product libraries, including parameter libraries (BBPARM and UBBPARM) and sample libraries (BBSAMP and UBBSAMP), see the *MAINVIEW Common Customization Guide* or the *MAINVIEW Administration Guide*.

Deleting Modules from a Prior Release

You can skip this section if you are installing MVIMS Online for the first time.

If a previous release of MAINVIEW for IMS, MAINVIEW for DBCTL, or MAINVIEW AutoOPERATOR for IMS was installed on the target IMS, use the information in Table 3 and follow the instructions below the table.

If you copied BBLINK members to a STEPLIB data set using ICOPY, you can use the following BBSAMP jobs to delete the old modules:

Table 3. BBSAMP Jobs to Delete Old Modules

IMS Release	MVIMS 3.1 MVDBC 2.1 AO 3.1, 4.1	MVIMS 3.2 MVDBC 3.2 AO 4.1	MVIMS 3.3.mm MVDBC 3.3.mm AO 5.1, 6.1, 6.2
IMS 5.1	IDEL31$5	IDEL32$5	IDEL33$5
IMS 6.1	IDEL31$6	IDEL32$6	IDEL33$6
IMS 7.1	n/a	n/a	IDEL33$7
IMS 8.1	n/a	n/a	IDEL33$8

To delete the old modules:

1. From Table 3, select the delete job that corresponds to the BMC Software product (or products) and IMS release installed at your site.
2. Edit the delete job you selected to change all &RESLIBs to the name of the data set where the old modules reside.
3. Run the delete job.

If you added BBLINK to the IMS STEPLIB concatenation, replace the BBLINK data set in the current IMS STEPLIB concatenation with the new BBLINK data set.

If you included BBLINK in the link list concatenation, replace the BBLINK data set in the current link list concatenation with the new BBLINK data set. This data set replacement will affect all the IMS address spaces running in that OS/390.

Setting Up BBPARM Data Sets

The customization instructions in this chapter refer to the following data sets:

hilevel.*ibbparm*
hilevel.UBBPARM
hilevel.BBPARM

hilevel The high-level data set name qualifier used at your site

ibbparm A user-defined parameter data set that is unique to this IMS

You can allocate a separate *ibbparm* data set to contain any members that you want to make unique to the IMS, such as IMFSYS00 and IMFECP00. The *ibbparm* data set must be allocated; it is not created through AutoCustomization.

Note: If the only members that require customization for an IMS are IMFSYS00, IMFECP00, or both, an *ibbparm* data set is not required. Instead, you can create a renamed (*imsid*SYS) version of the IMFSYS00 member, a renamed (*imsid*ECP) version of the IMFECP00 member, or both, include them in UBBPARM, and customize them to suit your needs (as explained below in UBBPARM).

UBBPARM A parameter data set that is tailored from the distributed BBPARM data set and is shared by all IMS systems

If you used AutoCustomization, you can use the UBBPARM data set created by AutoCustomization. If you did not use AutoCustomization, allocate UBBPARM, copy the distributed BBPARM data set to it, and tailor UBBPARM to suit your needs.

In the UBBPARM data set, you can include a copied, renamed version of IMFSYS00 to customize the system parameters for an IMS system, including the SUBSYS parameter, which establishes communication between the IMS and the BBI-SS PAS. The name of an IMS-specific system parameter member must be in the following format:

*imsid*SYS (where *imsid* is the IMS ID code)

You can also include a copied, renamed version of IMFECP00 to customize the Event Collector parameters for an IMS. The name of an IMS-specific Event Collector parameter member must be in the following format:

*imsid*ECP (where *imsid* is the IMS ID code)

Note: If you do not need to customize *other* UBBPARM members for an IMS system, you do not need to create and allocate an *ibbparm* data set for that system.

BBPARM The target BBPARM data set distributed by BMC Software

Important

Throughout the MVIMS books, parameter library members are normally referred to as BBPARM members, even though customized versions of the members may reside in the UBBPARM data set or in an *ibbparm* data set.

The system parameter member is normally referred to as BBPARM member IMFSYS00, and the Event Collector parameter is normally referred to as BBPARM member IMFECP00, even though the members may reside in a parameter data set with a member name in the format *imsid*SYS or *imsid*ECP.

Customizing BBPARM Members for an IMS System

This section is provided primarily for new installations of MVIMS Online. If you have a prior version installed, you can use your existing parameter settings, but this would be a good time to review them.

This following procedure customizes the parameter members required to

- establish communication between an IMS region and the BBI-SS PAS
- run the Event Collector to collect workload monitor, trace, and wait data
- run the batch jobs used for report printing

1. Set the system parameters in an *imsid*SYS member in the UBBPARM data set or in an IMFSYS00 member in an *ibbparm* data set. The parameters and their uses are as follows:

   SUBSYS. Use this parameter to identify the subsystem name of the BBI PAS that the IMS region should communicate with. The subsystem should be the same as the one specified in the BBIJNT00 member of the UBBPARM data set or an *ibbparm* data set.

   MSGLVL1. Set the message level to MTO, WTO, BOTH, or NONE.

   KEYWARN. Use this parameter to set a minimum number of days before expiration warning messages are issued for product keys. The default is 45 days. (The KEYWARN parameter applies to MVIMS Online, MVIMS Offline, and MVDBC only, and it is used only in the IMS control region, not the BBI-SS PAS.)

   AOEINIT. This parameter is used with the DFSAOE00 initialization call. (See BBPARM member IMFSYS00 for more information.)

   AOEEXIT and AOIEXIT. Use these parameters to specify the names of user-written AO exit routines. You can also use AOEEXIT and AOIEXIT to specify the order in which AO exit routines get control and whether a return code is padded. See “Enabling AO Exit Routines” on page 31 for more information.

   As distributed, IMFSYS00 activates all MVIMS components in IMS. You can use *imsid*SYS in the UBBPARM data set or IMFSYS00 in an *ibbparm* data set to temporarily deactivate one or more components. BBPARM member IMFSYSBB contains information about how to deactivate components. Copy what you need from IMFSYSBB to your UBBPARM *imsid*SYS member or *ibbparm* IMFSYS00 member.

2. Set up the Event Collector data collection parameters in an IMFECP00 member or an *imsid*ECP member.

   Note: Use UBBPARM member IMFECP00 for Event Collector parameters that are to be shared among multiple IMSs. To specify IMS-specific Event Collector parameters, use an *imsid*ECP member in the UBBPARM data set or an IMFECP00 member in an *ibbparm* data set.

   The following parameters and recommended values set up Event Collector data collection:

   To record BMP and JBP data, specify

   `BMP=YES` (default)

   To time an entire transaction as a single event, specify

   `CPU=DEPPGM` (default)

   To write DBCTL transaction records to the IMS log and send them to the BBI-SS PAS for Workload Analyzer wait and trace processing and for Workload Monitor processing, specify

   `CICS=YES` (default)

3. Set up the Log Edit utility parameters in the IMFLEP00 member.

   Note: Use UBBPARM member IMFLEP00 for Log Edit utility parameters that are to be shared by multiple IMSs. For IMS-specific Log Edit utility parameters, use the IMFLEP00 member in an *ibbparm* data set.

   The following parameter in IMFLEP00 is required only if you have MAINVIEW for IMS Offline installed. The parameter is used by the Log Edit utility (IMFLEDIT).

   To specify the release level of the IMS system where the IMS log is created, specify

   `IMSLEVEL=5100|6100|7100|8100|0000`

   where

`5100`	IMS 5.1
`6100`	IMS 6.1
`7100`	IMS 7.1
`8100`	IMS 8.1
`0000`	Causes the Log Edit utility to scan up to the first 50K records of the log tape to determine the IMS release

Note: For more information about the Event Collector parameters and their use, see Chapter 8 on page 49. For more information about the Log Edit utility, IMFLEDIT, see the Log Edit chapter in the *MAINVIEW for IMS Offline – Customization and Utilities Guide*.

Activating MAINVIEW for IMS Online

To activate MVIMS Online, you need to enable product initialization and product authorization.

Enabling Product Initialization

To enable MVIMS Online initialization, in BBPARM member BBISSP00, specify

```
PRODUCT=MVIMS
```

The `PRODUCT=MVIMS` parameter setting initializes all MVIMS Online product components at BBI-SS PAS startup.

Enabling Product Authorization

You can use product keys or a product authorization table to enable MVIMS Online product authorization.

Product Keys

If you have licensed MVIMS Online and you want to use a product key to activate the product, specify product key ION in BBPARM member BBKEYS.

If you have not licensed MVIMS Online and you want to use product keys to activate the online components, you can use the product keys listed in Table 4.

Table 4. MVIMS Online Product Keys

Key	Product or Component
ION	MAINVIEW for IMS Online
IPX	IMSPlex System Manager
IRA	IMS Resource Analyzer
IRM	IMS Resource Monitor
IWA	IMS Workload Analyzer
IWM	IMS Workload Monitor
IAD	IMS Workload Analyzer Extension for DB2
IMD	IMS Workload Monitor Extension for DB2
ILM	IMS Resource Analyzer and Resource Monitor Extensions for IRLM

For detailed information about specifying product keys, see the step called “Specify Product Option Password Keys” in the *MAINVIEW Common Customization Guide*.

Product Authorization Table

If you decide to use a product authorization table to activate the MVIMS Online components, complete the following steps:

1. Create the product authorization table IONTBL3P, either through AutoCustomization or with a batch job. Both methods are described in the *OS/390 and z/OS Installer Guide*.
2. Add access to the product authorization table (as described on page 30).

Note that the product initialization messages will now include BBAP prefixed messages issued by the BMC License Manager.

Modifying the IMS Control Region JCL

The following sections describe how to allocate a BBPARM data set, provide IMS access to the Event Collector, and add access to a product authorization table.

Allocating a BBPARM Data Set

To establish the parameters for MVIMS Online and MAINVIEW AutoOPERATOR for IMS, allocate the BBPARM data sets by adding the following statements to the IMS control region startup procedure:

```
//IMFPARM  DD DSN=hilevel.ibbparm
//         DD DSN=hilevel.UBBPARM
//         DD DSN=hilevel.BBPARM
```

Note: If the only members that require customization for an IMS are IMFSYS00, IMFECP00, or both, an *ibbparm* statement is not required. For more information, see page 23.

Giving IMS Access to the Event Collector

The IMS control region must be able to access the Event Collector to enable execution of MVIMS Online and MAINVIEW AutoOPERATOR for IMS.

If the BBLINK data set is in the LNKLST concatenation, Event Collector access is already established. If not, you can provide Event Collector access by modifying your IMS control region JCL or by copying the required modules to the site authorized library (such as IMS RESLIB).

To modify the IMS control region JCL, add the BBLINK data set to the IMS STEPLIB concatenation. (BBLINK must be authorized.)

To copy the modules used in IMS, copy the individual BBLINK members to an authorized STEPLIB data set. Select one of the following jobs in BBSAMP:

ICOPY8 for IMS 5.1

ICOPY9 for IMS 6.1

ICOPY1 for IMS 7.1

ICOPY2 for IMS 8.1

Then edit the JCL and run the job. This job copies the appropriate BMC Software modules from the BBLINK library to the site-authorized library, such as IMS RESLIB. You must rerun the JCL each time you apply BMC Software service.

Adding Access to a Product Authorization Table

If you are using the IONTBL3P product authorization table to activate MVIMS Online, the IMS control regions must be able to access the table.

There are four ways you can provide access to the table:

- Concatenate a data set containing the IONTBL3P product authorization table to the STEPLIB data set in the IMS control region JCL.
- Add the following statement to the IMS control region JCL:

```
//BMCPSWD  DD DSN=hilevel.BMCPSWD,DISP=SHR
```

- Copy the IONTBL3P table into RESLIB or BBLINK.
- Add the IONTBL3P data set to LNKLST.

If you want the product authorization table to reside in RESLIB, follow the instructions in the "Product Maintenance or Version Upgrades" section in Appendix A of the *OS/390 and z/OS Installer Guide*.

Note: If you previously used BBKEYS to activate the products, you must remove all keys for MVIMS from the BBKEYS member of BBPARM.

Modifying DLISAS Region JCL

This step modifies the DLISAS region JCL to provide access to BBLINK modules for database activity monitoring in the IMSPlex System Manager (IPSM) component.

Make BBLINK modules available to the DLISAS region by adding the BBLINK data set to the DLISAS STEPLIB concatenation (BBLINK must be authorized).

Enabling AO Exit Routines

You can skip this section if you have a prior version of MVIMS Online installed.

IMS gives control to AO exit routines to do initialization processing and to do message processing. BMC Software does not supply an AO exit routine to do initialization processing. If you have your own routine, specify its one- to eight-character load module name in the AOEINIT parameter in an *imsid*SYS member in the UBBPARM data set or an IMFSYS00 member in an *ibbparm* data set.

BMC Software supplies two AO exit routines to do message processing: a type-1 AO exit routine, DFSAOUE0, and a type-2 AO exit routine, DFSAOE00.

Note: See IBM's *IMS Operations Guide* for an explanation of how the DFSAOUE0 and DFSAOE00 routines differ.

The DFSAOUE0 and DFSAOE00 routines capture MTO messages and IMS commands and pass them to MAINVIEW AutoOPERATOR for IMS. They also perform the following functions:

- provide an interface with your AO exit routines (if any)
- automatically start up MVIMS monitors when IMS starts up
- provide an interface between the Event Collector and the BBI-SS PAS for workload data collection
- initialize the Event Collector

On entry to DFSAOE00 with AOE0FUNC=1, MVIMS loads and executes any user exit specified in AOEINIT=*xxxxxxxx* one time only. The DFSAOE00 exit does not forward control to the user's DFSAOE01 exit on the initialization call.

If you require a DFSAOUE0 or DFSAOE00 exit routine in addition to the exit provided by BMC Software, perform Step 1 and Step 2 below.

1. If you have

   a. **One DFSAOUE0 exit:** Rename it DFSAOUE1, or choose a different name and use the control statements described in Step b.

   b. **Multiple DFSAOUE0 exits in addition to the BMC Software–supplied exit, or one or more exits not named DFSAOUE1:** You must add one or more of the following AOIEXIT control statements to an *imsid*SYS member in UBBPARM or to an IMFSYS00 member in an *ibbparm* data set.

      For example:

      ```
      AOIEXIT=MYNAME
      AOIEXIT=DFSAOUE2
      ```

      In the example above, both exits are loaded and executed by the BMC Software DFSAOUE0 exit. Program MYNAME executes first.

2. If you have

   a. **One DFSAOE00 exit:** Rename it DFSAOE01, or choose a different name and use the control statements described in Step b.

   b. **Multiple DFSAOE00 exits in addition to the BMC Software–supplied exit, or one exit not named DFSAOE01:** You must add one or more of the following AOEEXIT control statements to an *imsid*SYS member in UBBPARM or to an IMFSYS00 member in an *ibbparm* data set.

      For example:

      ```
      AOEEXIT=MYNAME
      AOEEXIT=DFSAOE02
      ```

      In the example above, both exits are loaded and executed by the BMC Software DFSAOE00 exit. Program MYNAME executes first.

Flow of Control

By default, the BMC Software DFSAOE00 exit invokes the BMC Software AO exit routine (IELOAD) before it invokes your user exits. The return code set by the last user exit processed is passed to IMS. You can change the default processing in an *imsid*SYS member in the UBBPARM data set or an IMFSYS00 member in an *ibbparm* data set by specifying

- the order that exits are to be processed
- the exit return code

For example:

```
AOEEXIT=(DFSAOE01,RC)
AOEEXIT=IELOAD
```

In the example above, the DFSAOE01 user exit assumes control before the IELOAD exit and the DFSAOE01 return code is passed to IMS.

IMS then executes the DFSAOUE0 exit unless indicated otherwise by the return code set by the DFSAOE00 exit. The BMC Software DFSAOUE0 exit calls your exits in the order you specified with the AOIEXIT control statements. By default, the return code set by the last user exit processed is passed to IMS. You can pass the return code from another exit by specifying the RC parameter with the AOIEXIT control statement as shown in the following example:

```
AOIEXIT=(USEMINE,RC)
AOIEXIT=IGNOREME
```

Enhancement to the IMS DFSAOE00 Interface

BMC Software enhances the programming interface when your DFSAOE00 exit is invoked in the following ways:

- Register 11 contains the address of the IMS SCD.
- Register 13 contains the address of 15 prechained save areas.

MAINVIEW AutoOPERATOR for IMS Considerations

When you install your user exit with a BMC Software exit, you should consider the following information:

- If the BMC Software exit is executed before the user exit and the user exit's return code cancels the processing of additional message segments of a multisegment message, the message segments are also canceled for MAINVIEW AutoOPERATOR. The result is that incomplete IMS messages are passed to the MAINVIEW AutoOPERATOR and LAST SEG LOST messages from BBI. The MAINVIEW AutoOPERATOR AO exit holds the first segment for a certain length of time while waiting for additional segments, which can cause the messages to be processed out of timestamp sequence by MAINVIEW AutoOPERATOR.
- When the user exit is executed before the BMC Software exit, changes to the messages made by the user exit are received by the MAINVIEW AutoOPERATOR AO exit.
  - If the user exit sets the length code of a message (or a segment of a multisegment message) to zero, MAINVIEW AutoOPERATOR does not process the message (or segment).
  - If the user exit sets the length code of the first segment to 0 and the return code to 4, all further segments are canceled for MAINVIEW AutoOPERATOR also.

Note: If any modules are specified with the AOIEXIT parameter in IMFSYS00 or *imsid*SYS, but the BMC Software exit is not specified, the exit still executes after all specified exits.

The MAINVIEW AutoOPERATOR AO exit and any other AO exit you use are under ESTAE protection when invoked by the BMC Software routines. If an abend occurs in one of these exits, only that routine is disabled; the other routine and IMS itself are not affected.

Chapter 6. Customizing the Trace Facility

This chapter describes how to manually

- specify trace defaults in BBPARM member IMFBEX00
- set up and maintain a trace directory and trace log data sets

A request for a trace can request that the trace data be recorded to VSAM data sets for later viewing or printing. The logging of trace data requires a pre-allocated trace directory that must be identified to the BBI-SS PAS. Setup of the trace directory can be done automatically by AutoCustomization, as described in the *OS/390 and z/OS Installer Guide.* An alternative is to set up the trace directory manually, as described in this section. Trace log data sets can be pre-allocated, as described here, or they can be dynamically allocated at the time of the trace request, as described in the *MAINVIEW for IMS Online – Monitors and Traces Reference Manual*.

Tuning Tip: If one or more summary traces are defined to start automatically, a continuous workload history is available for later viewing.

Specifying Trace Defaults in IMFBEX00

The IMFBEX00 member of the BBPARM data set defines trace request defaults. These defaults prime the options for the trace request data entry panels.

This section describes the IMFBEX00 keyword parameters that define option defaults for

- all trace requests
- trace logging

Detail Trace Data Collection

Three levels of information are collected by detail trace: CALLS, I/O, and DATA. The DATA level includes segment search argument (SSA), key feedback (KFB), and I/O area (IOA) data. Inclusion of the SSA, KFB and IOA data can significantly affect detail trace buffer allocation. To help prevent potential buffer size problems, a maximum of 66 bytes is allocated to each of the three record types. The fact that a single call can have multiple SSAs, however, can cause the buffers to fill quickly.

You can choose not to collect the SSA, KFB, and IOA data by setting TRDATA=NO in BBPARM member IMFBEX00.

Trace Display Buffer Size

The following parameter defines the default for the trace display buffer size (STORAGE option). This option applies for any trace and is presented when a trace is requested.

STORAGE Specifies the size of the display buffer for the requested trace. This value overrides any value defined in BBIISP00.

MTRAC stores trace data in the private storage area of the BBI-SS PAS address space in extended private storage. This should be considered when setting up storage requirements for the BBI-SS PAS (see the *MAINVIEW Common Customization Guide* for a description of the storage requirements). When the available allocated area is full, the newest data wraps around and overlays the oldest data unless WRAP=NO is specified with the MTRAC request.

The size of the trace data storage area in the BBI-SS PAS can be specified with the STORAGE parameter in the MTRAC request data entry panel; for example:

```
STORAGE ==> 100K
```

requests a GETMAIN storage of 100K. The default can be specified in either the IMFBEX00 or the BBIISP00 member of the BBI-SS PAS BBPARM data set. IMFBEX00 has priority over BBIISP00.

A summary trace entry requires a minimum of 776 bytes of storage per transaction. The largest amount of storage that can be used is 24,776 bytes. The amount of storage required depends on the number of database trailers used by the Event Collector for the transaction.

Specifying a larger storage value prevents frequent wrapping.

A detail trace generally requires a much larger storage area than a summary trace; 52 bytes are required per detail line. So a detail trace of a transaction with 20 detail lines requires about 20 * 52 + summary trace bytes of storage.

Trace Duration

The following parameter defines the default for the trace duration (STOP option). This option applies for any trace and is presented when a trace is requested.

TRTIME=*n* Specifies the default duration of a trace in minutes (1 to 32,000). The default is no limit.

Note: If TRTIME is specified, the STOP parameter in the MTRAC Start IMS Trace Request data entry panel is primed with this value. If a value is not specified, STOP is not primed. A STOP value that is not in the `hh:mm:ss` format is interpreted as a STOPCNT value in minutes.

Trace Logging Options

The following keyword parameters define the defaults for a trace log data set allocation request:

TRPREFIX Defines the data set name prefix for trace log data sets if the value for the Log DSN option on the Start IMS Trace Request panel is specified without quotation marks.

If a value for TRPREFIX is not defined, the ID of the user requesting the trace is used.

TRREUSE Requests data to be overwritten if a log data set is not reset. N (NO) indicates that data is not to be overwritten. The default is Y (YES).

If the request specifies a 1 for the number of logs and N is defined for TRREUSE, data is not recorded. If the request specifies a 1 and Y is defined for TRREUSE, previous data recorded in the log is overwritten.

TRVOLS=(*x,x...*) Specifies the ID of the default volume(s) for trace log data set allocation. Up to seven volumes can be specified. The default value specified in IMFBEX00 with the TRVOLS parameter is SYSDA.

TRCYL Defines the primary allocation default in cylinders (CYLS option) for trace log data sets. The default value is 3.

TRSUFFIX Defines the default suffix to add to the name of the trace cluster data set (Data DSN Suffix option) to make the data set name for the data component. The default value is D.

TRSMSSCL Defines the default name of the SMS storage class for trace log data set allocation. There is no default value.

TRSMSDCL Defines the default name of the SMS data class for trace log data set allocation. There is no default value.

TRSMSMCL Defines the default name of the SMS management class for trace log data set allocation. There is no default value.

Updating Trace Defaults

You can refresh the parameters specified in BBPARM member IMFBEX00 by starting or stopping the BBI-SS PAS or by using the following command:

```
.RESET PARM IMFBEX00
```

This command refreshes IMFBEX00 only. For more information about the RESET command, see the *MAINVIEW Administration Guide*.

Specifying Detail Trace Buffers

The following keyword parameters define the default for the TRBUFF and TRSIZE data collection buffers:

TRBUFF=*nnn* Specifies the total number of detail trace buffers to be allocated. The number should be at least equal to the number of concurrent active regions plus 2. (This value overrides any value defined in BBIISP00.)

TRSIZE=*nnn* Specifies the size of each buffer in bytes. You can specify the value as *nnn* or as *nn*K. The number is rounded to a multiple of 1K. (This value overrides any value defined in BBIISP00.)

For example, if `TRBUFF=20` and `TRSIZE=32K`, total size is 20 * 32K = 640K.

Note: The detail trace is truncated if more events are being traced than can fit in one buffer. To trace long-running batch programs, you may need to increase TRSIZE.

A detail trace stores trace data for active transactions in ECSA buffers. The number and size of the detail trace buffers can be specified in either the IMFBEX00 or the BBIISP00 member of the BBPARM data set. IMFBEX00 has priority over BBIISP00. The defaults are

```
TRBUFF=10
TRSIZE=4
```

TRBUFF defines the number of detail trace buffers. TRSIZE defines the size of each trace buffer. When an active transaction completes, the contents of its buffer are moved to the trace areas in the BBI-SS PAS and can then be displayed by using the DTRAC service.

A pool of buffers is GETMAINed in ECSA when a detail trace is activated. The pool is shared if multiple detail traces are activated. Then buffers are dynamically allocated to the dependent regions as needed. The buffers are returned to the pool when the trace areas in the BBI-SS PAS are updated. If, during transaction initialization, one of the buffers cannot be obtained, only a summary record is generated for the transaction. The buffer pool is FREEMAINed either when the last detail trace stops (and the program running in each region which has a detail trace buffer allocated terminates) or when the target system terminates. The buffers in ECSA are obtained only if a detail trace is activated.

Note: To calculate an appropriate TRSIZE, estimate about 16K per 100 DL/I or SQL calls. The recommended value for TRBUFF is the maximum number of IMS dependent regions running concurrently plus two. If there are not enough detail trace buffers, only a summary trace record is created.

Setting Up and Maintaining a Trace Directory

You can bypass this step if you used AutoCustomization.

Before a request for trace logging can be started, a trace directory must be pre-allocated and initialized. This section describes how to set up the trace log directory using sample members in the BBSAMP data set and BBPARM member BBIISP00.

Note: If a security management system is installed, you may need to grant BBI-SS PAS authorization to allocate trace log data sets dynamically (see *Implementing Security for MAINVIEW Products*).

Defining and Initializing a Trace Directory Data Set

There is one trace directory per BBI-SS PAS. The trace directory is a 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. Entries can be added to or deleted from the directory to allow trace logs to be moved between systems.

To define and initialize the trace directory, use BBSAMP sample member JXT001. Follow these steps:

1. Add your job statement.
2. Update the symbolics as necessary.
3. Submit the job.

Identifying the Trace Directory to BBI

To identify the trace directory to BBI, use BBPARM member BBIISP00 and specify

```
TRDIR=dsn
```

The value `dsn` represents the data set name of a trace log data set directory (there is no default name). The directory must be allocated and initialized before any trace can be started with trace logging. BBSAMP member JXT001 creates the trace directory.

Verifying Trace Directory Entries

Trace directory entries are not updated automatically by events occurring outside of the BBI-SS PAS, such as data set deletion or archival. So, you may occasionally need to synchronize the trace directory information with the actual status of the data sets.

To verify, purge, or print directory entries, use BBSAMP member JXT003. This member checks for the existence of a trace log data set in the system catalog.

Note: Since every entry in the trace directory is allocated dynamically and read to verify its current status, this process could run for some time.

To synchronize trace directory information with the actual status of the data sets, follow these steps:

1. Add your job statement.
2. Update the symbolics as necessary.
3. Specify one of the following processing options for PARM. If PARM is not specified, no action is taken.

Blank	Causes an uncataloged entry to be marked as INV (INVALID). The same thing happens when PARM is not specified. (Blank is the default).
ARCVOL=	Specifies an archive volume serial number. This value is matched against the volume serial number in the system catalog for each entry in the directory. If there is a match, the data set is not verified. You can use this option to bypass recalling all trace log data sets from archives.
LIST	Lists the directory entries that are changed. If NOVERIFY is specified or implied, all entries are listed (equivalent to LISTALL).
LISTALL	Lists all entries.
NOLIST	Does not list changed entries.
PURGE	Deletes any data sets in the directory that are invalid trace data sets.
NOPURGE	Does not delete invalid data sets (marked as INV (invalid) in the directory).
VERIFY	Verifies each of the entries in the trace directory. **Note:** If VERIFY is specified, the defaults are LIST, WRITE, and NOPURGE.
NOVERIFY	Does not verify entries in the trace directory.
WRITE	Updates trace directory with status changes.
NOWRITE	Does not update trace directory with changes detected.

4. Submit the job.

Managing Trace Log Data Sets

This section describes how to create and manage trace log data sets manually using sample members from the BBSAMP data set.

Defining a Trace Log Data Set

You can define different trace logs as often as you need them, or you can let the BBI-SS PAS allocate them for you dynamically (see the JXT011 sample job description in the *MAINVIEW for IMS Online – Monitors and Traces Reference Manual*).

Archiving a Trace Log Data Set

A trace request can be defined to archive a log data set automatically when it is full, as described in the IMFTARC sample job description in the *MAINVIEW for IMS Online – Monitors and Traces Reference Manual*.

You can manually submit the IMFTARC job to archive a trace log data set that is no longer active.

Restoring an Archived Trace Log Data Set

Use BBSAMP member IMFTRLOD to restore an archived trace log data set.

Note: You can also add the linear data set to the online trace directory and view the contents online. Use the NEW command in the History Traces application, as described in the *MAINVIEW for IMS Online – Monitors and Traces Reference Manual*.

Creating a Trace Log Data Set from the IMS Log

You can use BBSAMP member IMFLOGTR to create a user-selected summary trace from the IMS log. See the *MAINVIEW for IMS Online – Monitors and Traces Reference Manual* for a description of how to use IMFLOGTR.

Note: You can add the trace log data set created by IMFLOGTR to the online trace directory and view the contents online. Use the NEW command in the History Traces application, as described in the *MAINVIEW for IMS Online – Monitors and Traces Reference Manual*.

Printing a Trace Log Data Set

You can print a trace log data set either from a batch job or from an online application.

From a Batch Job

You can use BBSAMP member WATBTRAC to print a trace log data set. For a full description of how to print a trace from a batch job, see the chapter about printing history traces in the *MAINVIEW for IMS Online – Monitors and Traces Reference Manual*.

From an Online Application

You can print a trace log data set from the online History Traces application if you are executing your TS from ISPF.

Before printing from the online application, you must first copy the skeleton JCL located in member WATBPRNT of the BBPROF library. Copy this member to an individual user data set (BBPROF) or to a site data set (SBBPROF). The BBPROF or SBBPROF data set must be defined in the CLIST (MAINVIEW CLIST) used to start the terminal session. For more information about BBPROF, see the *MAINVIEW Common Customization Guide*.

To print from the online application:

1. Select option 4 from the Primary Option Menu.
2. In the History Traces panel, enter the P line command next to the data set you want to print. (For a full description of how to use line commands in the History Traces application, see the *MAINVIEW for IMS Online – Monitors and Traces Reference Manual*.)
3. Enter the required information in the next panel that appears. (This panel gives you options that allow you to tailor the print job output to your needs.)
4. Press the End key.

The printed trace data has the same format and content as the online display.

Setting Up Workload History Traces

The BBIISP00 member of the BBPARM data set allows you to select a group of timer-driven monitor and trace requests to start automatically. These requests are defined in another member of the BBPARM data set. If you specify a default block request member BLKIMFT, for example, in BBIISP00 (`TARGET=imsid,BLK=BLKIMFT`), a starter set of monitors and the following summary trace could be requested:

```
REQ=MTRAC TRHIST  TYPE=SUMMARY  TITLE='TRACE HISTORY'  STORAGE=4000K
*          LOGTRAC=Y   TRNUMDS=3   TRSWTIME=24:00
```

The example above is a summary trace of the complete IMS workload. It should be run as a standard request to provide viewing of trace history. You can access it directly from the History Traces application. It adds very minimal overhead since it requires only a summarized trace.

The second line is set up as a comment to show you how you could define trace logging to a set of three data sets, automatically switching to a new data set at midnight. Depending on your IMS workload volume and operations procedures, you may need to modify some of these parameter values or specify others.

All options are defined in the *MAINVIEW for IMS Online – Monitors and Traces Reference Manual* in "Requesting Workload Trace Data Collection (MTRAC)." Setting defaults for all traces, such as the volumes to be used for allocation, is described in "Specifying Trace Defaults in IMFBEX00" on page 36 of this manual.

Although there are many options available, there are basically two ways to set up continuous trace logging. You must evaluate your system characteristics before choosing which is better.

- The first method uses automatic allocation of one or more new trace log data sets each time the trace request is started (at BBI-SS PAS startup), as shown in the preceding example. No DSN is specified so that the generated name is always unique (specifying TRPREFIX in IMFBEX00 defines the high level node).

  This method can be used if OS/390 and the BBI-SS PAS are rarely brought down. The only consideration is that if the trace log data set allocation fails, perhaps because of lack of space, the trace request also fails.

- The second method is to set up a group of pre-allocated trace log data sets (any number of them) that are continually reused. An archive job can be defined to run automatically (log full, log switched, or trace complete) to save the data and mark that log for reuse. Each time the BBI-SS PAS starts, and this trace request is started, the next available log with the oldest data is chosen automatically for output.

  This method uses fewer online log data sets. However, if you require archiving, this method may require intervention after any unplanned outage of OS/390 or the BBI-SS PAS, since the archive job on the current trace log cannot run. If you do not require archiving, specify `TRREUSE=Y` to allow overwriting of a log without it being reset.

Setting Limits for Transaction Trace Views

The parameters shown in Table 5 can be used in BBPARM member IMFBEX00 to set limits for transaction trace (ITA*) views. The default values are underlined.

Table 5. IMFBEX00 Parameters for Trace Transaction Limits

Parameter	Valid Values	Description
TRMAXRD	5000 1 to 99999999	Maximum number of trace transaction records read before query terminates.
TRMAXWR	1000 1 to 99999999	Maximum number of trace transaction records written before query terminates.

Note: To activate changes you make to IMFBEX00 parameters, specify `RESET PARM IMFBEX00` or restart the BBI-SS PAS.

Chapter 7. Controlling Workload Thresholds and SMQ Data Collection

This chapter describes how to use parameters in BBPARM member IMFBEX00 to

- control workload thresholds for IMS and IMS Sysplex activity (IMS*) views
- control the collection and refresh rates of shared message queue (SMQ) data in IPSM views that show message statistics

To activate changes you make to IMFBEX00 parameters, specify `RESET PARM IMFBEX00` or restart the BBI-SS PAS.

Specifying Thresholds for IMS and IMS Sysplex Activity Views

The parameters shown in Table 6 can be used in BBPARM member IMFBEX00 to control workload thresholds for IMS and IMS Sysplex activity (IMS*) views. The default values are underlined.

Table 6. IMFBEX00 Parameters for IMS and IMS Sysplex Activity Workload Thresholds

Parameter	Valid Values	Description
EXCSINP	0.2 0 to 99.99	Input queue time in seconds. EXCSINP specifies a threshold for excessive transaction input queue time.
EXCSELP	0.5 0 to 99.99	Elapsed time in seconds. EXCSELP specifies a threshold for excessive transaction elapsed time.
EXCSCPU	1 0 to 100	Region CPU time percentage. EXCSCPU specifies a threshold for excessive region CPU time.
EXCSDLI	50 0 to 99999	Region DL/I calls count. EXCSDLI specifies a threshold for excessive DL/I calls.
EXCSSQL	50 0 to 99999	SQL call count. EXCSSQL specifies a threshold for excessive SQL calls.

Controlling Shared Message Queue Data Collection

Several of the IPSM workflow, CQS information, and terminal and user views can display shared queue statistics for IMS systems that use shared message queues.

The ISQQUERY parameter in BBPARM member IMFBEX00 is used to control how frequently CQS is queried to refresh the IPSM shared queues data tables. You can use the parameter to control the amount of resources used to collect shared message queues data. Views that use the shared queues data tables will display static values in fields that display message count and message age data until expiration of the refresh period defined with the ISQQUERY parameter.

The following is a representation of the ISQQUERY format:

`ISQQUERY=(x,y,z)`

- The *x* value controls the refresh rate of message age data in the CSQ information views (the ISQ* views).
- The *y* value controls the refresh rate of message count data for shared message queues in non-workflow views.
- The *z* value controls the refresh rate of message count fields for shared message queues in workflow views.

CSQ Information Views with Message Age Fields

The *x* value in `ISQQUERY=(x,y,z)` applies to CSQ information views (ISQ*) that show message age data. The *x* value is used

- to specify whether or not message age data will be collected and displayed for shared message queues
- to define the refresh rate (in seconds) for the data in message age fields if such data is collected

If a refresh rate is specified for the message data, no matter how frequently a CSQ view is refreshed, message ages that are reported in the view will not be refreshed until the specified refresh period expires.

The *x* value can be 0 or from 60 through 7200. The default is 60.

A value of zero in the *x* position prevents the collection of message age data for display in the CSQ views. When the age data is not being collected, the letters SMQ are displayed in message age fields, rather than message age data.

Note: Because frequent refreshing of message age data can consume a significant amount of processing time and can delay IMS and other CQS activity, if you allow collection of the data, you should try to set the *x* value reasonably high. If you are concerned only with messages that are older then an hour, for example, you should consider setting the value as high as 3600.

Non-Workflow Views with Message Count Fields

The *y* value in `ISQQUERY=(x,y,z)` applies to non-workflow views that show message count data, such as the CQS information (ISQ*), transaction (ITR*), and user/terminal information (IU*) views. The data in the views is collected on demand in real time. The *y* value is used to

- specify whether or not message count data will be collected and displayed for shared message queues
- define the refresh rate (in seconds) for the data in message count fields if such data is collected

If a refresh rate is specified for the message data, no matter how frequently a view is refreshed, message counts that are reported in the view will not be refreshed until the specified refresh period expires.

The *y* value can be 0, 5, 10 or 15. The default is 5.

A value of zero in the *y* position prevents the collection of message count data for display in non-workflow views. When the message count data is not being collected, the letters SMQ are displayed in message count fields, rather than message count data.

Workflow Views with Message Count Fields

The *z* value in `ISQQUERY=(x,y,z)` applies only to workload views. The data for workload views is collected continuously by the workflow sampler, which provides realtime and historical data. The *z* value is used to

- specify whether or not message count data will be collected and displayed for shared message queues
- define the refresh rate (in seconds) for the data in message count fields if such data is collected

If a refresh rate is specified for the message data, no matter how frequently a view is refreshed, message counts that are reported in the view will not be refreshed until the specified refresh period expires.

The *z* value can be 0 or 5. The default is 5.

A value of zero in the *z* position prevents the collection of message count data for display in workflow views. When the message count data is not being collected, the letters SMQ are displayed in message count fields, rather than message count data.

Chapter 8. Using the Event Collector

Event Collector data is written to the IMS log as user record logs `X'FA'` (transaction records) and `X'F9'` (program records) for later processing by the offline components, Performance Reporter and Transaction Accountant. The data can be used by user-developed programs or other offline processing systems. Transaction data collected by the Event Collector is also passed to the online Workload Monitor and Workload Analyzer components for workload wait and trace services.

Note: The Resource Analyzer and Resource Monitor components and the MAINVIEW AutoOPERATOR component do not interact with the Event Collector.

Data collection parameters specified in BBPARM member IMFECP00 affect what the Event Collector does during an IMS session. These parameters control

- configuration, such as SYSID specification
- function, such as the type and amount of data to collect
- recovery, such as action on abend

Parameter options are provided to allow you to limit the data collected by the Event Collector and thereby limit the resources used. These options are described in this chapter.

Starting and Stopping the Event Collector

The Event Collector cannot be dynamically started or stopped. It initializes immediately after IMS initialization is completed and it stays active until IMS terminates.

Event Collector Parameters

The Event Collector data collection parameters are specified in BBPARM member IMFECP00. These parameters are described in the two tables that follow. The parameters specify the data to be collected, the functions to be performed during error recovery, and MVIMS diagnostics. Some of the available collection, recovery, and diagnostic parameters can be CPU-intensive and careful consideration should be given to their selection. The parameters are read and processed by MVIMS at IMS initialization and remain in effect throughout the IMS session.

The tables in this section define each parameter, the data that is collected, and the impact on CPU usage. The parameters are specified in BBPARM member IMFECP00.

Table 7 lists the Event Collector data collection options alphabetically by parameter name.

Table 7. Event Collector Data Collection Parameters

Parameter	Value	Function, Data Collected, and CPU Usage
BHT	OFF	**Function:** Includes buffer handler time (BHT) data in DL/I CPU time data. **Note:** `BHTO=OFF` is forced if DBIO option is not BFALTERS.
		Data: Included in DL/I CPU time data. **Note:** DEDB and MSDB BHT for IMS Fast Path is always included in DL/I CPU time data. Performance Reporter and Transaction Accountant report `BHT CPU=0`. Performance Reporter, Transaction Accountant, and Workload Analyzer trace services report increased DL/I CPU time (`DL/I CPU = DL/I + BHT`), which produces increased chargeable CPU time in Transaction Accountant. Workload Analyzer trace services report increased DL/I CPU time (`DL/I CPU = DL/I + BHT`).
		CPU Usage: Most efficient option.
	ON	**Function:** Collects BHT data separately.
		Data: BHT data is available for Performance Reporter and Transaction Accountant.
		CPU Usage: Time that Event Collector adds to IMS usage can be increased 20 to 40 percent; that is, if total MVIMS overhead is 10 percent of IMS CPU, the option could cause the total overhead to be 12 to 14 percent. This increase depends on the percentage of DL/I database calls in the total IMS workload.

Table 7. Event Collector Data Collection Parameters (continued)

Parameter	Value	Function, Data Collected, and CPU Usage
BILLOVHD	NO	**Function:** Includes prior transaction termination, current transaction scheduling, program load, and schedule-to-first DL/I as dependent-region-overhead CPU time.
		Data: Performance Reporter, Transaction Accountant, and Workload Analyzer trace services report actual program CPU time, resulting in less chargeable CPU time in Transaction Accountant.
		CPU Usage: Distribution change only.
	YES	**Function:** Includes prior transaction termination, current transaction scheduling, program load, and schedule-to-first DL/I as dependent region–chargeable CPU time.
		Data: Performance Reporter and Transaction Accountant report increased chargeable CPU time in Transaction Accountant. **Notes:** • This may cause variations in the usually stable message program CPU time, especially between the first and subsequent transactions processed in a single program scheduling. • Overhead information cannot be collected for DBCTL regions.
		CPU Usage: Distribution change only.
	SCHEDDLI	**Function:** Includes prior transaction termination and current transaction scheduling as Dependent region–overhead CPU time Includes program load and schedule-to-first DL/I as Dependent region–chargeable CPU time
		Data: Performance Reporter and Transaction Accountant will report increased chargeable CPU time in Transaction Accountant if `BILLOVHD=NO` (default) is used and is changed to `BILLOVHD=SCHEDDLI`. **Notes:** • This may cause variations in the usually stable message program CPU time, especially between the first and subsequent transactions processed in a single program scheduling. • Overhead information cannot be collected for DBCTL regions.
		CPU Usage: Distribution change only.

Table 7. Event Collector Data Collection Parameters (continued)

Parameter	Value	Function, Data Collected, and CPU Usage
BMP	YES	**Function:** Collects BMP and JBP transaction and program activity data.
		Data: Data available for Performance Reporter, Transaction Accountant, and workload trace.
		CPU Usage: Event Collector CPU usage depends on the number and activity of all BMPs and JBPs , but usage is higher than if NO or NOCPU is specified.
	NO	**Function:** Does not measure BMP and JBP activity.
		Data: No data available for Performance Reporter, Transaction Accountant, and workload trace.
		CPU Usage: Event Collector CPU usage depends on the number and activity of all BMPs and JBPs, but usage is lower than if YES or NOCPU is specified.
	NOCPU	**Function:** Collects BMP and JBP transaction and program activity data, but not CPU time usage.
		Data: No CPU data available for BMPs and JBPs. All other data, such as DL/I counts and database accesses, are still available for Performance Reporter, Transaction Accountant, and workload trace.
		CPU Usage: CPU time measurement, the largest overhead item, is not taken, which enables the collection of other statistics.

Table 7. Event Collector Data Collection Parameters (continued)

Parameter	Value	Function, Data Collected, and CPU Usage
CICS	YES	**Function:** Combines online and offline functions.
		Data: Data available for offline batch report products, Workload Analyzer wait and trace services, and Workload Monitor services.
		CPU Usage: It depends on the number and activity of CICS and ODBA transactions and programs.
	ONLINE	**Function:** Records data for CICS and ODBA threads and sends it to the BBI-SS PAS for processing by Workload Analyzer wait and trace services and Workload Monitor services, but does not write the data to the IMS log.
		Data: Data is available for workload monitors, wait, and trace.
		CPU Usage: It depends on the number and activity of CICS and ODBA transactions and programs.
	OFFLINE	**Function:** Records data for CICS and ODBA threads and writes it to the IMS log for batch report processing.
		Data: Data available for offline batch products, such as Performance Reporter and Transaction Accountant, but not for the Workload Analyzer wait or trace services, nor for the Workload Monitor services.
		CPU Usage: It depends on the number and activity of CICS and ODBA transactions and programs.
	NO	**Function:** Does not measure CICS and ODBA thread activity data.
		Data: No data available for Performance Reporter or Transaction Accountant, Workload Analyzer wait or trace services, or Workload Monitor services.
		CPU Usage: It depends on the number and activity of CICS and ODBA transactions and programs.
CPICDB2	TERM	**Function:** For CPI-C (explicit APPC) conversations, writes a single transaction record for each conversation. **Note:** The CPICDB2 options are in effect for a conversation until the application does an APSB call. When an APSB call is issued, the CPICDLI options are then in effect for the remainder of the application.
		Data: Workload Analyzer, Workload Monitor, Performance Reporter, and Transaction Accountant report one transaction for each CPI-C conversation.
		CPU Usage: No additional CPU.
	SYNC	**Function:** For CPI-C (explicit APPC) conversations, writes a transaction record for each SRRCMIT.
		Data: Workload Analyzer, Workload Monitor, Performance Reporter, and Transaction Accountant report one transaction for each CPI-C conversation.
		CPU Usage: Minimal increase occurs at sync point.

Table 7. Event Collector Data Collection Parameters (continued)

Parameter	Value	Function, Data Collected, and CPU Usage
CPICDLI	APSB	**Function:** For CPI-C (explicit APPC) conversations, writes a transaction record each time a new PSB is allocated by an APSB call. **Note:** The CPICDLI options override the CPICDB2 options if and when the application does an APSB call.
		Data: Workload Analyzer, Workload Monitor, Performance Reporter, and Transaction Accountant report one transaction for each APSB.
		CPU Usage: No additional CPU.
	SYNC	**Function:** For CPI-C (explicit APPC) conversations, writes a transaction record for each SRRCMIT.
		Data: Workload Analyzer, Workload Monitor, Performance Reporter, and Transaction Accountant report one transaction for each sync point.
		CPU Usage: Minimal increase occurs at sync point.

Table 7. Event Collector Data Collection Parameters (continued)

Parameter	Value	Function, Data Collected, and CPU Usage
CPU	DEPPGM	**Function:** Collects CPU time data from dependent regions only. It is recorded as application time and includes DL/I and DB2 time. **Note:** Most chargeable CPU time is still collected.
		Data: CPU fields for CONTROL and DLISAS are zero. Application program CPU contains all dependent region chargeable CPU and message DL/I, buffer, and DB2 CPU contain zeros. This is reflected in all CPU data shown by Performance Reporter, Transaction Accountant, and workload trace.
		CPU Usage: Biggest overhead reduction, since it times the entire transaction as a single event instead of timing each DL/I and SQL call.
	DEPDB2	**Function:** Collects CPU time data from dependent regions only. It is recorded as application and DB2 time. The DL/I CPU time is included in the CPU time.
		Data: CPU fields for CONTROL and DLISAS are zero. Application program CPU contains all dependent region chargeable CPU except DB2 CPU. Message DL/I and buffer CPU contain zeros. This is reflected in all CPU data shown by Performance Reporter, Transaction Accountant, and workload trace.
		CPU Usage: The potential amount of overhead saved from this option is highly dependent on how many SQL calls the program issues.
	DEP	**Function:** Collects CPU time data for transaction processing from dependent regions only. It is recorded as application, DL/I, and DB2 time. **Note:** Most chargeable CPU time is still collected unless `LSO=Y` or BMPs and JBPs are run with nonparallel DL/I.
		Data: CPU fields for CONTROL and DLISAS are zero. Performance Reporter and Transaction Accountant scheduling and open/close CPU fields are zero.
		CPU Usage: Usage is less than with ALL, and most of the CPU time data is collected.
	ALL	**Function:** Collects all CPU time data.
		Data: All CPU time data is available. Reported DL/I CPU time is approximately 5 to 15 percent higher than with `CPU=DEP` option, depending on the amount of DL/I and DB2 activity and the LSO option.
		CPU Usage: An increase of 3 to 12 percent over `CPU=DEP`, depending upon the number of DL/I and DB2 message calls.
	NONE	**Function:** Does not collect CPU time data.
		Data: All CPU time fields in records contain zeroes.
		CPU Usage: Least usage but greatest data loss.

Table 7. Event Collector Data Collection Parameters (continued)

Parameter	Value	Function, Data Collected, and CPU Usage
CPUOVHD	YES	**Function:** Collects control region overhead and DLISAS region overhead in the MVIMS program log record (X'F9'), even if `CPU=ALL` is not specified. **Note:** Control region overhead and DLISAS region overhead are always collected when `CPU=ALL` is specified; therefore, `CPUOVHD=YES` has no effect when `CPU=ALL` is specified. `CPUOVHD=YES` has no effect on dependent region overhead.
		Data: The overhead CPU fields in the records include control region overhead and DLISAS region overhead values.
		CPU Usage: CPUOVHD does not affect CPU usage.
	REFCPU	**Function:** Collects overhead CPU values in the MVIMS program log record (X'F9') based on the CPU parameter specification.

		Data: REFCPU means REFer CPU. What is collected is determined by the use of the CPU and CPUOVHD parameters together:
		
		`CPUOVHD=REFCPU`
		`CPU=NONE`
		
		Does not collect CPU overhead data.
		
		`CPUOVHD=REFCPU`
		`CPU=ALL`
		
		Collects all CPU overhead data from control, DLISAS, and dependent regions.
		
		`CPUOVHD=REFCPU`
		`CPU=DEP`
		
		Collects only CPU overhead data from the dependent region. Do not collect DLISAS or control region CPU overhead data.
		
		Note: The CPU overhead values are set to zero when no CPU timing is done. That is, control region overhead CPU is set to zero when `CPU=NONE` or `CPU=DEP`. Message region overhead CPU is also set to zero when `CPU=NONE`.

		CPU Usage: CPUOVHD does not affect CPU usage.
Note: The CPUOVHD parameter applies only to CPU overhead; it does not affect chargeable CPU time.		
DBFP	NO	**Function:** Collects counts of NONKEY WRITES and NO I/O ALTERS and reports them in the database trailer.
		Data: Counts of NONKEY WRITES and NO I/O ALTERS are collected and are available for performance analysis and billing.
	YES	**Function:** Bypasses collection of NONKEY WRITES and NO I/O ALTERS.
		Data: NONKEY WRITES and NO I/O ALTERS counts are not reported in the database trailer. This value is recommended if the statistics are not required for performance analysis or billing.
		CPU Usage: Reduces CPU usage for Fast Path transactions.

Table 7. Event Collector Data Collection Parameters (continued)

Parameter	Value	Function, Data Collected, and CPU Usage
DBIO	IOWAITS	**Function:** Collects reads for each database; collects writes at the transaction level. Forces `BHTO=OFF`. NO-I/Os are not collected.
		Data: All database I/O collected at I/O IWAIT. Performance Reporter, Transaction Accountant, and workload trace services I/O counts per transaction are very close to values with BFALTERS option. Performance Reporter NO-I/O counts are zero. Performance Reporter database report shows READs as usual; most WRITEs, which occur during sync point, are collected for the transaction in a special database trailer, ALLDBS, instead of per database.
		CPU Usage: Substantially less than with BFALTERS with minimal loss of data.
	BFALTERS	**Function:** Collects all I/O data for each database.
		Data: Database I/O and NO-I/O collected in the buffer handler interface (during the DL/I call).
		CPU Usage: Usage can be increased 30 to 40 percent over IOWAITS because of the high ratio of buffer handler activity to DL/I calls. Increase depends on the percentage of DL/I database calls in the total IMS workload.
	NONE	**Function:** Forces `BHTO=OFF`. No I/O data is collected.
		Data: DATABASE I/O and NO-I/O fields are zero. Performance Reporter, Transaction Accountant, and Workload Analyzer trace services database I/O and NO-I/O fields contain zeroes.
		CPU Usage: None
Note: `DBIO=IOWAITS` and `DBIO=NONE` do not apply to Fast Path.		
DBTNAME	DB	**Function:** Collects both DL/I call counts and database I/O call counts at the database level.
		Data: Collects DL/I call counts and I/O call counts at the DBPCB name (database) level. A database trailer (DBT) is created for each DBPCB name that contains DL/I and I/O calls.
		CPU Usage: Minimal usage.
	DD	**Function:** Collects DL/I call counts at the database level. Collects database I/O counts at the data set level.
		Data: DL/I call counts are collected at the DBPCB name level. I/O call counts are collected at the ddname (data set name) level. A DBT is created for each DBPCB name containing DL/I calls. A DBT is created for each ddname containing I/O calls. This option uses more database trailers than the DB option.
		CPU Usage: Least efficient option.
Note: `DBTNAME=DD` does not apply to Fast Path.		

Table 7. Event Collector Data Collection Parameters (continued)

Parameter	Value	Function, Data Collected, and CPU Usage
DBTS	20	**Function:** Sets the maximum number of database trailers allowed per non-BMP/JBP region. Valid values are 2 to 500. The recommended value is 20. Default value is 10.
		Data: If a transaction accesses more than this number of databases, resource data is collected in an overflow trailer named OTHERS.
		CPU Usage: None. Affects ECSA requirement for each region.
DBTS4BMP	30	**Function:** Sets the maximum number of database trailers allowed per BMP or JBP region. Valid values are 2 to 500 (30 is recommended). If a value is not specified, the value specified for DBTS is the default.
		Data: If a transaction accesses more than this number of databases, resource data is collected in an overflow trailer named OTHERS.
		CPU Usage: None. Affects ECSA requirement for each region.

Table 7. Event Collector Data Collection Parameters (continued)

Parameter	Value	Function, Data Collected, and CPU Usage
MSCCLOCK (IMS 6.1 or later)	DEFAULT, NOTSYNC DEFAULT, SYNC	**Function:** Specifies whether or not MSC systems are to be considered, by default, synchronized to the clock of the local IMS. Exceptions to the DEFAULT can be specified with MSCCLOCK=*xxxx*,NOTSYNC or MSCCLOCK=*xxxx*,SYNC. If a transaction originates from an MSC system that is defined to have a synchronized clock, the Event Collector will convert its arrival date and time (set by the originating MSC system) to local time. The converted time is then stored in the transaction arrival date and time fields of the transaction log record (X'FA'). The MSC systems can be in the same time zone as the local IMS or in a different time zone. If a transaction originates from an MSC system that is not defined as synchronized with the local IMS clock, no conversion is done and the transaction *arrival* date and time are set to the *start* date and time on the local IMS. Only one MSCCLOCK=DEFAULT,NOTSYNC | DEFAULT,SYNC record is accepted (the first one specified); if another DEFAULT record is encountered, it will be ignored. **Note:** The MSCCLOCK Event Collector parameter works in conjunction with the monitor TERM parameter operands SYNCLOCK and MSCCLOCK, which are used to qualify workload monitor and trace requests. TERM=SYNCLOCK defines a workload monitor or trace request to include *all* transactions from systems synchronized to the clock of the local IMS. TERM=MSCCLOCK defines the request to include *only nonlocal* transactions from MSC systems synchronized to the clock of the local IMS.
		Data: None.
		CPU Usage: None.
	xxxx, NOTSYNC *xxxx*, SYNC	**Function:** Used to specify exceptions to the MSCCLOCK DEFAULT setting. The value *xxxx* represents an MSC ID, which can range from 0001 to 2036. An MSC exception specification is valid whether it precedes or follows the MSCCLOCK=DEFAULT,NOTSYNC | SYNC record.
		Data: None.
		CPU Usage: None.
SYSID	1	**Function:** Identifies the MVIMS system for Performance Reporter and Transaction Accountant. Valid values are 1 to 9 or A to Z. Used to identify and select data from other IMS systems.
		Data: None.
		CPU Usage: None.

Table 7. Event Collector Data Collection Parameters (continued)

Parameter	Value	Function, Data Collected, and CPU Usage
TELON	NO	**Function:** Disables specific data collection for the TELON application package.
		Data: None.
		CPU Usage: None.
	YES	**Function:** Supports the TELON application package by replacing the AGN field in the transaction and program records with the internal TELON transaction name carried in the transaction input message. (For other TELON support options, see "Modification to Support TELON" on page 76.)
		Data: None.
		CPU Usage: None.
TRNSYNC	NO	**Function:** Does not write a transaction record at BMP/JBP checkpoint.
		Data: A record is written only per each successful MESSAGE-GET-UNIQUE or at program end.
		CPU Usage: None.
	YES	**Function:** Writes a transaction record at BMP/JBP checkpoint.
		Data: A record is written.
		CPU Usage: Minimal.

Table 8 lists Event Collector recovery parameters.

Table 8. Event Collector Recovery Parameters

Parameter	Value	Function, Data Collected, and CPU Usage
ABCOUNT	02	**Function:** Specifies the number of abend retries allowed. Valid values are 01 to 99.
BACKOUT	YES	**Function:** For severe errors, back out Event Collector; do not abend IMS.
	NO	**Function:** For severe errors abend IMS; do not back out Event Collector.
DEPREC	YES	**Function:** Performs extended recovery.
		Data: Performs recovery for additional abend conditions.
		CPU Usage: Usage increased 10 to 15 percent, depending on the other selected Event Collector parameter options. This option should be set to NO after MVIMS is thoroughly tested with YES selected.
	NO	**Function:** Performs basic recovery.
		Data: Some potential abend conditions cannot be recovered.
		CPU Effect: Most efficient. Usage depends on the other selected Event Collector parameter options. This option should be used after MVIMS is thoroughly tested with YES selected.
DUMPS	YES	**Function:** Takes SVC dumps.
	NO	**Function:** Does not take SVC dumps; produces a LOGREC only.
RGNIOPT	ABEND	**Function:** Abends the IMS dependent region if MVIMS initialization fails because of CSA shortage.
		Data: Full recording ensured.
		CPU Usage: None.
	CONTINUE	**Function:** Continues the IMS dependent region if MVIMS initialization fails.
		Data: No recording is done for that region.
		CPU Usage: None.

Evaluating Data Collection Options

Each data collection option has an effect on the function provided by MVIMS and on Event Collector CPU usage. Event Collector CPU usage is extremely dependent on the workload and configuration characteristics of the IMS system being monitored. This dependency, coupled with the different ways each site uses MVIMS data, make it impossible to summarize all these variables into standard CPU usage estimates or option setting recommendations.

This section provides a short description of the parameters, with an overview of their effect on the data collected and on CPU usage. These descriptions can help you evaluate the options and choose those most suited to your environment.

Note: All CPU usage values are expressed in relation to the overhead that the Event Collector adds to total IMS CPU. For example, if the Event Collector usage is defined as 10 percent and total IMS CPU has a theoretical value of 200, the total IMS + MVIMS usage is 220, as shown in Example #1, below.

Example #1:

```
IMS = 200
Event Collector = 10% of IMS = 200 * .10 = 20
Total = IMS + Event Collector = 200 + 20 = 220
```

An indicated percentage increase in Event Collector CPU usage (for example, 30 to 40 percent for `DBIO=BFALTERS`) is relative to the Event Collector usage value (20 in the previous example). Thus, for the previous example, the `DBIO=BFALTERS` would increase the total CPU usage by a value of 6 to 8 (30 to 40 percent of 20), as shown in Example #2, below.

Example #2:

```
IMS = 200
Event Collector = 10% of IMS = 200 * .10 = 20
Total = IMS + Event Collector + BFALTERS = 200 + 20 + 8 = 228
```

Dependent Region CPU

`BILLOVHD=NO|YES|SCHEDDLI`

The BILLOVHD parameter determines whether dependent region CPU time is treated as overhead or as chargeable CPU time per user when the CPU time is spent in

1. prior transaction termination
2. current transaction scheduling
3. program load, if any
4. schedule-to-first DL/I

If `BILLOVHD=NO`, CPU time spent on items 1 through 4 is treated as overhead.

If `BILLOVHD=YES`, CPU time spent on items 1 through 4 is charged to the user.

If `BILLOVHD=SCHEDDLI`, CPU time spent on items 1 and 2 is treated as overhead and CPU time spent on items 3 and 4 is charged.

DBCTL Threads

CICS=YES|ONLINE|OFFLINE|NO

The CICS parameter controls whether records are collected for DBCTL thread data (which includes CICS and ODBA threads). The CPU usage is the same for all options. CPU usage depends on the number and activity of CICS transaction programs.

BMP and JBP Data

BMP=YES|NO|NOCPU

The BMP parameter controls whether activity data for BMP and JBP transactions and programs is collected. If BMP or JBP processing is causing bottlenecks in the IMS online system, you may want to avoid the extra overhead that MVIMS monitoring adds. However, this option is viable only if the MVIMS BMP or JBP data is not required for accounting or IMS performance analysis. In general, most sites will want to collect BMP and JBP data.

The effect of this parameter on MVIMS CPU usage depends on the number and activity of all BMPs and JBPS.

Buffer Handler Timing

BHTO=OFF|ON

The BHTO parameter controls whether IMS buffer handler activity is included with DL/I CPU or timed separately. The default is to include it with DL/I (BHTO=OFF).

The high ratio of buffer handler calls to application program DL/I calls in IMS makes separate collection of buffer handler CPU very CPU-intensive for MVIMS. The ratio can be as high as 20 to 1, so collecting separate CPU time data for each buffer handler request can become too expensive when compared with the worth of the data. Depending on the number of database calls and the amount of buffer handler activity, BHTO=ON can increase MVIMS CPU usage by 20 to 40 percent.

The BHTO=ON option is provided for product compatibility, but it is not a recommended option.

CPU Data Collection Options

CPU=DEPPGM|DEPDB2|DEP|ALL|NONE

The CPU parameter controls the level of CPU data collected by the Event Collector in all IMS regions, in just the dependent regions, or in none.

CPU=DEPPGM causes the Event Collector to time only the dependent region activities. It times the entire transaction as a single event and does not time individual DL/I or DB2 calls. The single resulting CPU time (representing all the chargeable time for the transaction) is attributed to application program CPU time. All other chargeable timings are zero. Overhead CPU time, however, is still kept separately.

CPU=DEPPGM offers the biggest overhead reduction, since it times the entire transaction as a single event instead of timing each DL/I and SQL call. However, the amount of overhead saved depends to a large extent on the current transaction processing profiles. For example, a BMP program issuing 10,000 DL/I calls saves more than an MPP program issuing only 10 DL/I calls. However, even when savings from each transaction are small, they add up quickly.

CPU=DEPDB2 functions similarly to DEPPGM except that the Event Collector separates the dependent region DB2/SQL time from the application program CPU time.

CPU=DEPDB2 causes the Event Collector to time the DB2 events (SQL calls). As a result, the potential amount of overhead saved from this option is highly dependent on how many SQL calls the transaction/program issues. For example, if an MPP program issues only two DL/I calls and 100 SQL calls, the amount saved is minimal.

CPU=DEP causes the Event Collector to attribute charageable CPU application program or DL/I processing CPU time to a specific transaction and user. When CPU=DEP is used, Event Collector CPU usage increases 25 to 35 percent, depending on the amount of DL/I activity, over CPU=NONE.

CPU=ALL adds collection of DL/I processing CPU in the control region and measurement of various overhead categories such as program scheduling activity. It can increase MVIMS CPU usage by 3 to 12 percent over the CPU=DEP option.

CPU=ALL is the best choice if the various overhead CPU categories are needed for performance analysis or if any of the following conditions are true of the monitored IMS:

- The IMS parameter LSO equals Y.
- BMPs and JBPs are run in nonparallel DL/I mode.
- The percentage of message queue DL/I calls compared to database calls is high. (On average, message queue calls are 5 to 15 percent of the total DL/I calls.)

All of these factors increase the amount of IMS CPU incurred in either the control or DLISAS regions.

Database I/O Options

DBIO=IOWAITS|BFALTERS|NONE

DBIO controls the level of database I/O data to be collected by the Event Collector. The DBIO=BFALTERS option collects all database activity indicators at the database level for each transaction.

With the BFALTERS option, reporting can be made by transaction and user, and by database for extended performance analysis. NO-I/O counts (the number of reads without I/Os), which show buffer handler activity, can also be collected when BFALTERS is selected. BFALTERS uses an IMS buffer handler interface, which is expensive because of the high ratio of requests to the buffer handler compared with DL/I calls and actual I/O.

`DBIO=IOWAITS` activates a more efficient method of data collection. DL/I calls are collected by database. I/Os are measured at actual occurrence (using the DC Monitor IWAIT interface) instead of in the buffer handler. With the IWAIT interface, reads and writes that occur during call processing are collected by database, but writes that occur at sync point (the majority) can be associated only with the transaction and user, not with the specific database. Most writes are collected at the transaction level and reported under a special database entry ALLDBS. NO-I/O counts are not collected.

IOWAITS provides the same level of data as BFALTERS for accounting and for the transaction, program, and totals levels of I/O analysis. For performance analysis at the database level, DL/I calls, reads, and some writes are still available. The other writes are reported per program.

IOWAITS is the default and recommended option because Event Collector CPU usage is significantly less than with BFALTERS, which can increase MVIMS CPU usage by 30 to 40 percent over the IOWAITS option, depending on the amount of database activity. Using the IOWAITS option increases the MVIMS CPU usage by 5 to 10 percent over `DBIO=NONE`, depending on the number of database I/Os.

`DBIO=NONE` specifies that reads, writes, and NO-I/O counts are not collected. DL/I calls are still available by database.

Note: The DBIO parameter does not affect Fast Path databases.

Extended Recovery

`DEPREC=YES|NO`

DEPREC controls whether recovery from additional abend conditions in dependent regions is enabled and performed as necessary.

MVIMS CPU usage may be increased 10 to 30 percent over the `DEPREC=NO` option, depending on the options chosen for other parameters (because the more work the Event Collector does, the more overhead is added by this option).

The default should remain set until MVIMS is thoroughly tested and stable in each environment. If CPU utilization is still of concern once the other options are chosen, this parameter could then be set to NO for additional savings.

Parameter Option Sets

This section describes three sets of parameter definitions.

Standard Option Set

The standard option set is distributed with the product. These options are defined in BBPARM member IMFECP00.

```
BMP=YES
CPU=DEPPGM
DBIO=IOWAITS
BHTO=OFF
DEPREC=YES
CICS=YES
```

These standard settings define a level of data collection and CPU usage that is acceptable for most configurations and users. Most I/O and CPU data is available and MVIMS CPU usage is noticeably less than with the full option set.

Note: Additional savings are possible without loss of data if you specify `DEPREC=NO`. Depending on some of the IMS characteristics described previously, you may want to use `CPU=ALL`, even though it increases MVIMS CPU usage.

The standard options, either as distributed or with the variations mentioned, generally result in MVIMS CPU usage of 6 to 16 percent of total IMS CPU.

Full Option Set

The full option set defines the maximum level of data collection by the Event Collector. These settings result in the greatest amount of MVIMS CPU usage.

```
BMP=YES
CPU=ALL
DBIO=BFALTERS
BHTO=OFF
DEPREC=YES
CICS=YES
```

More detailed database I/O analysis is possible with the full option set than with the standard set because the full option set collects writes per database and NO I/O counts.

For the CPU parameter, you can substitute the DEPPGM option for the ALL option to conserve CPU usage. Selecting the DEPPGM option is likely to be a one-time decision, although you might decide to use `CPU=ALL` occasionally for performance analysis.

For the DBIO parameter, the level of data collected with the BFALTERS option is rarely used on a daily basis. You can reduce collection overhead by using the IOWAITS option instead. You can then specify the BFALTERS option on only those occasions where more data is needed for database analysis.

`BHTO=ON` is not recommended because of its cost in relation to the value of the data collected (buffer handler CPU time).

You can decrease CPU usage by specifying `DEPREC=NO` without losing any data.

The full option set generally results in MVIMS CPU usage of 15 to 25 percent of total IMS CPU, though some individual BMPs or JBPs with a large amount of DL/I activity can be higher.

Minimum Option Set

The following option settings define the minimum level of data collection by the Event Collector. These settings result in the least amount of MVIMS CPU usage.

```
BMP=NO (optional)
CPU=NONE
DBFP=YES
DBIO=NONE
BHTO=OFF
DEPREC=NO
CICS=NO
```

The minimum option settings allow enough data collection for true transaction-level accounting and performance analysis, while keeping Event Collector CPU usage at a minimum. Records containing all the identifiers (transaction, program, region, and so on) available with MVIMS are still created for each transaction and program. Data collected includes

- all elapsed timings and storage usage
- DL/I call counts per call type
- DL/I call counts per database
- DL/I call counts per LTERM

The minimum option set generally results in MVIMS CPU usage of 3 to 10 percent of total IMS CPU.

Affects of Option Sets on Workload Trace Data and DBCTL Threads

The following section lists the online services that report one or more of the Event Collector data elements.

The basis for comparison is the level of data collection when the full option set, shown below, is used.

```
BMP=YES
CPU=ALL
DBIO=BFALTERS
BHTO=OFF
DEPREC=YES
CICS=YES
```

The following list indicates the effect of specifying values different from those shown above.

- BMP/JBP trace

  If `BMP=NO`, BMP and JBP transactions and programs cannot be traced.

- LTRAC

  If `CPU=NONE` or `CPU=DEPPGM`, the DB2TIME parameter is not applicable for the LTRAC service.

  If `CPU=NONE`, `CPU=DEPPGM`, or `CPU=DEPDB2`, the DLITIME parameter is not applicable for the LTRAC service.

- STRAC

  If `CPU=NONE`, all CPU data is zero.

- #I/O, AVG #I/O

  If `DBIO=NONE`, the values in these fields are zero.

- DTRAC DL/I CPU times

  If `CPU=DEPPGM`, `CPU=DEPDB2`, or `CPU=NONE`, the values in these fields are zero.

- DTRAC DB2 CPU times

  If `CPU=DEPPGM` or `CPU=NONE`, the values in these fields are zero.

- DBCTL thread tracing

  If `CICS=NO` or `CICS=OFFLINE`, no trace data is collected for DBCTL threads.

- DBCTL thread monitoring

  If `CICS=NO` or `CICS=OFFLINE`, no data is collected for the Workload Monitor services.

Changing Event Collector Parameters

If you change an Event Collector parameter in BBPARM member IMFECP00, the change does not take effect until IMS restarts.

Chapter 9. Defining Target IMS Systems

MAINVIEW for IMS operates in the MAINVIEW environment, which allows a terminal session (TS) to communicate with multiple targets associated with a BBI-SS product address space (PAS). As described in the *MAINVIEW Common Customization Guide*, BBPARM member BBIJNT00 is used to define all eligible target systems and associate them with the subsystem IDs of a BBI-SS PAS.

To define a target IMS system, use the jobname of the IMS region with the TARGET parameter in BBIJNT00.

Chapter 10. Customizing Event Collector User Exit Routines

This chapter describes the sample Event Collector user exit routines provided by BMC Software. The Event Collector user exit routines are skeleton programs in BBSAMP that you can customize to build more extensive routines to meet you specific needs.

Transaction Record User Exit Routine (IMRUTRN)

This routine receives control from the Event Collector just before a transaction record (`X'FA'`) is written. Control is always received in the IMS control region. The captured record can then be evaluated and changed if necessary before control is returned to the Event Collector. When control is returned to the Event Collector, Register 15 (R15) must be zero or the record is not logged. The routine must be logically reentrant.

Documentation about how to activate this routine is provided in BBSAMP member IMRUTRN3.

See “IMRUTRN and IMRUPGM Cross-Memory Mode Considerations” on page 71 for special considerations about using this exit.

Program Record User Exit Routine (IMRUPGM)

This routine receives control from the Event Collector just before a program record (`X'F9'`) is written. The captured record can then be evaluated and changed if necessary before control is returned to the Event Collector. When control is returned to the Event Collector, R15 must be zero or the record is not logged. The routine must be logically reentrant.

Documentation about how to activate this routine is provided in BBSAMP member IMRUPGM3.

See “IMRUTRN and IMRUPGM Cross-Memory Mode Considerations” on page 71 for special considerations about using this exit.

IMRUTRN and IMRUPGM Cross-Memory Mode Considerations

IMRUTRN and IMRUPGM user exits can be invoked in cross-memory mode. However, when you invoke these exits from cross-memory mode, SVCs cannot be issued from the exits. Use OS/390 services that can be issued in cross-memory mode with an EUT FRR in effect. For example, instead of GETMAIN, use the STORAGE macro or a branch entry to GETMAIN.

These exits gain control with primary addressability set to the control region. The Event Collector sets an EUT FRR to provide recovery while these exits are in control, regardless of the DEPREC parameter value in BBPARM member IMFECP00. If the routine abends, a warning message, a LOGREC, and (optionally) a dump are produced. The warning message is an action message that does not scroll off the operator’s console.

Abends in these exits are charged against the Event Collector. If the number of abends exceeds the ABCOUNT value specified in IMFECP00, MVIMS takes one of the following actions.

- If BACKOUT=NO, MVIMS abends the IMS control region.
- If BACKOUT=YES, MVIMS disables the Event Collector.

The BACKOUT parameter, specified in IMFECP00, has a default of YES (see Table 8 on page 61).

DL/I-CALL-END User Exit Routine (IMRUDLI)

This routine can be used to extract job accounting information from the dependent regions or to extract user activity information from the transaction input message. This information can be especially valuable for BMP/JBP accounting and for application generators such as ADF and TELON.

The routine receives control from the Event Collector in the dependent region just after the first DC and the first DB DL/I call completed by IMS for a transaction or program. Therefore, for most transactions the exit is given control twice. This process accommodates programs that may not issue calls of both types (for example, a non-message-driven BMP that issues only DB calls or an MPP that issues only DC calls to perform message switching).

Caution

The transaction record is not in its final format at the time this user exit receives control. Modifications to any fields other than those reserved for the user may be overwritten by later processing.

This routine is loaded into CSA at IMS/MVIMS initialization time and must be logically reentrant.

Documentation about how to activate this routine is in BBSAMP member IMRUDLI3.

Chapter 11. Service Utility Commands

This chapter documents service utility commands, which are used by system programmers to control and maintain service availability.

Locking a Service (LOCK)

The LOCK command can be used to remove a service from general availability. It prevents the use of a specific service until a corresponding ULOCK request is issued. To issue the LOCK command, either

- type LOCK in the SERV field of an application, or
- select a service from a list application with an L line command.

Unlocking a Service (ULOCK)

A service may become locked if

- the service abended
- the service was the target of a LOCK command
- the service routine could not be loaded

After the condition is corrected, the ULOCK command can be issued to unlock the service. To issue the ULOCK command, either

- type ULOCK in the SERV field of an application, or
- select a service from a list application with a U line command

Chapter 12. Optional Modifications to MAINVIEW for IMS

This chapter documents optional modifications to MAINVIEW for IMS that are available to the user.

Modification to Support SAP

LINKSAP in the BBSAMP distribution data set is a sample job that supports SAP application programs. This support replaces the IMS transaction code with the SAP identifier in the Event Collector transaction record (`X'FA'`). The SAP identifier is usually the SAP report ID. If the report ID is not available, it is the SAP transaction code.

This support allows you to analyze your SAP workload using

- Performance Reporter and Transaction Accountant batch reports that provide the SAP identifier instead of the IMS transaction name
- Workload Monitor selection criteria with a service request to limit data collection based on the SAP identifier instead of the IMS transaction name
- the PRSPRINT report which indicates whether the SAP exit was invoked
- the PRSSELEC utility to select SAP-related records

To activate this support, you must

- install SAP 5.0c or later

  Contact SAP Corporation of Germany for SAP installation information.

- make a copy of the distributed BBSAMP member LINKSAP and modify and run the JCL as instructed in this member

  LINKSAP links a user exit, called SAPEXIT, into the SAP program library. This exit is called by the SAP routines for each transaction to pass the SAP identifier to the Event Collector.

SMP-Applied Modifications

The IBM System Modification Program (SMP) should be used to apply the modifications described below. Using SMP ensures that these modifications are not regressed when a MAINVIEW for IMS service is applied. If a MAINVIEW for IMS service is applied to any of the user-modified CSECTs, the user modifications must be restored with an SMP RESTORE and APPLY after the service is applied.

Use the IBM service aid utility AMBLIST to locate the offsets for the entry points in the CSECTs. Sample JCL and a control statement for using the AMBLIST utility are shown below.

```
//         JOB
//         EXEC PGM=AMBLIST
//SYSPRINT DD   SYSOUT=*
//SYSLIB   DD   DSN=&prefix.BBLINK,DISP=SHR   <=== BBLINK LIBRARY
//SYSIN    DD   *
  LISTLOAD OUTPUT=XREF,MEMBER=(EILOAD,IMECSAU1,IMECSAU8,IMECSAU9)
/*
```

Modification to Support TELON

This modification supports the TELON application development package. There are two ways to activate MVIMS support for the TELON application package:

1. Specify `TELON=YES` in BBPARM member IMFECP00.

   TELON=YES causes the AGN field in the transaction and program records to be replaced with the internal TELON transaction name carried in the transaction input message.

   If the first three bytes of the IMS transaction code match the internal TELON transaction code name, the internal TELON transaction code replaces the IMS transaction code and PSB name in the MVIMS log records.

   Specifying TELON=YES makes the information available to the IMFLEDIT user exit routines.

2. ZAP the unconditional branches (`X'47F0'`) at the locations shown in the following table to NOPs (`X'4700'`). If more than one release of IMS is in use, SUPERZAP the appropriate CSECT.

Note: If you want only the internal TELON transaction code to be placed in the AGN field and do not want to replace the transaction code and PSB name, take these steps:

- Specify `TELON=NO` in BBPARM member IMFECP00.
- Use the TELON1 ZAP, rather than the TELON2 ZAP.

Load Module	CSECT	Entry Point
IMECSAUx	IMEDL3Ex	TELON1
IMECSAUx	IMELTRNx	TELON2

where x can be the

8 suffix for IMS 5.1
9 suffix for IMS 6.1
1 suffix for IMS 7.1
2 suffix for IMS 8.1

Note: If the MAINVIEW for IMS modules are already copied to the IMS library (see "Modifying the IMS Control Region JCL" on page 29), the modified version of IMECSAUx must be copied to IMS.

Modifications to Reconcile Response Time Monitoring Data

Certain transactions (such as message switch transactions, which have the same arrival time as the original transaction) can distort the average response times in Workload Analyzer and Workload Monitor monitor data by indicating a large input queue time.

Zero Out Input Queue Time for Selected Transactions

To zero out the input queue time for selected transactions in Workload Analyzer and Workload Monitor *response data only*, ZAP up to 30 entries into the distributed table located at:

Load Module	CSECT	Entry Point
EILOAD	EIPOST	TRANTAB

Note: The table to be zapped is distributed as thirty 8-byte entries containing binary zeros. Each entry is an 8-byte transaction name, including trailing blanks. (CLC instruction with 8-byte length is used.) The table search is terminated either after 30 entries or the first binary zero in the first byte of an entry.

Zero Out Input Queue Time for Message Switch Transactions

To zero out the input queue time for all message switch transactions in Workload Analyzer and Workload Monitor *response data only*, ZAP the unconditional branch (`X'47F0'`) to NOP (`X'4700'`) at this location:

Load Module	CSECT	Entry Point
EILOAD	EIPOST	TRANMSW

Part 3. Implementing Product Security

This part describes how users can be authorized to access to MAINVIEW for IMS services.

Chapter 13. Security for Analyzer and Monitor Services

Security for analyzer and monitor services is defined both in service tables that you can modify (see the ACCESS parameter in “Service Table Definition” on page 94) and by the user. Users are authorized to access analyzer and monitor services through the PMACC parameter in the user’s BBPARM authorization (USERID) member (see *Implementing Security for MAINVIEW Products*). The security level for each analyzer or monitor service is shown in the analyzer and monitor list applications.

Service Selection Lists by User Group

Service lists selected from the following Service Selection Menu options can be restricted to list only the services for which the user has authority.

- analyzer display services
- data collection monitors
- active timer requests
- general commands

The SERVLIST parameter in BBPARM member BBIISP00 determines whether this feature is activated. The default is `SERVLIST=ALL`, which means you see all services on the selection list displays. `SERVLIST=RESTRICT` specifies that you see only those services for which you are authorized. The default service security code is A.

BBPARM member IMFSTD00 is an example of how to set up the service security codes by IMS IMFSTD00 functional area, such as IRLM functions or IMS workload. Each service is assigned a security code according to its area. USERID members can then be created either for groups (such as MTOs or system programmers) or for individuals to access only specific services by listing one or more security codes. If the corresponding security code is not defined in the user’s authorization member, the user does not see those services on the service selection displays.

Command Authorization

Users must be authorized to issue commands or use applications against a BBI-SS PAS target system. Command authorization is defined in user authorization members of the BBPARM data set or by using BBPARM member $GENERIC. The authorization parameter is

PMACC Service class authorization, global authorization, or request authorization (modify or purge).

The ACCESS parameter described on page 96 must match the user’s authorized access code specified for PMACC.

A description of how to use the PMACC parameter is in *Implementing Security for MAINVIEW Products*. The comment field of the USERID member of the BBPARM data set also describes this parameter and its options.

Trace Authorization

The USERID member of the BBPARM member data set can be used to provide user authorization for traces. Users can have their own members with their user IDs as the member names or the default $USERID member can be used.

The trace authorization parameters in BBPARM member USERID are TRACE, TRALLOC, and PMACC. TRACE determines whether a user can start a summary or detail trace. TRALLOC authorizes a user for dynamic allocation of trace log data sets by the BBI-SS PAS. PMACC provides trace service access and change authority.

Part 4. Appendixes

This part provides supplemental information for MAINVIEW for IMS use.

Appendix A. IMS Dump Analysis

This appendix describes how to analyze an IMS dump with MAINVIEW for IMS or MAINVIEW AutoOPERATOR for IMS installed.

AO Exit Dispatch

Except for MAINVIEW AutoOPERATOR for IMS MTO message capture for the Journal log, all AO code merely passes control to the specified routines during operation. During initialization, special protection exists while the Event Collector is being set up.

MAINVIEW AutoOPERATOR for IMS Routines in IMS

During initialization, the MAINVIEW AutoOPERATOR for IMS AO code creates two subtasks under the IMS control task. Each of these is protected by ESTAE routines and uses different control blocks than IMS. These subtasks generally can be ignored during IMS dump analysis since they do not affect the IMS flow. These subtasks are terminated correctly at IMS termination.

Event Collector

The following information should be noted about IMS dumps.

- MAINVIEW for IMS register save areas are in MAINVIEW for IMS data areas, not in the IMS prechained save areas. The IMS chains remain unchanged.
- Sometimes the R14 return register in an IMS save area does not point back into the calling IMS module. The IMS R14 value can be found 4 bytes in front of the address pointed to by R14.
- A MAINVIEW for IMS module at entry saves the registers of an IMS module in the next IMS prechained save area pointed to by R13.
- MAINVIEW for IMS module registers are always saved in MAINVIEW for IMS save areas. These save areas are assigned dynamically as required. Normally, one of several preallocated save areas per region is used.

  Each active IMS region has a MAINVIEW for IMS data area acquired for it at region initialization. This data area is in ECSA and is named IMERD*nnn*, where *nnn* is the PST number. The preallocated save areas are in this block.

  If more save areas are required, a dynamic storage pool is used. This pool is also in ECSA and is named IMFSP000.

  Any area in actual use as a MAINVIEW for IMS save area, whether in IMERDnnn or IMFSP000, is identified with SAR or ISA.
- In most cases, only a save area backward pointer exists, pointing from the MAINVIEW for IMS area to the previous IMS save area. While a MAINVIEW for IMS module is in control, the current R12 is its base register and the current R13 points to its SAR.

- In some cases, a MAINVIEW for IMS module transfers control to an IMS module, but needs to regain control after it completes processing. In this case also, the IMS save area chains remain unchanged.

  The only sign of the presence of a MAINVIEW for IMS module is an R14 value in an IMS save area which does not point back to the calling IMS module. If you need to verify the IMS path, the IMS R14 value is saved in the MAINVIEW for IMS SAR, 4 bytes in front of the address pointed to by the R14 in the IMS save area.

  Note: When MAINVIEW for IMS interfaces between two IMS modules, MAINVIEW for IMS is transparent to the IMS modules. All registers are preserved.

IMECSRVx and IMFCSRVx appear in dumps as active ITASKS. This situation is normal as long as the current save area is for DFSIWAIT.

Appendix B. How Product Libraries Should Be Used

Several distributed libraries are included with your MAINVIEW products, including a parameter library (BBPARM), a sample library (BBSAMP), and a profile library (BBPROF). Use the contents of these distributed libraries as models to create site-customized product libraries, either manually or automatically, with AutoCustomization.

Warning

The distributed libraries should never be modified. If you change the distributed libraries, subsequent SMP maintenance will overwrite your changes.

Throughout the MAINVIEW documentation set, references to these libraries use the distributed name. However, when you need to make changes, be sure to use the corresponding library that has been customized for your site. Table 9 lists the distributed name, the corresponding customized library created by AutoCustomization, and leaves space for you to note any other corresponding library that may have been created for your site.

Table 9. Product Libraries

Distributed Library Name	Library Created by AutoCustomization	Other Site-Customized Copy
BBPARM	UBBPARM	
BBSAMP	UBBSAMP	
BBPROF	SBBPROF	

For detailed information about all the product libraries, see the *MAINVIEW Common Customization Guide* or the *MAINVIEW Administration Guide*.

Appendix C. BBSAMP Data Set Members

To help you understand and use your BMC Software product and make it easier to use, the BBSAMP data set contains members that you can edit for your site's use. These members contain macros, sample JCL, sample user exit routines, and sample statements for a variety of functions.

Table 10 describes the BBSAMP members used for MAINVIEW for IMS and MAINVIEW for DBCTL.

Table 10. BBSAMP Data Set JCL Members

BBSAMP Member Name	Description
ARCHCTL1	Sample SYSIN for the log archive utility (see ARCHJCL) that selects only MAINVIEW for IMS log records.
ARCHCTL2	Sample SYSIN for the log archive utility (see ARCHJCL) that selects all MAINVIEW for IMS log records and some IMS log records.
ARCHJCL	Sample JCL for the IMS log archive utility, which produces an MAINVIEW for IMS user file.
BLKDBTW	Sample starter set of monitors for MAINVIEW for DBCTL.
BLKIMFW	Sample starter set of monitors for MAINVIEW for IMS.
CIMLAR01	Sample COBOL layout for IRUF terminal (LTERM) accounting record (LAR).
CIMPAR01	Sample COBOL layout for IRUF program accounting record (PAR).
CIMTAR01	Sample COBOL layout for IRUF transaction accounting record (TAR) for MVIMS version 3.2 and earlier.
CIMTAR02	Sample COBOL layout for IRUF transaction accounting record (TAR) for MVIMS version 3.3.00 and later.
CIRUFR01	Macro to map all IRUF records in Assembler for MVIMS version 3.2 and earlier.
CIRUFR02	Macro to map all IRUF records in Assembler for MVIMS version 3.3.00 and later
FPORUN	Sample JCL to read the IMS log and create an IRUF with response option and produce several reports.
GTFIMF	Diagnostics. Sample JCL (see GTFUSE).
GTFIMFP	Diagnostics. Sample JCL (see GTFUSE).
GTFIMF00	Diagnostics. Sample parameters (see GTFUSE).
GTFUSE	Diagnostics. How to use GTF trace facility for MAINVIEW for IMS Event Collector.
ICOPY*n*	Sample JCL to copy BMC Software modules from the BBLINK library to a site-authorized library, where *n* applies to an IMS release.

Table 10. BBSAMP Data Set JCL Members (continued)

BBSAMP Member Name	Description
IMEDBT	Macro to map the database trailer (DBT) for the MAINVIEW for IMS transaction log record in Assembler.
IMEPGM	Macro to map the MAINVIEW for IMS program log record in Assembler.
IMETMEQU	Macro used within IMETRN.
IMETRN	Macro to map the MAINVIEW for IMS transaction log record in Assembler.
IMFACTIV	IMS PR. Sample JCL to create a general activity analysis for all LTERMs and databases.
IMFARB	Macro referenced when assembling some user-written services.
IMFASYDS	Macro referenced when assembling some user-written services.
IMFCLNDR	Performance Reporter. Sample JCL to produce sample calendar reports. One sample of each type of calendar report is produced.
IMFCOSTR	Sample JCL to sort an IRUF into customer ID sequence and summarize it (program TASCOSTR).
IMFFNSUM	Transaction Accountant. Sample JCL to create a financial summary analysis from a costed IRUF.
IMFFPRPT	Sample JCL to create Fast Path transaction processing statistics.
IMFLEDIT	Sample JCL to create an IRUF by editing the IMS system log.
IMFMVSXA	Macro referenced when assembling some user-written services. This macro can be referenced in the BBXS macro library BBMAC, or the BBSAMP member IMFMVSXA can be renamed to BBXMVSXA.
IMFPLOT	Sample JCL to produce X-Y plots of selected variables.
IMFPROG	Performance Reporter. Sample JCL to produce program processing statistics.
IMFREGUT	Performance Reporter. Sample JCL to produce message region utilization analysis.
IMFRESP	Performance Reporter. Sample JCL to produce a response-time distribution report.
IMFRPTS	Sample JCL to read the IMS log, create an IRUF with response option, and produce several reports.
IMFSELEC	Sample JCL to select a subset of IRUF records with which to generate reports.
IMFSETAM	Macro referenced when assembling some user-written services. This macro can be referenced in the BBXS macro library BBMAC, or the BBSAMP member IMFSETAM can be renamed to BBXSETAM.
IMFTARC	Sample job to archive a trace log data set.

Table 10. BBSAMP Data Set JCL Members (continued)

BBSAMP Member Name	Description
IMFTRAN	Performance Reporter. Sample JCL to produce transaction processing statistics.
IMFTRLOD	Sample job to restore an archived trace log data set.
IMFTRND2	Performance Reporter. Sample JCL to produce DB2 transaction processing statistics.
IMFTRNFP	Performance Reporter. Sample JCL to produce Fast Path transaction processing statistics.
IMFVT	Macro referenced when assembling some user-written services.
IMRUDLI3	Sample Event Collector user exit routine for DL/I user exit routine CALL/END.
IMRUPGM3	Sample Event Collector user exit routine to access program records for evaluation.
IMRUTRN3	Sample Event Collector user exit routine to access transaction records for evaluation.
JASEXIT	Program to extract IMS charges from a summarized IRUF and create a charge record that can be used as input to the CONTROL/SMF charge-out system.
JRNLMSG	Macro referenced when assembling some user-written services.
JXT001	Sample job to set up and maintain a trace log directory.
JXT003	Sample job to verify existence of trace log data set in the system catalog.
JXT011	Sample job to define a trace log data set using IDCAMS.
LNKCEXIT	Linkage editor statements to replace default MAINVIEW for IMS Log Edit user exit routine that defines the customer ID with a user-written routine.
LNKLEXIT	Linkage editor statements to replace default MAINVIEW for IMS Log Edit user exit routine that accesses the log file with a user-written routine.
LINKSAP	Sample job to link SAPEXIT into SAP program library.
LOGCPU13	Sample JCL to produce a summary of the CPU times collected by the MAINVIEW for IMS Event Collector from the log records.
LOGREC	Sample JCL to print the software LOGREC records in SYS1.LOGREC.LOGREC
PRSCEXIT	Sample Assembler user exit routine to define the customer ID field in the IRUF.
PRSCEXITC	Sample COBOL user exit routine to define the customer ID field in the IRUF.

Table 10. BBSAMP Data Set JCL Members (continued)

BBSAMP Member Name	Description
PRSLEXIT	Sample Assembler user exit routine to access a log record read from the IMS system log.
PRSLEXTC	Sample COBOL user exit routine to access a log record read from the IMS system log.
PRSLEXTA	Sample user exit routine to access a log record read from the IMS system log and write the record to an external file.
PRSPRINT	Sample JCL to select and print IRUF records.
RARGEN	Resource Analyzer. Macro to set global values from defined parameters. These values are then used in macro RARGFN to generate code for Resource Analyzer region displays.
RARGFN	Resource Analyzer. Macro to generate code for functions selected in macro RARGEN.
RAUSR00	Resource Analyzer. Sample Resource Analyzer user analyzer prototype. This prototype establishes the interfaces to MAINVIEW for IMS and to the IMS main control block (SCD), from which most IMS and OS/390 control blocks can be accessed.
RMUSR01	Resource Monitor. Sample Resource Monitor user analyzer prototype. This DL/I Resource Monitor prototype establishes the interfaces to MAINVIEW for IMS and to the IMS main control block (SCD), from which most IMS and OS/390 control blocks can be accessed.
RTOPTCH	Macro to generate a patch area for MAINVIEW for IMS modules. This macro should not be issued more than once in a module.
SASIRUF	SAS definition of IRUF terminal, program, and transaction accounting records.
TACCOSTR	Transaction Accountant. Sample linkage editor statements to link a user exit (TASEXIT) into the Transaction Accountant version of program TASCOSTR.
TASxxxxx	Sample layouts for the IRUF records used in Transaction Accountant.
TASEXIT	Sample user exit routine for TASCOSTR IRUF summarization.
WATBTRAC	Sample batch JCL to print history trace data.

Appendix D. Customizing Analyzer and Monitor Services

MAINVIEW product environment customization is described in the *MAINVIEW Common Customization Guide*. This appendix describes how to tailor MAINVIEW for IMS Online services to your site's needs.

MAINVIEW for IMS Online services have a modular, table-driven design so that you can tailor them to meet specific needs—for example, tailoring the services to provide end-user access security (as shown by the examples on page 98).

Modifying Service Characteristics

MAINVIEW for IMS services are defined in service tables that specify the characteristics of the service. You can modify service characteristics dynamically by altering the service table entries, or by creating new service table entries. Service tables are located in BBLINK library load modules.

Use BBPARM member IMFSTD00 (service table definition member) to change the IMFSTD00 characteristics of any service or to define new services. Any changes made to IMFSTD00 dynamically modify or create MAINVIEW for IMS services when MAINVIEW for IMS is started.

Note: The two most common characteristics changed by users of MAINVIEW for IMS are the security and title specifications. See "Security for Analyzer and Monitor Services" on page 81 and refer to *Implementing Security for MAINVIEW Products* before you change these specifications.

Adding a Service

To add a service:

1. Code the new service routine using one of the user service prototypes in the BBSAMP data set as a model.
2. Assemble and link edit the new service routine into BBLINK.
3. Add the definition of the new service to the service table using BBPARM member IMFSTD00.
4. Restart BBI-SS PAS so that the IMFSTD00 member is processed.
5. Test the new service.

Service Table Definition

BBPARM member IMFSTD00 is used to define new services and to change the specifications of existing services. A maximum of 50 new services is allowed.

Note: Message IM2103E is issued if the limit of 50 new services is exceeded.

The following rules apply to creating IMFSTD00.

- The IMFSTD00 must be defined in the BBI-SS PAS BBPARM data set. For more information about the BBI-SS PAS, see the *MAINVIEW Common Customization Guide*.
- All 80 columns of each statement can be used for specifying the various parameters and their values. Sequence numbers can be placed in columns 73 to 80, but there must be at least one blank between the last specification and the sequence number.
- All the parameters needed to define a new service or to modify an existing service can be contained in one statement or split over multiple statements.
- A specific parameter and its values must be contained in the same specification statement.
- An asterisk can be placed in column 1 of any statement to designate it as a comment. Comment statements can be interspersed with specification statements.
- Commas can be used as delimiters in statements; leading blanks are ignored.
- Comments are allowed within specification statements if one blank separates the specification from the comment.
- If REQUEST is used, it must be the first parameter in a statement, and it must be followed immediately by the SERVICE parameter. If REQUEST is not specified, the SERVICE parameter must be first in the statement (REQUEST defaults to DEFINE).
- If any syntax errors are found in a request to define or modify a service, the accepted parameters up to the error are used to execute a partial change to the service table.

Table 11 lists the parameters and parameter options for service tables. The default for each parameter is underlined.

Table 11. Service Table Parameters and Options

Parameter	Parameter Description	Options	
REQUEST	Identifies the start of a new service table entry addition or change. It must be the first parameter in a statement. If REQUEST is not specified, it defaults to DEFINE and SERVICE must be the first parameter (see the examples on page 98).	DEFINE	Specifies that a new service is to be defined in the MVIMS service table. This new service is listed on the General Commands service display.
		MODIFY	Specifies that an existing service definition is to be changed.
SERVICE	Identifies the name of the service to be added or modified. **Note:** SERVICE must be the first parameter in a statement if it is used to define a new service instead of using REQUEST (see the examples on page 98).	xxxxx	Specifies the name of the service to be added or modified. Service names can be from 1 to 5 characters. If `REQUEST=DEFINE`, the service name must be unique and not in use at the time of the DEFINE. If `REQUEST=MODIFY`, the service name must be already defined and exist in one of these lists: • Analyzer Display Services • Data Collection Monitors • General Commands **Note:** The first two to three characters of a user service must not be the same as any of these commands. For example, a user service named ATIV could not be used since MAINVIEW for IMS would transfer to AT, the Active Timer Requests display.
IMSREL| RELEASE	Identifies the IMS release for which this service is valid. **Note:** This parameter is required and must follow the SERVICE specification.	nnnn	Specifies the IMS release as • 0510 - IMS 5.1 • 0610 - IMS 6.1 • 0710 - IMS 7.1 • 0810 - IMS 8.1
TITLE	Identifies the title to be given to a service.	x...x	Specifies the title. The title can be from 1 to 24 characters. The title must be contained in single quotation marks if the title contains embedded blanks or commas. If `REQUEST=DEFINE`, the title is assigned to the new service. If `REQUEST=MODIFY`, the existing title is changed.

Table 11. Service Table Parameters and Options (continued)

Parameter	Parameter Description	Options	
ACCESS	Identifies the access code required to use this service.	A	Specifies the access code that is to be matched with the user's authorized access code. Can be any alphabetic character, A through Z. The user's authorized access code is specified by the PMACC parameter in BBPARM member USERID.
TYPE	Identifies the service type.	ANALYZER	Specifies that this is an analyzer service. It can be invoked directly from a terminal and produces a full-screen display. The service may be invoked asynchronously using the SET command to log the display to the image log.
		MONITOR	Specifies that this is a monitor service. It measures the value of one or more system variables at periodic intervals and compares the value to a threshold. The measurements taken by the service may be plotted using PLOT.
SUPP	Identifies the operating system environment in which this service can run.	BOTH	Specifies that this service may be selected in both an XA and a non-XA environment.
		XA	Specifies that this service supports only an XA or ESA environment.
		Note: Two services can be defined with the same `SERVICE=name` but different `MODULE=names`, one with `SUPP=370` and the other with `SUPP=XA`.	
CB	Identifies the data requirements of the service.	LOCAL	Specifies that the service requires no access to data in the IMS control region private area.
		IMS	Specifies that the service requires access to data in the IMS or DBCTL control region private area.
LOG	Identifies the default logging option for analyzer services. It is invalid for monitors. The LOG parameter on a SET request overrides this specification in the service table.	NO	Specifies that the display produced by the service should not be logged.
		SYNC	Specifies that the display produced by the service should be logged when it is invoked directly from a terminal.
		ASYNC	Specifies that the display produced by the service should be logged when it is invoked indirectly as a result of a SET service request.
		BOTH	Specifies the combination of both SYNC and ASYNC.

Table 11. Service Table Parameters and Options (continued)

Parameter	Parameter Description	Options	
MONTYPE	Identifies the type of measurement taken by a monitor. This information is used by the PLOT service and when a monitor warning message is generated.	COUNT	Specifies that the value collected represents the status of the data item when sampled. The value must remain constant or increase with each measurement. It can never decrease.
		AVERAGE	Specifies that the value collected is an average value over an interval.
		STATUS	Specifies that the value collected represents the status of the data item when sampled. The value may decrease, remain constant or increase with each measurement.
		PERCENT	Specifies that the value collected is a percentage of the total of the data item sampled.
		WARNING	Specifies that the monitor does not maintain history information. It is used only to alert the operator of a problem. This type of monitor can never be plotted.
PARM	Indicates whether the service uses a parameter when invoked.	NO	Specifies that a parameter is never allowed when invoking this service.
		OPT	Specifies that a parameter is optional, if one is provided.
		REQ	Specifies that a parameter is required. The service cannot be invoked without it.
PARMTYPE	Identifies the type of parameter needed by this service. If `PARM=NO` was specified, PARMTYPE should not be used.	NAME	Specifies that the service uses a parameter in name format, from 1 to 8 characters.
		QNAME	Specifies that the service uses a parameter in name format, from 1 to 8 characters. The name can be qualified by using plus signs as positional qualifiers.
		INTEGER	Specifies that the service uses a parameter in integer format, from 1 to 8 decimal digits.
		HEX	Specifies that the service uses a parameter in hexadecimal format, from 1 to 8 hexadecimal digits.
MODULE	Identifies the load module name of the routine to be invoked by MAINVIEW for IMS when this service is requested.	xxxxxxxx	Specifies the load module name. Valid entries are from 1 to 8 characters. The module name defaults to the 1- to 5-character service name specified with the SERVICE parameter.

Parameter Examples

The following example shows how to use service table parameters to change the security access code of an existing service:

```
REQUEST=MODIFY,SERVICE=DBST,IMSREL=0x10,ACCESS=B
```

In the following example, SERVICE is used to define a new service (REQUEST defaults to DEFINE):

```
SERVICE=NEWSV,IMSREL=0x10,TYPE=ANALYZER,
TITLE='new service title',ACCESS=A
```

In this example, NEWSV is to be added as a new service.

Service Logging

A service can be recorded to an image log data set synchronously and asynchronously:

- Synchronous logging occurs when a service is requested from a terminal and the service table specifies logging. The type of service logging can also be changed dynamically on the panel when the display is requested (these displays are written to the TS Image log).
- Asynchronous logging occurs as a result of a timer-driven request to log an analyzer service or a general command display, such as logging PLOT or DMON, of monitor measurement values. These displays are written to the BBI-SS PAS Image log.

To change the default logging option for any service, see the LOG parameter definition on page 96. For example, the following statement in BBPARM member IMFSTD00 changes the logging option for the DREGN service:

```
REQUEST=MOD,SERVICE=DREGN,LOG=NO
```

Appendix E. Product Initialization Messages

Product initialization messages changed for versions 3.3.10 and 3.3.00 of MAINVIEW for IMS Online, MAINVIEW for IMS Offline, and MAINVIEW for DBCTL, and new messages were added for version 3.3.00. The message changes and additions are listed in this appendix.

Messages Changed with Version 3.3.10

Table 12 lists the product initialization messages that were changed with version 3.3.10.

Table 12. Product Initialization Messages Changed with Version 3.3.10

Message ID	Message Text	Sub-system
IM1113I	MAINVIEW FOR IMS ONLINE 3.3.10 INITIALIZED PUT (*level*)	PAS
IM1113I	MAINVIEW FOR IMS DBCTL 3.3.10 INITIALIZED PUT (*level*)	PAS
IM0109I	MAINVIEW FOR IMS 3.3.10 CICS=YES OPTION ACTIVE	IMS
IM0109I	MAINVIEW FOR DBCTL 3.3.10 CICS=YES OPTION ACTIVE	IMS
IM0113I	MAINVIEW FOR IMS ONLINE 3.3.10 ACTIVE PUT (*level*)	IMS
IM0113I	MAINVIEW FOR IMS OFFLINE 3.3.10 ACTIVE PUT (*level*)	IMS
IM0113I	MAINVIEW FOR DBCTL 3.3.10 ACTIVE PUT (*level*)	IMS

Messages Added with Version 3.3.00

Table 13 lists the product initialization messages that were added with version 3.3.00.

Table 13. Product Initialization Messages Added with Version 3.3.00

Message ID	Message Text	Sub-system
IM0202I	MAINVIEW FOR IMS DD FUNCTION ENABLED IMSID	IMS
IM0202I	MAINVIEW FOR DBCTL DD FUNCTION ENABLED IMSID	IMS
IM1113I	MAINVIEW FOR IMS ONLINE 3.3.0 INITIALIZED SSID (This message is produced if you are using the new ION key.)	PAS
IM1113I	PRODUCT IMF VERSION 3.3.0 INITIALIZED SSID (This message is produced if you are using the old IRA, IRW, IWA, IWM keys.)	PAS
IM0113I	MAINVIEW FOR IMS OFFLINE 3.3.0 ACTIVE	IMS

Note: An IOF initialization key is required for the MAINVIEW for IMS Offline components.

Messages Removed with Version 3.3.00

Table 14 lists the product initialization messages that were removed with version 3.3.00, and it lists the new messages that replaced them.

Table 14. Product Initialization Messages Removed with Version 3.3.00

Message ID	Message Text	Replaced with	Subsystem
IM0201I	`IMF/EC DD FUNCTION ENABLED IMSID`	IM0109I	IMS
IM1202I	`MAINVIEW FOR DBCTL VERSION 3.2.0 ACTIVE`	IM0110I	IMS
IM0131I	`IMF FAST PATH OPTION ACTIVE`	—	IMS
IM1114I	`IMF COMPONENT RA KEY NOT SELECTED`	IM1118W	PAS
IM1114I	`IMF COMPONENT RM KEY NOT SELECTED`	IM1118W	PAS
IM1114I	`IMF COMPONENT WA KEY NOT SELECTED`	IM1118W	PAS
IM1114I	`IMF COMPONENT WM KEY NOT SELECTED`	IM1118W	PAS
IM1114I	`IMF EXTENSION LM KEY NOT SELECTED`	IM1118W	PAS
IM1114I	`IMF EXTENSION AD KEY NOT SELECTED`	IM1118W	PAS
IM1114I	`IMF EXTENSION MD KEY NOT SELECTED`	IM1118W	PAS

Note: The IM0131I `IMF FAST PATH OPTION ACTIVE` message is no longer produced. Versions 3.3.00 and 3.3.10 of MVIMS Online, MVIMS Offline, and MVDBC continue to provide the same Fast Path support provided with the Release 3.2 versions of the products.

Messages Changed with Version 3.3.00

Table 15 lists the MVIMS Online product initialization messages that were changed with version 3.3.00.

Note: The messages identified as “old” in the Key column are produced if you use the old IRA, IRW, IWA, and IWM keys. The messages identified as “new” in the Key column are produced if you use the new ION key.

Table 15. Product Initialization Messages Changed with MVIMS Online Version 3.3.00

Message ID	Key	Message Text	Sub-system
IM0100I	old	IMF/EC COMPONENT VERSION 3.2.0 ACTIVE	IMS
IM0110I	new	MAINVIEW FOR IMS 3.3.0 EVENT COLLECTOR ACTIVE IMSID	IMS
IM0109I	old	CICS=YES IN EFFECT IMSID	IMS
	new	MAINVIEW FOR IMS 3.3.0 CICS=YES OPTION ACTIVE IMSID	IMS
IM0120I	old	- IMF EVENT COLLECTOR NOT STARTED - NO USING COMPONENTS WERE INITIALIZED	IMS
	new	MAINVIEW FOR IMS OR DBCTL FOUND NO VALID PRODUCT KEYS	IMS
IM0109I	old	PRODUCT IMF VERSION 3.2.0 INITIALIZED SSID	PAS
	old	PRODUCT IMF VERSION 3.3.0 INITIALIZED SSID	PAS
	new	MAINVIEW FOR IMS ONLINE 3.3.0 INITIALIZED SSID	PAS
IM1118W	old	WARNING: ALL IMF COMPONENTS FAILED TO ACTIVATE SSID	PAS
	new	WARNING: MAINVIEW FOR IMS FAILED TO ACTIVATE SSID	PAS

Table 16 lists the MVDBC product initialization messages that were changed with version 3.3.00.

Note: The messages identified as “old” in the Key column are produced if you use the old IRA, IRW, IWA, and IWM keys. The messages identified as “new” in the Key column are produced if you use the DBC key.

Table 16. Product Initialization Messages Changed with MVDBC Version 3.3.00

Message ID	Key	Message Text	Sub-system
IM0100I	old	IMF EVENT COLLECTOR ACTIVE - VERSION = MAINVIEW FOR DBCTL 3.2.0	IMS
	new	MAINVIEW FOR DBCTL 3.3.0 EVENT COLLECTOR ACTIVE IMSID	IMS
IM0109I	old	CICS=YES IN EFFECT IMSID	IMS
	new	MAINVIEW FOR DBCTL 3.3.0 CICS=YES OPTION ACTIVE IMSID	IMS
IM0120I	old	- IMF EVENT COLLECTOR NOT STARTED - NO USING COMPONENTS WERE INITIALIZED	IMS
	new	MAINVIEW FOR IMS OR DBCTL FOUND NO VALID PRODUCT KEYS	IMS
IM0109I	old	MAINVIEW FOR DBCTL 3.2.0 INITIALIZED SSID	PAS
	new	MAINVIEW FOR DBCTL 3.3.0 INITIALIZED SSID	PAS
IM1118W	old	WARNING: ALL IMF COMPONENTS FAILED TO ACTIVATE SSID	PAS
	new	WARNING: MAINVIEW FOR IMS FAILED TO ACTIVATE SSID	PAS

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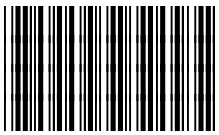

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