



**Tivoli Business Systems Manager**  
*IMS Release Notes*  
*Version 1.5*





# Tivoli Business Systems Manager

*IMS Release Notes*

*Version 1.5*

## Tivoli Business Systems Manager IMS Release Notes, Version 1.5

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## Preface

Tivoli Business Systems Manager provides a robust, system management functionality. In support of the operational perspectives of that functionality, Tivoli Business Systems Manager installs components on both the OS/390 and NT platforms.

## Accessing Publications Online

The following sections describe how to access publications online, order publications, provide feedback about publications and contact customer support.

The Tivoli Customer Support Web site (<http://www.tivoli.com/support/>) offers a guide to support services (the *Customer Support Handbook*); frequently asked questions (FAQs); and technical information, including release notes, user's guides, redbooks, and white papers. You can access Tivoli publications online at <http://www.tivoli.com/support/documents/>. The documentation for some products is available in PDF and HTML formats. Translated documents are also available for some products.

To access most of the documentation, you need an ID and a password. To obtain an ID for use on the support Web site, go to <http://www.tivoli.com/support/getting/>.

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**Attention:** The following note is an example of exceptional information. If your documentation requires similar, exceptional information, add it in the appropriate section (however, it is likely that your documentation does not require any additional notes or addenda). In all instances, remove this Attention element.

**Note:** For NetView OS/390 customers, additional support is also available on the NETVIEW CFORUM (Customer Forum) through the IBMLink system. This forum is monitored by NetView developers who answer questions and provide guidance. When a problem with the code is found, you are asked to open an official problem management record (PMR) to get resolution.

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- 
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- Send e-mail to [support@tivoli.com](mailto:support@tivoli.com).
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When you contact Tivoli Customer Support, be prepared to provide the customer number for your company so that support personnel can assist you more readily.



## 1

# Release Notes

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## Overview of IMS Monitoring

Organizations in today's rapidly growing technology environments demand reliable databases that can adapt to emerging global and electronic trends. The database must provide superior performance to handle large volumes of data and flexibility to run across a wide variety of hardware platforms and software platforms. This critical data must be available on a 24x7 basis; downtime is not an option. Finally, the database environment must be engineered to require very little maintenance, thereby reducing cost of ownership.

The IBM IMS hierarchical database management system provides a comprehensive array of database functionality including high performance, scalability, network and data integration, reliability, and availability. IMS is extensively used for mission-critical applications throughout the world. IMS Version 7.0 provided major enhancements that are aimed at supporting e-business, high availability, large database, performance, and RAS (reliability, availability).

Tivoli Business Systems Manager integrates with IMS as an exception source to monitor and control IMS subsystems and Databases. Tivoli Business Systems Manager reports IMS exceptions that are based on a pre-defined workflow.

The Tivoli Business Systems Manager object model includes a comprehensive set of related objects to represent the components of IMS. Each of these objects can be managed according to a "desired state" model - Tivoli Business Systems Manager automatically tracks and records all state changes and generates a visual notification on the Tivoli Business Systems Manager graphical user workstation whenever an object varies from its desired state.

This integration provides an end-to-end view of how IMS is affecting applications and other system components including the operating system, OLTP, and storage. The Line of Business View capability of Tivoli Business Systems Manager offers a business systems-centric view of how IMS is affecting each critical business application.

This document explains both the architecture and functionality for the Tivoli Business Systems Manager interface with IMS.

## Overview of Tivoli Business Systems Manager Processing

Tivoli Business Systems Manager utilizes IMS messages and automated exception thresholds to monitor the state of an IMS system. Tivoli Business Systems Manager allows the components of IMS (Tivoli Business Systems Manager objects) to be viewed graphically in combination with other critical systems components such as the Operating System, Customer Information Control System (CICS), network connections, DB2 and storage. The Tivoli

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Business Systems Manager Line of Business View capability depicts the impact these IMS components have on critical business applications, enabling a business systems-centric approach to systems management.

The integration of IMS and Tivoli Business Systems Manager provides functionality in three primary areas, each of which is described in detail in the following sections:


- **IMS Objects** - Several IMS-specific objects are added to the Tivoli Business Systems Manager Object Model to enhance the breadth and detail of IMS object monitoring.
- **IMS Exceptions** - Exceptions generated by IMS are applied to the appropriate Tivoli Business Systems Manager object instance, affecting both its alert state and properties allowing the user to view the exception history of an object. The monitoring information collected through IMS messages provides assistance in several areas, including:
  - The monitoring when IMS objects change state by graphically depicting the effect on other critical system components and applications
  - Recognizing IMS error conditions and qualifying their impact
  - Providing automated exception threshold management for all IMS events
- **IMS Commands** - Key IMS objects have a list of IMS commands that are run from the Tivoli Business Systems Manager graphical user interface (GUI). This feature provides additional user control of IMS objects directly from the Tivoli Business Systems Manager workstation.













Tivoli Business Systems Manager operates through two essential processes. Objects that need to be managed are registered into the Structured Query Language (SQL) database. The process of object initial discovery involves running batch jobs that detect the configuration and create files containing discovery records for the IMS objects discovered. The files are read to register these objects. The companion rediscovery process maintains currency of the Tivoli Business Systems Manager object model as IMS objects change location and status. The process of event processing involves capturing specific events and routing them into the Tivoli Business Systems Manager server that results in updates to the Tivoli Business Systems Manager GUI. These two important processes are described in the following sections to allow you to understand the overall sequence as well as key functions that are used.

## IMS Objects

The integration of IMS and Tivoli Business Systems Manager introduces several objects for monitoring IMS. These objects are described in the following table along with the icons that represent them in Tivoli Business Systems Manager graphical views and their parent objects in the physical hierarchy.

The mapping of IMS messages and events to each object type are shown in “Mapping of Events to Object Types” on page 29.

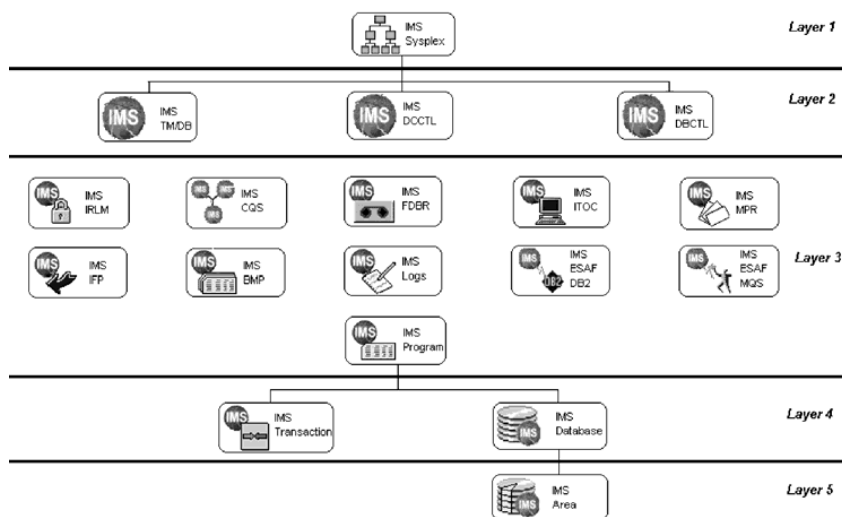
Object Type	Parent Object(s)	Icon	Description
IMS Sysplex	-Enterprise -Complex		This is the highest level object type in the IMS data model

Object Type	Parent Object(s)	Icon	Description
<b>IMS TM/DB</b>	-Operating System		This is the IMS TM/DB sub-system control region. Multiple IMS subsystems may participate in data sharing and/or message sharing in an IMS Sysplex.
<b>IMS DCCTL</b>	-Operating System		This is the IMS DCCTL sub-system control region. Multiple IMS subsystems may participate in message sharing in an IMS Sysplex.
<b>IMS DBCTL</b>	IMS DBCTL		This is the IMS DBCTL sub-system control region. Multiple IMS subsystems may participate in data sharing in an IMS Sysplex.
<b>IMS IRLM</b>	-IMS TM/DB -IMS DBCTL		This is the IMS Lock Manager. Each IRLM can have several IMS control regions connected to it, but each IMS only connects to 1 IRLM. They must all be in the same Multiple Virtual Storage (MVS).
<b>IMS CQS</b>	-IMS TM/DB -IMS DCCTL		This is the IMS Common Queue Server for sharing message queue. There is 1 CQS per IMS and each CQS only connects to 1 IMS only. CQS must be in the same MVS as the IMS. IMS V7 CQS may connect to multiple IMS subsystems.
<b>IMS FDBR</b>	-IMS TM/DB -IMS DBCTL		This is the IMS Fast Database Recovery sub-system. There is 1 FDBR per IMS subsystem and each FDBR tracks 1 IMS only. It can be on a different MVS from the IMS.
<b>IMS ITOC</b>	-IMS TM/DB -IMS DCCTL		This is a communication vehicle between client-initiated message (at a workstation) and the datastore at the host (IMS through OTMA). Each ITOC can communicate with multiple IMS and each IMS can communicate with multiple ITOCs.
<b>IMS MPR</b>	-IMS TM/DB -IMS DCCTL		The FDBR (Fast Database Recovery) object type can be a physical child of either the IMS TM/DB or IMS DBCTL objects. There is one FDBR per subsystem and a single instance can only be linked to one subsystem.
<b>IMS IFP</b>	-IMS TM/DB		This is the IMS fast path message-processing region. There can be multiple IMS IFPs per IMS. They must be in the same MVS as IMS.
<b>IMS BMP</b>	-IMS TM/DB -IMS DCCTL -IMS DBCTL		This is the IMS batch message-processing region. There can be multiple IMS BMPs per IMS. They must be in the same MVS as IMS.
<b>IMS ESAF DB2</b>	-IMS TM/DB -IMS DCCTL -IMS DBCTL		IMS may be connected to multiple DB2. Each DB2 subsystem may be connected to multiple IMS. They must all be in the same MVS.
<b>IMS ESAF MQS</b>	-IMS TM/DB -IMS DCCTL		IMS may be connected to multiple MQS. Each MQS subsystem may be connected to multiple IMS. They must all be in the same MVS.

Object Type	Parent Object(s)	Icon	Description
<b>IMS Program</b>	-IMS TM/DB -IMS DCCTL -IMS DBCTL		There can be multiple programs defined to an IMS subsystem. Each Program can have multiple or no transactions associated with it.
<b>IMS Transaction</b>	IMS Transaction		There can be multiple transaction types defined to an IMS subsystem.
<b>IMS Database</b>	-IMS program		There can be multiple databases defined to an IMS subsystem. A program can reference multiple databases.
<b>IMS Areas</b>	-IMS database		There may be multiple Areas in a Fast Path (DEDB) database.
<b>IMS Logs</b>	-IMS TM/DB -IMS DCCTL -IMS DBCTL		There are multiple logs or pair of logs (if dual logging) in an IMS subsystem.

### IMS Object Physical Hierarchy

IMS objects are grouped into five physical layers within the Tivoli Business Systems Manager object model. These layers are depicted in the following diagram:



The physical links between layer 2 and layer 3 in this diagram are not illustrated because many of the objects in the third physical layer exhibit many a one to one relationship with the second layer objects.

Examples of the relationship properties of some layer 3 objects include the following:

- One instance of IRLM (IMS Lock Manager) can be a physical child of IMS TM/DB, and IMS DBCTL object instances.
- The FDBR (Fast Database Recovery) object type can be a physical child of either the IMS TM/DB or IMS DBCTL objects. There is one FDBR per subsystem, and a single instance can only be linked to one subsystem.

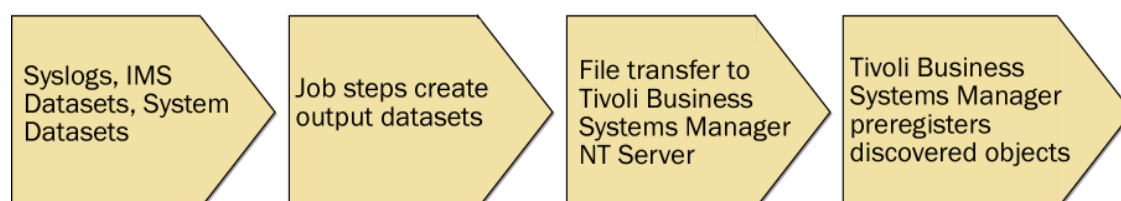
A more complete description of the relationship properties for each IMS object type is found in the preceding table.

## Object Discovery

The object registration process and the object discovery ensure that the Tivoli Business Systems Manager model contains an accurate topology. The object initial discovery process involves the submission of a series of batch functions. The batch routines loop through the discovery process and create a sequential file. This file is forwarded to the Tivoli Business Systems Manager Server where it is processed into the SQL database.

Initial discovery jobs are run once only when Tivoli Business Systems Manager is installed and customized by the implementation team. Initial discovery is normally run off site.

The following steps describe the discovery process for IMS resources:



## Object Rediscovery

Within an IMS environment, rediscovery occurs as a result of incoming event data that Tivoli Business Systems Manager is processing for availability. These events determine which IMS sub-subsystem a particular resource may reside within as well as which Operating System the resource is running on and finally what the status is of the particular resource. If it is discovered that the resource has moved from one image to another, the database is modified to reflect the change. It appears as if the resource moved from one branch of the tree to another on the workstation. This is also true of other attributes that are maintained within the object model for that resource, for example programs and transactions.

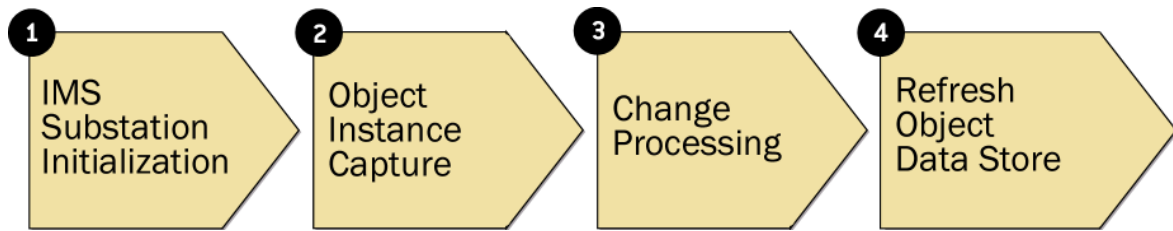
Object rediscovery is the process used to maintain currency of the physical structure for IMS subsystems and their components within the Tivoli Business Systems Manager object model.

Rediscovery of IMS objects is triggered under three circumstances:

1. When certain IMS commands which add or delete IMS resources are detected.
2. A refresh is requested from the Tivoli Business Systems Manager workstation for a specific IMS subsystem.
3. An IMS Subsystem has started.

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## Rediscovery Process Flow



The following steps describe the rediscovery process for IMS resources:

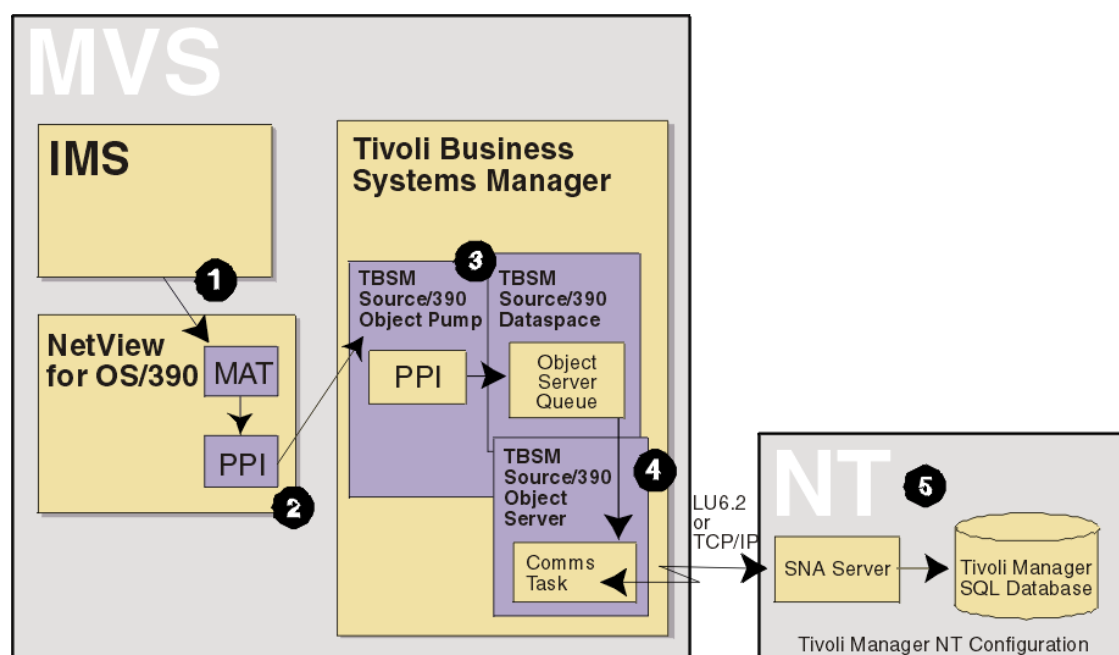
1. The IMS startup message is trapped and rediscovery processing is started.
2. Instances of all logs, esaf, CQS, IRLM, FDBR, ITOC object types within this IMS Subsystem are retrieved. Instances of programs, transactions, databases and areas are rediscovered if datasets containing these resource definitions have been changed.
3. The object instances are compared to the current Tivoli Business Systems Manager object structure.
4. Only changes are processed to update the object data store.

Rediscovery of IMS objects is provided through pre-defined traps in the Tivoli NetView for OS/390 (NetView) Message Automation Table (MAT). These traps trigger the running of object specific programs that process the intercepted messages and issue additional commands to retrieve needed data. The extracted information is transmitted to Tivoli Business Systems Manager NT resident discovery processes for analysis and update of Tivoli Business Systems Manager SQL database.

### Processing IMS Events

Tivoli Business Systems Manager is a suite of applications that resides in a three-tiered client/server environment and has server components on the OS/390 and Windows NT Server environments. Client workstation support includes Windows NT Workstation and Windows NT Server. Tivoli NetView for OS/390 is a started task running within OS/390. The following diagram depicts the architecture for Tivoli Business Systems Manager's

monitoring support for IMS.



## Event Flow

The events in the architectural diagram are annotated in the following steps:

1. Tivoli NetView for OS/390 retrieves messages and exceptions from IMS via the Message Automation Table (MAT).
2. The Tivoli NetView for OS/390 Program to Program Interface (PPI) forwards events to the TBSM Source/390 Object Pump through the PPI Receiver.
3. The Tivoli Business Systems Manager PPI Receiver formats these events and places them on the Object Server Queue.
4. Tivoli Business Systems Manager *Comms Task* forwards the event to Systems Network Architecture (SNA) server via a LU 6.2 link.
5. The SNA Server forwards the event to an SQL database where it is acted upon by a method within the Tivoli Business Systems Manager Object Model structure and is applied to the appropriate IMS object.

Once an event has been posted to the Tivoli Business Systems Manager data store, event notification services post the exception or message to the target object. Every unique event type is assigned an alert state (Red or Yellow) and priority (Critical, High, Medium, Low and Ignore) that determines how many events of a specific type are required before an alert icon is overlaid on the object receiving the exception or message. Tivoli Business Systems Manager is installed with default alert state and priority settings of Yellow/Ignore for exceptions and Green/Ignore for messages. The Tivoli Business Systems Manager administrator has the ability to customize these settings through administrative screens.

Detailed information on the interaction between priority and alert state and how alerts are posted to the Tivoli Business Systems Manager graphical workstation can be found in the



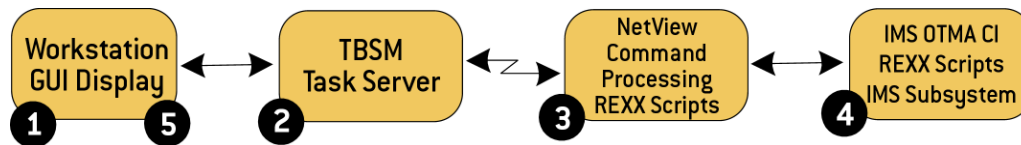
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*Tivoli Business Systems Manager User's Guide.* Information on how to customize priority and alert state settings can be found in the *Tivoli Business Systems Manager Administration Guide*.

## IMS Command Processing

Tivoli Business Systems Manager provides for real-time processing of S/390 commands from the user workstation. You control IMS objects from the object view option that enables you to select one of the supported IMS commands you want to run. Commands are submitted through Tivoli Business Systems Manager Task Server that passes the selected command and associated parameters to Tivoli NetView for OS/390 via *Netconv* for execution.

The following diagram depicts the event flow of IMS commands from NT to MVS host:



## IMS Commands Event Flow

1. You select an IMS command processing from Tivoli Business Systems Manager workstation. Right-click the object you would like to control, select the Commands function from the menu and select the command to run.
2. Control is passed to Tivoli Business Systems Manager Task Server that runs the associated client program defined in the Tivoli Business Systems Manager database. Task server establishes a session with the Tivoli NetView for OS/390 through *Netconv*.
3. NetView starts a procedure that processes the incoming data stream and forwards IMS commands through the IMS OTMA callable interface or IMSID.
4. Tivoli NetView for OS/390 receives the command output and returns it to the Tivoli Business Systems Manager Task Server.
5. Tivoli Business Systems Manager Task Server sends the returned output to the object submit screen that initiated this IMS command processing.

## Installation

The first step is to install the IMS CLISTS, samples, messages and JCL that enable discovery, event processing, and command processing for IMS. These data sets are installed through the System Modification Program Extended (SMP/E).

### SMP/E Install

Install the IMS instrumentation by using the directions in the Program Directory for Tivoli Business Systems Manager. Return to this book after installation for additional customization steps.

After SMP/E completes the Tivoli Business Systems Manager installation, the target libraries contain four data sets that have the following low-level identifiers:

- SGTMSAMP, which contains SMP/E job control statements (JCL) samples, the Tivoli NetView for OS/390 message automation table and IMS batch definition files
- SGTMEEXEC, which contains Tivoli NetView for OS/390 REXX CLISTS

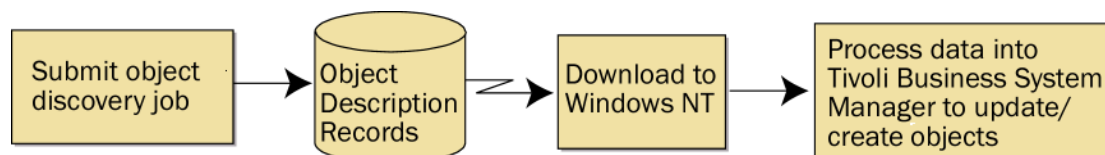


- SGTMMODS, which contains the initial discovery and rediscovery modules
- SGTMMSGS, which contains the Tivoli Business Systems Manager messages

## OS/390 Customization

### Preparing for Discovery

The object initial discovery and registration process ensures that the Tivoli Business Systems Manager model contains all required enterprise resources and reflects an accurate topology. Initial discovery eliminates the need to manually enter any object definitions by extracting these resource definitions from existing system files and tables.



The Tivoli consulting team assigned to Tivoli Business Systems Manager implementation performs initial discovery of IMS objects offsite. Using Tivoli internal tools and shell JCL and processes, this team analyzes your IMS environment and builds a customized discovery process that can be reused for future bulk discovery of the IMS environment.

### Data Collection for Initial Discovery

The initial discovery process requires the following user data:

1. JES Syslogs. The Syslogs should cover an IPL that include all IMS startup messages.

**Note:** The following messages are used for the initial discovery process and as such CANNOT be suppressed, at least during the period for which the initial discovery SYSLOG is produced:

**DFS000I**

IMS generic message

**DFS0578I**

IMS 'READ' message

**DFS0579W**

IMS 'FIND FAILED' message

**DFS3139I**

IMS DCCTL initialization message

**DFS3838I**

IMS DBCTL (XRF) initialization message

**DFS3839I**

IMS DCCTL (XRF) initialization message

**DFS4161I**

FDBR region start message

**DFS551I**

IMS dependant region start message

**DFS810A**

IMS TM/DB initialization message

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**DFS989I**

IMS DBCTL initialization message

**DFS994I**

IMS 'START' message

**DXR009I/117I**

IRLM start messages

**CQS0020I**

CQS region start message

**HWSC0000I**

ITOC region start message

**IEF403I**

MVS 'job' start message

2. Datasets containing the IMS Control Region and ITOC JCL.

3. Other Datasets:

- IMS STEPLIB DD Datasets
  - RESLIB
  - Dynamic allocation
- IMS PROCLIB DD Datasets
- Staging MODBLKS and ACBLIB Datasets

The IMS address spaces to discover are:

- IMS sub-systems (TM/DB, DBCTL, DCCTL)
- Dependent regions (MPR, IFP, BMP)
- IRLM
- CQS
- FDBR
- ITOC

Reading IMS Proclib datasets and control blocks in *Reslib/Modblks/Acblib* discovers IMS resources within IMS sub-systems. The IMS resources to discover are:

- Transactions
- Programs
- Databases and Online logs (OLDS, WADS) Areas (excluding MADS ddname and dsname)
- Online logs (OLDS, WADS)
- External sub-system access facility (ESAF DB2, ESAF MQS)

The initial discovery process has the following restrictions:

1. The IMS system runs as an STC because initial discovery job assumes that the IMS job name is the same as the IMS job JCL member name.

2. The IMS start up job JCL is not overridden when IMS is started
3. The IMS job STEPLIB DD datasets are not link-listed
4. The staging *Modblks/Acblib* datasets name is the non-suffix name of the active/inactive datasets.
5. The IMS database/areas and logs are dynamically allocated
6. IMS startup parameter in DFSPBxxx has OTMA=Y, GRNAME=<OTMAxcfgname>, OTMANM=<IMSxcmemname>
7. JES3 SYSLOG must include the R=jobname message prefix.

The initial discovery process is a multi-step processing of scripts that post-process user supplied Syslogs and system definition datasets. The final output of initial discovery is a set of datasets that are input for bulk instantiation of IMS objects and their attributes into the Tivoli Business Systems Manager database.

IHSIPJCL is provided with Tivoli Business Systems Manager as a sample member in the SGTMSAMP target library.

Running the sample batch job, IHSIPJCL, after making the required changes effects the initial discovery of IMS objects. The sample JCL is supplied in the SGTMSAMP library and consists of the batch job, IHSIPJCL, and a JCL procedure, IHSIPPRC.

The IHSIPJCL batch job is used to discover all IMS objects. It uses the input SYSLOG, JES procedure libraries and IMS libraries and results in two main output files.

IHSIPJCL starts the sample JCL procedure, IHSIPPRC.

The IHSIPPRC JCL procedure consists of the following steps:

#### **RESTART**

Executes IEFBR14. This is used purely as a condition code check for restart runs.

#### **PREDEL**

Executes IEFBR14 to pre-delete datasets allocated in the next step. This is not executed for a restart run.

#### **PREALLOC**

Executes IEFBR14 to pre-allocate dataset required for the discovery process This is not executed for a restart run.

#### **PRECOPY**

Executes IEBCOPY to combine all supplied JES procedure libraries. This is not executed for a restart run.

#### **FILTER**

Executes IHSIFILT to extract the required messages from the syslogs. This is not executed for a restart run.

#### **IHSIPDIS**

Executes IKJEFT01 to run the initial discovery REXX program, IHSIPDIS. This creates the NetView configuration file.

#### **TM39DEL**

Executes IEFBR14 to pre-delete the TBSM configuration file allocated in the next step. This permits job reruns.

---

## **IHSITM39**

Executes IKJEFT01 to run the initial discovery REXX program IHSITM39. This creates the TBSM configuration file from the NetView configuration file output from the IHSIPDIS step

Before running the sample JCL, you must supply a valid job card and provide resolution of some symbolic parameters. Following is a description of those symbolic parameters.

The following symbolic parameters **MUST** be resolved:

### **HLQ=**

This provides a dataset high-level qualifier, which is used to prefix ALL datasets actually created by the initial discovery process. There is no default value.

### **SMPEHLQ=**

This provides the dataset high-level qualifier used for the installation of Tivoli Business Systems Manager. This is used to prefix the SGTMMODS and SGTMEEXEC libraries. There is no default value.

### **SYSLOG=**

This provides the fully qualified input SYSLOG dataset name. There is no default value.

### **CONFIGN=**

This provides the suffix to the two main output datasets and is used primarily to provide for multiple runs of initial discovery. The resultant output files are of the format: &HLQ..TM390.&CONFIGN &HLQ..CONFIG.&CONFIGN There is no default value.

### **OURPREF=**

This provides the dataset high-level qualifier that was used to prefix all customer supplied datasets, for example, JES procedure libraries, IMS RESLIBs, PROCLIBs, but not the SYSLOG dataset(s). This value is also passed to the REXX program that is started. The default value is NULL and as such all user dataset names used are as found in the IMS JCL as discovered from the supplied JES procedure libraries.

The following variables may need to be supplied depending on SYSLOG format:

### **JESTYPE=**

The type of Job Entry Subsystem JES2 or JES3. JES2 is the default.

### **SYSNAME=**

For JES2 this provides the relative WORD position of the MVS system name as found on the SYSLOG. This variable, which has a default value of 3, is passed to the REXX program that is started. For JES3 this provides the MVS system name value.

### **JOB#WORD=**

For JES2 this provides the relative WORD position of the jobid (JOB/STC number) as found on the SYSLOG. This variable, which has a default value of 6, is passed to the REXX program that is started. This variable is ignored for JES3.

The RESTART variable can be used to control a restart of the initial discovery process. This capability is provided to avoid reprocessing SYSLOG datasets unnecessarily should a failure occur in the original run. If the point of restart has been reached during the initial discovery run, then message IHSI309I is issued to the REXX log indicating this.

**RESTART=**

A restart is invoked by specifying a value of 1. The default value of 0 causes the initial discovery process to start by processing the input SYSLOG dataset(s). It should be noted that the value of this parameter also affects which steps in the job are run.

**SYSTEMID**

This parameter provides a unique identification of the MVS system. It consists of the NETID and SSCPNAME of the MVS system. These values need to be obtained from the source MVS by issuing VTAM commands or examining the VTAM parameters. Details of these commands can be found in the IHSIPPRC prologue.

**Notes:**

1. If multiple input SYSLOG datasets are provided, then an override to the started procedure must be supplied. The first of the input SYSLOG datasets must be provided via the SYSLOG= variable and the remaining dataset(s) specified by overriding the SYSLOG DD name. An example is provided in the sample JCL.
2. The input JES procedure libraries must be provided via overrides to the procedure that was started, along with the appropriate IEBCOPY control statement(s). It should be noted that the procedure libraries should be copied in the order that they are used by JES and that the REPLACE option should not be used on the IEBCOPY control statements. This ensures that the initial discovery process finds the same JCL as JES would.
3. Refer to the member IHSIPJCL in the &HLQ.SGTMSAMP target library for further details.
4. Refer to the member IHSIPPRC in the &HLQ.SGTMSAMP target library for further details.

**IMS Customization**

These steps require the user to be familiar with IMS customization. Please refer to the *IMS Customization Guide* for further detail.

**Installation of the Automated Operator Exits**

Tivoli Business Systems Manager provides the following sample members, which can be used to build IMS AO type 2 exits and their control tables:

**IHSIAO0J**

Link-edit to create load module for AO Exit IHSIAOE0

**IHSIAOMJ**

Link-edit to create load module AO Message Control Table IHSIAOEM.

**IHSIAOCJ**

Link-edit to create load module for AO Controller Exit IHSIAOEC

**IHSIAOEE**

Source for AO Exit Control Table.

**HSIAOEJ**

Assemble and link-edit to create load module for AO Exit Control Table IHSIAOEE.

Tivoli Business Systems Manager provides an IMS AO type 2 exit IHSIAOE0 to perform IMS MTO message capture and IMS command capture.

---

IHSIAOE0 is accompanied by a Message Control Table IHSIAOEM to indicate which IMS MTO messages are to be captured.

Tivoli Business Systems Manager provides an additional IMS AO type 2 exit IHSIAOEC to perform an exit stacking function, allowing execution of multiple AO type 2 exits. IHSIAOEC calls each stacked exit in turn, providing separate storage work areas, and handling reply values, giving each exit the illusion of being the only type 2 exit for that particular IMS.

IHSIAOEC is accompanied by an Exit Control Table IHSIAOEE to indicate the names of AO type 2 exits to load, the order of execution, and which exit has control of replies to IMS.

**In the case that there are NO existing IMS AO type 2 exits installed, either user written or from third party vendors**

IHSIAOE0 can simply be installed, along with IHSIAOEM, into a load library on the STEPLIB DD concatenation in the IMS started procedure JCL. IHSIAOE0 is given an alias of DFSAOE00 so that IMS recognizes it as a type 2 exit.

Copy IHSIAOCJ from the SGTMSAMP target library to a working data set.

Modify the JCL to comply with your installation's standards, as detailed in the comments within the JCL, and submit the job. The expected return code from the job is zero.

Copy IHSIAOMJ from the SGTMSAMP target library to a working data set.

Modify the JCL to comply with your installation standards, as detailed in the comments within the JCL, and submit the job. The expected return code from the job is zero.

**In the case that there ARE existing IMS AO type 2 exits installed, either user written or from third party vendors**

IHSIAOE0 should still be installed, along with IHSIAOEM, as described above but in this case IHSIAOE0 should NOT be given an alias of DFSAOE00, as IHSIAOEC requires the DFSAOE00 alias instead. Refer to customization comments in job IHSIAOCJ to assist in removing the alias statement.

Copy IHSIAOCJ from the SGTMSAMP target library to a working data set.

Modify the JCL to comply with your installation standards as detailed in the comments within the JCL and submit the job. The expected return code from the job is zero.

Copy IHSIAOEE from the SGTMSAMP target library to a working data set. Modify this table to specify the names of AO type 2 exits to load, the order of execution, and which exit has control of replies to IMS.

It is recommended that the AO Exit IHSIAOE0 be specified as the first exit in the table, and to ignore its reply flags, as this exit does not alter IMS MTO message or command segment data.

Specify additional type 2 exits in the table, and optionally flag one of these to have its reply value returned to IMS. If multiple exits are flagged to have their reply value returned to IMS, then only the last entry flagged is used. It is valid to have no exits flagged, in which case the Controller Exit will set the reply value itself.

If a type 2 exit changes the IMS MTO message or command segment data then it is recommended that this exit be near or at the end of the table, and it's reply value flagged for return to IMS to indicate the segment data has been changed.

If a type 2 exit deletes either one or all segments of an IMS MTO message or command, then it is recommended that this exit be near or at the end of the table, and the reply value flagged for return to IMS to indicate the deletion.

Ultimately the final decision on exit execution order, and flagging of reply value, is dependent on your understanding of your site's existing type 2 exits.

Copy IHSIAOEJ from the SGTMSAMP target library to a working data set.

Modify the JCL to comply with your installation standards as detailed in the comments within the JCL and submit the job. The expected return code from the job is zero.

## Operation of the Automated Operator Exits

When IMS is initialized it loads and executes an AO type 2 exit if one is present. The load module that IMS attempts to load is DFSAOE00, which is the alias of either IHSIAOE0 or IHSIAOEC depending on how customization was done.

When the AO Exit IHSIAOE0 is loaded and initialized, either by IMS or the AO Controller Exit IHSIAOEC, it attempts to load the Message Control Table IHSIAOEM. If this load fails then IMS commands are captured, but no IMS MTO messages are captured and output.

IHSIAOE0 only makes use of the first segment (approximately 70 bytes) of an IMS MTO message or command. It is possible that subsequent segments for this MTO message or command could be presented (either by IMS or the AO Controller Exit IHSIAOEC), so IHSIAOE0 sets the reply value to return to IMS based on the following:

In the case that there is an AO type 1 exit DFSAOUE0 present, and to enable coexistence, IHSIAOE0 sets the reply value to indicate that this first segment, and any subsequent segments, should be presented by IMS to the type 1 exit. IMS does not present any subsequent segments for this MTO message or command to IHSIAOE0.

In the case that there is no AO type 1 exit DFSAOUE0 present, IHSIAOE0 sets the reply value to indicate that any subsequent segments should not be presented.

When the AO Controller Exit IHSIAOEC is loaded and initialized by IMS, it attempts to load the Exit Control Table IHSIAOEE. If this load fails then IHSIAOEC takes no action when IMS presents MTO message and command segments.

The successfully loaded Exit Control Table should specify a list of AO type 2 exits that are to be loaded and controlled by IHSIAOEC. Each exit specified in the table is loaded, and if successful the entry address is saved, and storage areas obtained. IHSIAOEC calls each controlled exit providing them the opportunity to perform their initialization, and then returns to IMS.

For each MTO message or command segment presented by IMS, IHSIAOEC examines each controlled exit's last reply value. Depending on this value, as documented in the *IMS Customization Guide*, IHSIAOEC mirrors the behavior of IMS in that it may or may not call each exit to provide them the opportunity to perform their normal function, and then returns to IMS.



---

IHSIAOEC does not use or change the IMS MTO message or command segment data.

IHSIAOEC sets the reply value to return to IMS based on the following:

If one of the controlled exits is flagged in the Exit Control Table, then IHSIAOEC sets the reply value equal to the reply value returned from that controlled exit. The assumption is made that if your site is currently running both type 1 and type 2 exits, then any issues with segment flow from type 2 to type 1 exits have previously been resolved.

If none of the controlled exits are flagged then the following occurs:

In the case that there is an AO type 1 exit DFSAOUE0 present, and to enable coexistence, IHSIAOEC sets the reply value to indicate that this first segment, and any subsequent segments, should be presented by IMS to the type 1 exit. IMS does not present any subsequent segments for this MTO message or command to IHSIAOEC.

In the case that there is no AO type 1 exit DFSAOUE0 present, IHSIAOEC sets the reply value to indicate that any subsequent segments should be presented to IHSIAOEC.

### Enable OTMA

Tivoli Business Systems Manager IMS uses OTMA CI to issue IMS commands. To allow this to happen, OTMA must be enabled in the IMS subsystems. In the IMS startup parameter member (DFSPBxxx), specify the following:

- OTMA=Y,
- OTMANM=member name IMS uses when joining xcf group
- GRNAME=xcf group name for OTMA

### IMS Command Security

Tivoli Business Systems Manager IMS issues IMS commands for monitoring and performing Tivoli Business Systems Manager IMS tasks. If IMS command security is implemented in the IMS subsystem, then userid IHSIAUT1 has to be defined to security (RACF) and permitted to issue IMS Display commands.

Tivoli Business Systems Manager IMS issues IMS command through OTMA CI with a member name of IHSITMEM. The userid used for issuing IMS command is IHSIAUT1.

If OTMA security is required, refer to *IMS OTMA Guide and Reference Manual* in the section “Security for OTMA” on how to set up the RACF profile, using member name IHSITMEM and userid IHSIAUT1.

## Customizing Tivoli NetView for OS/390 Components

1. Customize or add a Tivoli NetView for OS/390 message automation table for IMS.
  - If you have a message automation table currently in use in NetView for OS/390, add the following statement to that message automation table:

```
%INCLUDE IHSIMAT
```

The IHSIMAT member contains the IMS procedure statements needed for the message automation table.



- If you do not currently use a message automation table, refer to the *Tivoli NetView for OS/390 Automation Guide* for information about installing message automation tables
- 2. Include the IHSICMD member in DSICMD by adding the following statement to DSICMD in Tivoli NetView for OS/390:

```
%INCLUDE IHSICMD
```

The IHSICMD member defines the IHSIOTMA NetView Command Processor that enables a command interface to IMS subsystems.

- 3. Add the following Tivoli Business Systems Manager datasets to the corresponding DD concatenations in the NetView Started Task JCL.

Tivoli Business Systems Manager Dataset	NetView DD
SGTMEXEC	DSICLD
SGTMSAMP	DSIPARM
SGTMMSG	DSIMSG

- 4. Copy the IHSIMOPR member from the SGTMSAMP target library to the NetView DSIPARM concatenation and %INCLUDE it into the DSIOPF member. IHSIMOPF defines the AutoOPERS that are used by the Tivoli Business Systems Manager IMS feature.
- 5. Tivoli Business Systems Manager IMS uses NetView globals to store its data. The NetView DSISVRT dataset needs to be sized to cater for the expected number of globals on the monitored system. The following calculation enables you to estimate how much storage is expected. This number is also to be used to adjust the NetView region size if necessary.

The 44 is the fixed overhead per variable.

```

Prog  #progs*72  ie 44+20+8
Tran  #trans*75  ie 44+23+8
Database  #dbs*74  ie 44+22+8
          sum(#dbs per prog + 1)*78  ie 44+26+8
Area  #areas*2*75  ie 44+23+8
Logs/WADS  #logs*110  ie 44+22+44
Depn regions  #depn*64  ie 44+16+4
IRLM  #irlms*5*69  ie 44+17+8
      #ims*4*70  ie 44+18+8
ESAF  #esaf*64  ie 44+17+3
CQS   #cqs*4*67  ie 44+15+8
      #ims*3*69  ie 44+17+8
ITOC  #itocs*7*72  ie 44+20+8
      #ims*4*72  ie 44+20+8
FDR   #fdrs*6*68  ie 44+16+8
IMS   #ims*6*67  ie 44+15+8
      #ims*2*77  ie 44+20+13
      (#dd*6)*108  ie 44+20+44 for IMSACBA/B, MODBLKSA/B,
          STEPLIB, PROCLIB
Thresholds  (9+#regn set)*61  ie 44+15+2
SID  (#stc+(#irlm*2))*74  ie 44+26+4
Trace  51*66  ie 44+19+3one per IHSI program
Autotasks  20*71  ie 44+19+8

```

The NetView constants module DSICTMOD, by default sets the "Common Global Variable hash table size" to 100. This setting should be increased as appropriate, to

---

reduce CPU usage for large quantities of global variables. This can be done using the CNMS0055 sample in the CNMSAMP NetView dataset.

6. As a once off, you need to copy the file created by CONFIG DD from the initial discovery job, to a dataset in NetView DSIPARM DD as member IHSIDCFG.
7. Start NetView. When NetView is up, manually run exec IHSILCFG. This loads all pre-discovered objects into NetView globals. Do not start IMS until this step completes.

**Note:** IHSILCFG should only run once.

8. After the MAT is activated, DSI530I is trapped on every NetView startup and executes IHSIINIT to start the Autotasks and restore the NetView globals for Tivoli Business Systems Manager IMS
9. Customize the IHSINVIN member from the SGTMSAMP target library that was concatenated with NetView DSIPARM in Step 4. The IHSINVIN member contains site specific parameters that are read at Tivoli Business Systems Manager IMS feature initialization. Please refer to the comments within the IHSINVIN member for specific instructions on how to set these parameters.

This is a NetView DSIPARM member used to control Tivoli Business Systems Manager and supply parameters. You must tailor this for each NetView associated with Tivoli Business Systems Manager.

The following sample assumes that:

- You set the thresholds as appropriate

**IHSI.\$LOGAVAIL**

3

**IHSI.\$ARCHTIME**

5

**IHSI.\$DBSINT**

50

**IHSI.\$MSCINT**

50

**IHSI.\$MTOINT**

50

**IHSI.\$PGMINT**

50

**IHSI.\$TXNINT**

50

**IHSI.\$TXQINT**

50

**IHSI.\$TXQLEN**

5

Refer to the section "Workstation Functions for IMS - Set IMS Monitor Threshold" for descriptions.

- You place the site tailored IHSINVIN in the appropriate NetView DSIPARM library.

- Refer to the member IHSINVIN in the &HLQ.SGTMSAMP target library for further details.

**Notes:**

- Do not change any of the IHSI.TRACE.\* parameters unless instructed to do so by an IBM support personnel
- Do not change the IHSI.SAVEC parameter unless instructed to do so by an IBM support personnel
- Do not change either of the IHSI.DD or IHSI.DISP parameters unless instructed to do so by an IBM support personnel
- Do not change the IHSI.MAXSYSNUM parameter unless instructed to do so by an IBM support personnel

## Setting up Tivoli NetView for OS/390 and Source/390

The Program to Program Interface (PPI) between Tivoli NetView for OS/390 and Source/390 is used to transport the events to the Tivoli Business Systems Manager server. Ensure that Tivoli NetView for OS/390 has the PPI option enabled.

When you start the TBSM Source/390 Object Pump, ensure the PPI receiver is running.

## Commands Support

Between the NT Servers and Tivoli NetView for OS/390, you must enable either an LU 6.2 conversation or a TCP/IP connection using *Netconv*.

Ensure NetView task CNMTAMEL in member DSIDMNB has MEM=DUIISFP coded.

**Note:** The IMS - Tivoli Business Systems Manager integration routines require the following software versions:

- NetView - Version 1, Release 2, or later
- IMS - Versions 5, 6 or 7

For more information on enabling command communication, refer to the installation section of the *Tivoli Business Systems Manager Administration Guide*.

# Setting up the Tivoli Business Systems Manager Server

## Installing Windows NT IMS Discovery Components

The following section describes the installation of the Windows NT based components necessary for processing IMS discovery.

## Registry Modifications

On hosts running the ASIMVSIPLListenerSvc configure the appropriate entry in the registry for the processing to be done. The following registry keys define the processing for the IMS discovery feed. *This will be configured by default.*

This setting defines the port address to communicate with GTMAOPE0. This is specified on the TCPIP\_ PORT control card of GTMAOPE0.

```
HKEY_LOCAL_MACHINE \ SOFTWARE \ Accessible Software,Inc. \ Access1 \ 1.0
\ Components \ ASIMVSIPLListenerSvc \ Settings
```

---

Port value (default 1021)

This setting defines the command to be triggered on the Windows/NT server by GTMAOPE0. This is specified on the COMMAND control card of GTMAOPE0.

```
HKEY_LOCAL_MACHINE \ SOFTWARE \ Accessible Software,Inc. \Access1 \ 1.0
\ Components \ ASIMVSIPLListenerSvc \
Settings \ CommandAliases
IMSDISCOVERY sh CreateDiscoveryBatch.ksh -F18 -A1 -C37 %s
```

This setting defines the IP clients that are authorized to run GTMAOPE0. This is specified on the TCPIP\_ADDRESS or TCPIP\_NAME control card of GTMAOPE0.

```
HKEY_LOCAL_MACHINE \ SOFTWARE \ Accessible Software,Inc. \Access1 \ 1.0
\ Components \ ASIMVSIPLListenerSvc \
Settings \ Validclients
```

## SQL Server Job Configuration

Two SQL Server jobs are installed for IMS support and are used in the discovery of IMS resources. The IMS Discovery Load job takes any Discovery Batch that is in the ENQUEUED State and loads the associated file into the SQL Server database. The *CreateDiscoveryBatch.ksh* script defined in the registry (as shown above) creates the Discovery Batch, and assigns it a state of ENQUEUED. The system administrator should use the SQL Enterprise Manager and define a schedule for this job to run. This is a polling based job and should be run on intervals of several minutes during the course of a window of time that is designated. If there is no IMS Discovery Batch that is in the ENQUEUED state, the job simply logs a message and exits. If it does find a Discovery Batch in the ENQUEUED State, and the job is successful, the Discovery Batch is marked as LOADED. A failure causes the Discovery Batch to be marked as being in the LOAD\_ERROR state.

The IMS Discovery Process job performs the processing required on any IMS Discovery Batch that is in the LOADED state. Like the IMS Discovery Load job, the Tivoli Business Systems Manager administrator has to define a schedule for this job. When a Discovery Batch is processed it can place significant load on the database, so if possible the job should be scheduled for low-activity periods.

## Defining the IMS Sysplex

The IMS Sysplex object is not automatically discovered by Tivoli Business Systems Manager. If you want the IMS Sysplex object to be available to participate in the Tivoli Business Systems Manager Line of Business view, you must insert it from the workstation from any one of the following objects:

- Enterprise
- Complex

Once the IMS Sysplex is defined into Tivoli Business Systems Manager, you build Line of Business views that portrays the relationship of IMS objects to the Sysplex.

You insert an IMS Sysplex into the Tivoli Business Systems Manager Business Object Container (Enterprise Outliner) by right-clicking an Enterprise or Complex object, pointing to **Insert -> IMS Sysplex**.

---

## IMS Event Scenarios

Several sample IMS scenarios are displayed in this section. For a complete list of IMS events see Appendix A.

### IMS Subsystem State Change Events

#### Scenario - IMS subsystem is not operational

1. IMS TM/DB subsystem on Machine A abended
2. MVS console receives IEF4051 message
3. NetView traps the message through the MAT and forwards the event to the TBSM Source/390 Object Pump
4. The TBSM Source/390 Object Pump then forwards the request through the Tivoli Business Systems Manager Server and LU 6.2 up to the Tivoli Manager Database
5. The event is propagated and posted to the IMS TM/DB subsystem IMS1 object. Since this is a Red/Critical event a Red alert icon appears on any Tivoli Business Systems Manager view containing that object.

#### Scenario - IMS subsystem Restarted

1. The start command is issued for IMS TM/DB subsystem IMS1 start up
2. MVS console receives a DFS994I message
3. NetView traps the message through the MAT and forwards the event to the TBSM Source/390 Object Pump
4. The TBSM Source/390 Object Pump then forwards the request through the Tivoli Business Systems Manager Server and LU 6.2 up to the Tivoli Manager Database
5. The clear message is propagated and posted to the IMS TM/DB subsystem IMS1 object and clears the alert on the Tivoli Business Systems Manager view

### Transaction Queue Length Events

#### Scenario - Transaction Queue Length Exceeded

The Transaction Queue Length Monitor threshold is set to a default of 5 and a polling cycle time of 50 minutes. These thresholds can be changed with the Set IMS Monitor Threshold Command. The Transaction Queue Length Monitor runs every 50-minutes and when the length of the queue exceeds 5 transactions, it formats IHS409I message.

1. Transaction Queue Length Monitor for IMS TM/DB object IMS1 detected threshold exceeded condition and formats the IHS409I message for object IMS1.
2. It then forwards the event message to the TBSM Source/390 Object Pump that passes the IHS409I event message through the Tivoli Business Systems Manager Server and LU 6.2 up to the Tivoli Manager Database.
3. The event is propagated and posted to the IMS TM/DB subsystem IMS1 object. Since this is a Yellow/High event, a Yellow alert icon appears on any Tivoli Business Systems Manager view containing that object.

---

### **Scenario - Transaction Queue Length Is Below Threshold**

1. Transaction Queue Length Monitor for IMS TM/DB object IMS1 keeps sending IHS409I messages to the Tivoli Business Systems Manager Database with each cycle if the Transaction Queue Length Threshold Exceed condition is true. No messages are sent if this condition is false
2. Tivoli Business Systems Manager watches incoming IHS409I messages based on the established interval cycle and recognizes when this exception has expired
3. The clear message is propagated and posted to the IMS TM/DB subsystem IMS1 object and clears the alert on the Tivoli Business Systems Manager view

## **MSC Link Failure Events**

### **Scenario - MSC Link is not operational**

1. MSC Link resource fails for IMS TM/DB subsystem IMS1 on Machine A and becomes unavailable
2. MVS console receives DFS2169I message
3. NetView traps the message through the MAT and forwards the event to the TBSM Source/390 Object Pump
4. The TBSM Source/390 Object Pump then forwards the request through the Tivoli Business Systems Manager Server and LU 6.2 up to the Tivoli Manager Database
5. The event is propagated and posted to the IMS TM/DB subsystem IMS1 object as an exception. Since this is a Yellow/High event, a Yellow alert icon may appear on any Tivoli Business Systems Manager view containing that object, if its Yellow/High threshold is exceeded

### **Scenario - MSC Link is Started**

1. The Start MSC LINK command is issued for IMS TM/DB subsystem IMS1
2. MVS console receives a DFS2168I message
3. NetView traps the message through the MAT and forwards the event to the TBSM Source/390 Object Pump
4. The TBSM Source/390 Object Pump then forwards the request through the Tivoli Business Systems Manager Server and LU 6.2 up to the Tivoli Manager Database
5. The clear message is propagated and posted to the IMS TM/DB subsystem IMS1 object and clears the alert on the Tivoli Business Systems Manager view

## **Database in Restricted State Events**

### **Scenario - Database Restricted State Was Found**

The Database Status Monitor polling cycle is set to 50 minutes. This interval can be changed with the Set IMS Monitor Threshold Command. At 50 minute interval the polling monitor wakes up and issues an IMS display command to determine if the Databases are in a restricted state. If a database is in a restricted state it formats an IHS406I message. If the monitor is re driven again and the databases are still in the restricted state, it will not re send another IHS406I message.

1. The Database Status Monitor for IMS TM/DB object IMS1 detected that the database IVPDB1 is in restricted state and formats IHS406I message for object IVPDB1

2. It then forwards the event message to the TBSM Source/390 Object Pump, which passes the IHS406I event message through the Tivoli Business Systems Manager Server, and LU 6.2 up to the Tivoli Manager Database
3. The event is propagated and posted to the IVPDB1 object and its parent IMS TM/DB subsystem IMS1 object

### Scenario - Database Administrator Removed Restricted State from the database

1. Database Status Monitor for IMS TM/DB object IMS1 keeps sending IHS406I messages to Tivoli Business Systems Manager with every cycle it finds that the Database In Restricted State condition is true. No messages are sent if this condition is false
2. Tivoli Business Systems Manager watches incoming IHS406I messages based on the established interval cycle and recognizes when this exception has expired.
3. The clear message is propagated and posted to the database IVPDB1 object and IMS TM/DB subsystem IMS1 object and clears the alert on the Tivoli Business Systems Manager view

## Workstation Functions for IMS

### Set IMS Monitor Threshold

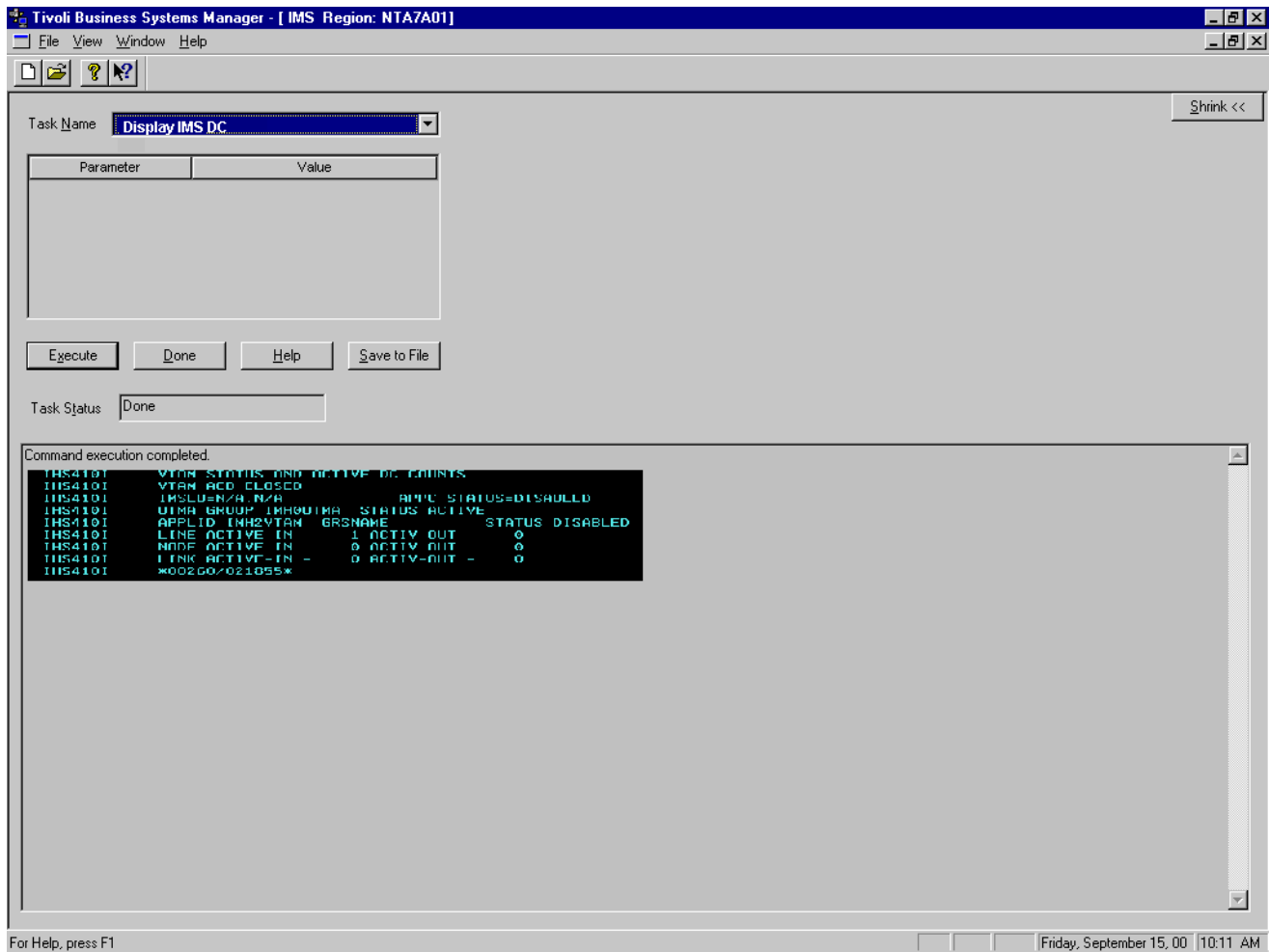
IMS monitors are designed to poll the state of IMS subsystem resources on an interval basis. You control the intervals through the **Set IMS Monitor Threshold** command at the target system. This command can be issued against all three IMS control subsystem objects (IMS TM/DB, IMS DCCTL, and IMS DBCTL).

- Threshold for number of available logs (number)
- Threshold for IMS log Archive Time (seconds)
- Threshold for Transaction Queue Length (number)
- Time interval for Database Polled Monitor (seconds)
- Time interval for MSC link Polled Monitor (seconds)
- Time interval for MTO Polled Monitor (seconds)
- Time interval for Program Polled Monitor (seconds)
- Time interval for Transaction Polled Monitor (seconds)
- Time interval for Transaction Queue Polled Monitor (seconds)

### IMS Command Processing

Tivoli Business Systems Manager provides a facility for executing selected IMS commands from the graphical workstation. Each object type has a list of commands that you start by a right-clicking the object and selecting the **Commands** menu option. The following illustration appears allowing you to select the command you want to execute for the current object.





When you click **Execute**, control is passed to the Tivoli Business Systems Manager Task Server, which forwards the selected command to Tivoli NetView for OS/390. Tivoli NetView for OS/390 starts a procedure that calls the IMS OTMA interface to execute the command or uses IMSID to issue the command.

The IMS commands that are supported in Tivoli Business Systems Manager are listed in the following table.

### IMS Commands Supported

Tivoli Business System Manager supports the following IMS command set (listed by object type):



Object Type	IMS Command
<b>IMS TM/DB</b>	<ol style="list-style-type: none"> <li>1. Display MTO Assignment</li> <li>2. Display MTO status</li> <li>3. Display OTMA</li> <li>4. Display IMS Dead Letter Queue</li> <li>5. Display MSC Links in Restricted State</li> <li>6. Display IMS DC</li> <li>7. Display Dependent Regions</li> <li>8. Display IMS Shutdown Status</li> <li>9. Display APPC</li> <li>10. Display All IMS Pool</li> <li>11. Display IMS online logs</li> <li>12. Display Programs in Restricted State</li> <li>13. Display Q Buffer pool</li> <li>14. Display Q Buffer pool</li> <li>15. Display Databases/Areas in Restricted State</li> <li>16. Display CQS</li> <li>17. Display FDBR</li> <li>18. Rediscover IMS subsystem resources</li> <li>19. Set Thresholds/Intervals</li> </ol>
<b>IMS DCCTL</b>	<ol style="list-style-type: none"> <li>1. Display MTO Assignment</li> <li>2. Display MTO status</li> <li>3. Display OTMA</li> <li>4. Display IMS Dead Letter Queue</li> <li>5. Display MSC Links in Restricted State</li> <li>6. Display IMS DC</li> <li>7. Display Dependent Regions</li> <li>8. Display IMS Shutdown Status</li> <li>9. Display APPC</li> <li>10. Display All IMS Pool</li> <li>11. Display IMS online logs</li> <li>12. Display Programs in Restricted State</li> <li>13. Display Q Buffer pool</li> <li>14. Display Transactions in Restricted State</li> <li>15. Display CQS</li> <li>16. Rediscover IMS subsystem resources</li> <li>17. Set Thresholds/Intervals</li> </ol>

Object Type	IMS Command
IMS DBCTL	<ol style="list-style-type: none"> <li>1. Display Dependent Regions</li> <li>2. Display IMS Shutdown Status</li> <li>3. Display All IMS Pool</li> <li>4. Display online logs</li> <li>5. Display Programs in Restricted State</li> <li>6. Display Databases/Areas in Restricted State</li> <li>7. Display FDBR</li> <li>8. Rediscover IMS subsystem resources</li> <li>9. Set Thresholds/Intervals</li> </ol>

## Troubleshooting

If you observe that the Windows NT based components of Tivoli Business Systems Manager are not receiving the instrumentation event data from IMS, then it is necessary for the system programmer or Tivoli Business Systems Manager administrator to perform problem determination. The correct data flow from the origin of a problem condition in IMS to Tivoli Business Systems Manager is the following:

1. An abnormal condition occurs in a subsystem such as IMS.
2. IMS or the Operating System detects the condition and generates an exception or message, which is trapped by the Tivoli NetView for OS/390 Message Automation Table (MAT).
3. The Message Automation Table determines the processing routine associated with this alert or message.
4. The processing routine formats the exception/message and sends it to the TBSM Source/390 Object Pump via the Program to Program Interface (PPI).
5. The TBSM Source/390 Object Pump queues the exception/message in the dataspace.
6. The TBSM Source/390 Object Server dequeues the exception/message and forwards it to the TBSM SNA Server via the LU6.2 pipe or IP connection.

## Diagnostic Activities

If the flow is interrupted, the system programmer or Tivoli Business Systems Manager administrator should diagnose the failure point and then attempt to fix the problem. Since the flow involves several tasks, each task must be checked individually. The following list displays the diagnostic tasks that should be checked to ensure proper operation.

Trouble Source Check Item	Action and Information Reference
Verify that the IMS subsystem and dependent regions are running.	<p>Identify the Jobname/Taskname for the regions. Use the SDSF Display Active command or display the active tasks from the operator console.</p> <p>Refer to the <i>IMS for OS/390: Administration Guide</i>.</p>

Trouble Source Check Item	Action and Information Reference
Verify that the PPI Receiver NETVAOP is active from NetView's perspective. This informs you if the PPI connection between NetView and TBSM Source/390 Object Pump is functional.	Issue the DISPPI command from a NetView operator console. The list of receiver names and buffer statistics is displayed. NETVAOP receiver should be listed.
Verify that the required Message Automation Table entries are present and active.	Issue the AUTOTBL STATUS command from a Netview operator console. Verify that the automation table containing the instrumentation code supporting IMS (IHSIMAT) is active.
Verify that the Tivoli Business Systems Manager Server is up.	Refer to the <i>Tivoli Business Systems Manager Administration Guide</i> .
Verify that the Tivoli Business Systems Manager workstation is up.	Refer to the <i>Tivoli Business Systems Manager User's Guide</i> .

**Note:** All messages are documented in *Tivoli NetView for OS/390 Messages* and available through Tivoli NetView for OS/390 online message help.

## Problem Determination

### Problem:

The PPI Receiver name NETVAOP is listed but the automation table is not functioning.

### Action:

Check the NetView message automation table to ensure that the definitions are active

Verify the NetView SSI subsystem is running with the PPI option enabled.

Issue AUTOTBL STATUS and ensure IHSIMAT is active

### Problem:

The PPI Receiver name NETVAOP is not listed in Netview

### Action:

The system programmer responsible for NetView needs to verify that the AMI support has been installed correctly. The automation table containing the AMI statements should be checked that it is active.

Verify the PPI Receiver NETVAOP is active from AOP's perspective by issuing the following command to display the status of the PPI Receiver.

```
F AOP,PPI STATUS
```

### Problem:

The PPI Receiver task is not running within AOP or the PPI is disabled.

### Action:

Review the AOP job log and determine the state of the PPI. If there are no messages indicating the state of the PPI issue the following command.

```
F AOP,PPI ENABLE
```

If the PPI command is not accepted, GTM7837E PPI OPTION IS INVALID then the PPI task is not running within AOP's address space.

Verify that PPI=YES is specified in the object pump's startup parameters.

---

If the PPI is enabled successfully then the PPI Receiver was inactivated by a PPI DISABLE command.

Verify data is received in the object server LOG Files.

Issue the F OBJSRVR,LOGSWITCH command to switch the log files. Review the job log of object server and determine the log file that is inactive. This is the file that was used prior to the LOGSWITCH command.

**Action:**

Browse the inactive log file and determine if any records were written to that file. Assuming there has been no activity, verify the status of the PPI Receiver in NetView and AOP.

Verify if any records were received on the TBSM DAT FILE

The TBSM DAT FILES are located on the machine that runs the SNA Client ASIMVSListenerSvc program and event handler services. The DAT files can be found in the following directory.

drive:\TivoliManager\Data\smfid\_date\_timestamp.dat

The same records that are viewed in the object server LOG FILE should also be viewed in the TBSM DAT FILE.

**Problem:**

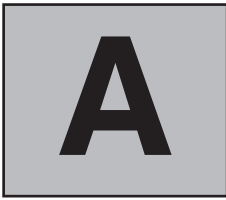
The active DAT file is not receiving the AMI data from TBSM Source/390 Object Server.

**Action:**

Verify that TBSM Source/390 Object Server is receiving data from the PPI.

Verify the status of the SNA communication environment supporting the LU6.2 pipe. Check the SNA Server, SNA Client, and VTAM environments to determine the state of all of these machines.

Correct the SNA connectivity problems. Restart TBSM Source/390 Object Server.



## Mapping of Events to Object Types

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The following table shows all of the IMS events that are integrated with Tivoli Business Systems Manager. The "source" for the events is either MVS console messages generated by IMS components or polled state monitors built in to Tivoli Business Systems Manager for verifying the state of critical components.

The **Resolution** column shows the action that clears the event. Some events have other messages that correct the error condition. For example, the DFS994I message (IMS operational) clears many other events that occur when an IMS Subsystem or critical component fails.

"Clear after 'n' minutes" indicates that the alert is cleared within Tivoli Business Systems Manager after a user-specified polled monitor interval.

"N/A" indicates that the event is a clearing event.

Events with no resolution are not cleared automatically. You clear the alerts by taking ownership of the event (see *Tivoli Business Systems Manager User's Guide* for details).

Object Type	State	Event	Description	Resolution	Source
IMS Subsystem -IMS TM/DB -IMS DCCTL -IMS DBCTL	Active	DFS994I	Start IMS	N/A	IMS
	Inactive	DFS994I	IMS Shutdown	DFS994I	IMS
	Failure	IEF405I	IMS Abended	DFS994I	MVS
	Exception	DFS3492W	APPC Timeout	None	IMS
	Exception	DFS3643I	Dead Letter Queue	None	IMS
	Exception	DFS2139	MSC link error	Clear after "n" min	IMS
	Exception	DFS2140	MSC link unavailable	None	IMS
	Exception	DFS2142	MSC link unavailable	Clear after "n" min	IMS
	Exception	DFS2168I	MSC link available	N/A	IMS
	Exception	DFS2169I	MSC link unavailable	DFS2168I	IMS
	Exception	DFS269	MSC link error	Clear after "n" min	IMS
	Exception	DFS2150A	MSC link error	Clear after "n" min	IMS
	Exception	DFS2150I	MSC link error	Clear after "n" min	IMS
	Exception	DFS3201	MSC link over threshold	None	IMS
	Exception	DFS3202	MSC link error	Clear after "n" min	IMS

Object Type	State	Event	Description	Resolution	Source
IMS Subsystem -IMS TM/DB -IMS DCCTL -IMS DBCTL	Exception	DFS3203	MSC link error	Clear after "n" min	IMS
	Exception	DFS3205	MSC link unavailable	DFS2168I	IMS
	Exception	DFS3206	MSC link error	Clear after "n" min	IMS
	Exception	DFS3207	MSC link over threshold	Clear after "n" min	IMS
	Exception	DFS3208	MSC link unavailable	DFS2168I	IMS
	Exception	DFS3209	MSC link error	Clear after "n" min	IMS
	Exception	DFS3212I	MSC link error	Clear after "n" min	IMS
	Exception	DFS3213I	MSC link error	None	IMS
	Exception	DFS3217	MSC link error	None	IMS
	Exception	DFS3218	MSC link error	Clear after "n" min	IMS
	Exception	DFS3220I	MSC link error	Clear after "n" min	IMS
	Exception	DFS3221	MSC link error	Clear after "n" min	IMS
	Exception	DFS3222I	MSC link error	Clear after "n" min	IMS
	Exception	DFS3223	MSC link error	Clear after "n" min	IMS

Object Type	State	Event	Description	Resolution	Source
IMS Subsystem -IMS TM/DB -IMS DCCTL -IMS DBCTL	Exception	DFS3224	MSC link error	Clear after "n" min	IMS
	Exception	DFS3225	MSC link error	Clear after "n" min	IMS
	Exception	DFS3226	MSC link error	Clear after "n" min	IMS
	Exception	DFS3227	MSC link error	Clear after "n" min	IMS
	Exception	DFS3228	MSC link error	Clear after "n" min	IMS
	Exception	DFS3229	MSC link error	Clear after "n" min	IMS
	Exception	DFS3230	MSC link error	Clear after "n" min	IMS
	Exception	DFS3231	MSC link error	Clear after "n" min	IMS
	Exception	DFS3232	MSC link error	Clear after "n" min	IMS
	Exception	DFS3233	MSC link error	Clear after "n" min	IMS
	Exception	DFS3234	MSC link error	Clear after "n" min	IMS
	Exception	DFS3235	MSC link error	Clear after "n" min	IMS
	Exception	DFS3236	MSC link error	Clear after "n" min	IMS
	Exception	DFS3237	MSC link error	Clear after "n" min	IMS
	Exception	DFS3238	MSC link error	Clear after "n" min	IMS
	Exception	DFS3239	MSC link error	Clear after "n" min	IMS



Object Type	State	Event	Description	Resolution	Source
IMS Subsystem -IMS TM/DB -IMS DCCTL -IMS DBCTL	Exception	DFS3240	MSC link error	Clear after "n" min	IMS
	Exception	DFS3241	MSC link error	Clear after "n" min	IMS
	Exception	DFS3245	MSC link error	Clear after "n" min	IMS
	Exception	DFS3246	MSC link error	Clear after "n" min	IMS
	Exception	DFS3247I	MSC link error	Clear after "n" min	IMS
	Exception	Polled state	MSC restricted	Clear after "n" min	IMS
	Exception	DFS970I	MTO failure error	Clear after "n" min Clear after "n" min	IMS
	Exception	DFS998I	MTO failure error	Clear after "n" min	IMS
	Exception	DFS2000I	MTO failure error	Clear after "n" min	IMS
	Exception	DFS1194I	MTO failure error	Clear after "n" min	IMS
	Exception	Polled state	MTO state down	Clear after "n" min	IMS
	Exception	DFS2021	IMS VTAM ACB error	None	IMS
	Exception	DFS2027I	IMS VTAM ACB error	None	IMS
	Exception	DFS2109	IMS VTAM ACB unavailable	None	IMS
IMS Subsystem -IMS TM/DB -IMS DCCTL -IMS DBCTL	Exception	DFS2110A	IMS VTAM ACB unavailable	None	IMS
	Exception	DFS2111I	IMS VTAM ACB unavailable	None	IMS
	Exception	DFS2178I	IMS VTAM ACB unavailable	None	IMS
	Exception	DFS2179I	IMS VTAM ACB unavailable	None	IMS

Object Type	State	Event	Description	Resolution	Source
IMS Database	Exception	DFS983I	Database error	Clear after "n" min	IMS
	Exception	DFS838I	Database error	Clear after "n" min	IMS
	Exception	DFS840I	Database error	Clear after "n" min	IMS
	Exception	DFS842I	Database full over threshold	Clear after "n" min	IMS
	Exception	DFS843I	Database full over threshold	Clear after "n" min	IMS
	Exception	DFS844I	Database full over threshold	Clear after "n" min	IMS
	Exception	DFS845I	Database full over threshold	Clear after "n" min	IMS
	Exception	State polled	Database restricted	Clear after "n" min	TBSM IMS
IMS Area	Exception	DFS2605I	Database area error	Clear after "n" min	IMS
	Exception	DFS2606I	Database area error	None	IMS
	Exception	DFS2524I	Database area error	Clear after "n" min	IMS
	Exception	DFS2571I	Database area error	Clear after "n" min	IMS
	Exception	DFS2572I	Database area error	Clear after "n" min	IMS
	Exception	DFS2573I	Database area error	Clear after "n" min	IMS
	Exception	DFS2683A	Database area error	Clear after "n" min	IMS
	Exception	DFS2684I	Database area error	Clear after "n" min	IMS
	Exception	DFS3702I	Database area error	Clear after "n" min	IMS
IMS Program	Exception	Polled state	Program restricted	Clear after "n" min	IMS
IMS Transaction	Message	DFS206I	Message data set full	N/A	IMS
	Message	DFS207I	Message data set full	N/A	IMS
	Message	DFS208I	Message data set full	N/A	IMS
	Exception	DFS2013	Message data set full	DFS2016	IMS

Object Type	State	Event	Description	Resolution	Source
IMS Transaction	Exception	DFS2014	Message data set full	DFS2017	IMS
	Exception	DFS2015	Message data set full	DFS2018	IMS
	Exception	DFS2016	Message dataset not full	N/A	IMS
	Exception	DFS2017	Message dataset not full	N/A	IMS
	Exception	DFS2018	Message dataset not full	N/A	IMS
	Abend	DFS554A	Transaction abend	Clear after "n" mins	IMS
	Exception	Transaction restricted	Polled state	Clear after "n" mins	TBSM IMS
	Exception	Polled state	Transaction Q length	Clear after "n" mins	TBSM IMS
IMS log	Unavailable	DFS3259I	Archive log unavailable	DFS3263I	IMS
	Unavailable	DFS3263I	Archive log unavailable	DFS3263I	IMS
	Available	DFS3263I	Archive log available	N/A	IMS
	Exception	DFS3264I	Archive log error	None	IMS
	Exception	DFS0414I	Log Error	None	IMS
IMS log	Exception	DFS3265I	Log Error	None	IMS
	Exception	DFS3258I	Log shortage	Clear after "n" mins	IMS
	Exception	DFS3260I	Log shortage	Clear after "n" mins	IMS
	Exception	DFS3262I	Log shortage	None	IMS
	Exception	DFS0737A	Log shortage	None	
	Exception	DFS3257I	Number of available logs	Clear after "n" mins	TBSM
	Exception	DFS2484I	Log archive time exceeded threshold	Clear after "n" mins	TBSM
IMS MPR IMS IFP IMS BMP	Active	DFS551I	Dependent region up	N/A	IMS
	Inactive	DFS552I	Dependent region down	DFS551I	IMS
IMS IRLM	Exception	DFS625I	IRLM reconnect error	DFS626I	IMS
		DFS626I	IRLM reconnect available	N/A	IMS
	Message	DFS039A	IRLM connect unavailable		IMS

Object Type	State	Event	Description	Resolution	Source
IMS IRLM	Exception	DFS2011I	IRLM connect unavailable	DXR117I/ DXR009I	IMS
	Exception	DXR122E	IRLM connect error	DXR117I/ DXR009I	IRLM
	Exception	DXR123E	IRLM connect error	DXR117I/ DXR009I	IRLM
	Exception	DXR162I	IRLM long wait over threshold	None	IMS
	Inactive	DXR121I	IRLM down	DRX117I	IMS
	Inactive	DXR011I	IRLM down	DXR009I	IMS
	Active	DXR117I	IRLM up	N/A	IMS
	Active	DXR009I	IRLM up	N/A	IMS
	Inactive	IEF450I	IRLM abended	DXR117I/ DXR009I	MVS
IMS CQS	Exception	CQS0111W	IMS CQS error	None	IMS
	Exception	CQS0018E	IMS CQS error	CQS0020I	IMS
	Exception	CQS0019E	IMS CQS error	None	IMS
	Active	CQS0020I	IMS CQS up	N/A	IMS
	Inactive	CQS0021I	IMS CQS down	CQS0020I	IMS
	Abended	EF450I	IMS CQS abended	CQS0020I	MVS
IMS FDBR	Active	DFS4161I	IMS FDBR up	N/A	IMS
	Inactive	DFS4169I	IMS FDBR down	DFS4161I	IMS
	Abended	IEF450I	IMS FDBR abended	DFS4161I	MVS
ESAF DB2 ESAF MQS	Inactive	DFS0800I	ESAF unavailable	DFS0801I	IMS
	Active	DFS0801I	ESAF available	N/A	IMS
	Exception	DFS3607I	ESAF error	None	IMS
	Exception	DFS3411I	ESAF error	None	IMS
IMS ITOC	Exception	HWSR0800E	FWE error	None	ITOC
	Exception	HWSR0700E	FWE error	None	ITOC
	Exception	HWSD0252W	Client unavailable	None	ITOC
	Exception	HWSD0727W	Client unavailable	None	ITOC
	Exception	HWSD0730W	Port available	None	ITOC
	Exception	HWSC0100W	Storage threshold exceeded	None	ITOC

Object Type	State	Event	Description	Resolution	Source
IMS ITOC	Exception	HWSC0110W	Storage threshold exceeded	None	ITOC
	Exception	HWSD0212E	Storage threshold exceeded	None	ITOC
	Exception	HWSD0222E	Storage threshold exceeded	None	ITOC
	Exception	HWSD0227W	Storage threshold exceeded	None	ITOC
	Exception	HWSO1100W	Storage threshold exceeded	None	ITOC
	Exception	HWSO1101W	Storage error	None	ITOC
IMS ITOC	Exception	HWSO1105W	Storage threshold exceeded	None	ITOC
	Exception	HWSO1205W	Storage threshold exceeded	None	ITOC
	Exception	HWSO1305W	Storage threshold exceeded	None	ITOC
	Exception	HWSP1405W	Storage threshold exceeded	None	ITOC
	Exception	HWSP1410W	Storage error	None	ITOC
IMS ITOC	Exception	HWSR0810E	Storage threshold exceeded	None	ITOC
	Exception	HWSR0712E	Storage threshold exceeded	None	ITOC
	Exception	HWSR0714E	Storage threshold exceeded	None	ITOC
	Exception	HWSR0746W	Storage error	None	ITOC
	Exception	HWSX0901E	Storage threshold exceeded	None	ITOC
	Exception	HWSD0252W	TCP/IP error	None	ITOC
	Exception	HWSP1420E	TCP/IP error	None	ITOC
	Exception	HWSP1430E	TCP/IP error	None	ITOC
	Exception	HWSP1415E	TCP/IP error	None	ITOC
	Exception	HWSP1485E	TCP/IP error	None	ITOC
	Exception	HWSD0250W	Data store error	None	ITOC
	Exception	HWSD0254W	Data store error	None	ITOC
	Exception	HWSD0260I	Data store is unavailable	None	ITOC

Object Type	State	Event	Description	Resolution	Source
IMS ITOC	Exception	HWSD0270I	Data store error	None	ITOC
	Exception	HWSD0280I	Data store is unavailable	None	ITOC
	Exception	HWSD0282I	Data store is unavailable	None	ITOC
	Exception	HWSD0284I	Data store is unavailable	None	ITOC
	Exception	HWSD0286I	Data store error	HWSO0290I	ITOC
	Exception	HWSD0290I	Data store is available	N/A	ITOC
	Exception	HWSO1110W	Data store is unavailable	None	ITOC
	Exception	HWSO1115W	Data store is unavailable	None	ITOC
	Exception	HWSO1210W	Data store is unavailable	None	ITOC
	Exception	HWSO1215W	Data store is unavailable	None	ITOC
	Exception	HWSO1220W	Data store is unavailable	None	ITOC
	Exception	HWSO1310W	Data store is unavailable	None	ITOC
	Exception	HWSO1315W	Data store error	None	ITOC
	Exception	HWSO1320W	Data store error	None	ITOC
	Exception	HWSO1325W	Data store error	None	ITOC
IMS ITOC	Active	HWSC0000I	ITOC is up	N/A	ITOC
	Inactive	BPE0009I	ITOC is down	HWSC0000I	ITOC
	Exception	HWSP1470E	ITOC error	None	ITOC
	Exception	HWSP1475E	ITOC error	None	ITOC
	Exception	HWSP1480E	ITOC error	None	ITOC
	Exception	HWSR0880I	ITOC is available	N/A	ITOC
	Exception	HWSR0890I	ITOC is unavailable	HWSR0880I	ITOC
	Exception	HWSS0761I	ITOC is unavailable	HWSR0890I	ITOC
	Exception	HWSS0770I	ITOC error	HWSR0790I	ITOC
	Exception	HWSS0771W	ITOC error	HWSR0790I	ITOC
	Exception	HWSS0775W	ITOC error	None	ITOC
	Exception	HWSS0780I	ITOC is available	None	ITOC
	Exception	HWSS0785W	ITOC error	HWSS0780I	ITOC
	Exception	HWSS0790I	ITOC is available	N/A	ITOC
	Abended	IEF450I	ITOC abended	HWSC0000I	MVS

Object Type	State	Event	Description	Resolution	Source
IMS ITOC	Exception	HWSX0902E	IMS connect over threshold	None	ITOC
	Exception	HWSX0903E	IMS connect over threshold	None	ITOC
	Exception	HWSX0904E	IMS connect over threshold	None	ITOC
	Exception	HWSX0905E	IMS connect over threshold	None	ITOC
	Exception	HWSX0907E	IMS connect over threshold	None	ITOC
	Exception	HWSX0909E	IMS connect over threshold	None	ITOC
	Exception	HWSX0910E	IMS connect over threshold	None	ITOC
	Exception	HWSX0911E	IMS connect over threshold	None	ITOC
	Exception	HWSX0912E	IMS connect over threshold	None	ITOC
	Exception	HWS0912W	User init warning	None	ITOC
	Exception	HWSX0913E	User init error	None	ITOC
IMS Sysplex	Exception	CQS0205E	CQS structure full over threshold	CQS0206I and None	CQS
	Reset	CQS0206I	CQS structure full below threshold	N/A	CQS
	Exception	CQS0014E	CQS structure fail error	None	CQS
	Exception	CQS0242E	CQS structure fail error	None	CQS
	Exception	CQS0008W	CQS structure volatile error	None	CQS
	Exception	CQS0009W	CQS structure volatile error	None	CQS
	Exception	CQS0200I	CQS structure quiesce error	CQS0201I	CQS
		CQS0201I	CQS structure quiesce error	N/A	CQS
	Exception	DXR142E	Lock structure full over threshold	DXR169I	IRLM
IMS Sysplex	Reset	DXR169I	Lock structure full below threshold	N/A	IRLM
	Exception	DXR166E	Lock structure failure	None	IRLM

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## Suggested Alert State Settings

All events in Tivoli Business Systems Manager are categorized by alert state and priority. When installed, Tivoli Business Systems Manager has default settings of Yellow/Ignore for exceptions and Green/Ignore for messages.

The Tivoli Business Systems Manager administrator should override these values in order to "tune" Tivoli Business Systems Manager so that only meaningful alerts are propagated to the workstation. Suggested settings are provided in the following list.

**Alert State** can have the values of Red, Yellow or Green.

**Priority** can have the values of Critical, High, Medium, Low or Ignore.

For more detailed information on understanding and setting alert state and priority refer to the *Tivoli Business Systems Manager Administration Guide*.

Object Type	State	Event ID	Description	Alert State	Priority
IMS Subsystem -IMS TM/DB -IMS DCCTL -IMS DBCTL	Active	DFS994I _UP	Start IMS	Green	Low
	Inactive	DFS994I _DOWN	IMS Shutdown	Red	High
	Abended	IEF405I	IMS Abended	Red	Critical
	Exception	DFS3492W	APPC Time-out	Yellow	Low
	Exception	DFS3643I	Dead Letter Queue	Yellow	Low
	Exception	DFS2139_MSC%	MSC link error	Yellow	Low
	Exception	DFS2140	MSC link Unavailable	Yellow	Low
	Exception	DFS2142_MSC%	MSC link Unavailable	Yellow	Low
	Resolution	DFS2169I	MSC link unavailable	Green	
	Exception	DFS2169I_MSC%	MSC link unavailable	Yellow	Low
	Exception	DFS269_MSC%	MSC link error	Yellow	Low
	Exception	DFS2150A_MSC%	MSC link error	Yellow	Low
	Exception	DFS2150I_MSC%	MSC link error	Yellow	Low

Object Type	State	Event ID	Description	Alert State	Priority
IMS Subsystem -IMS TM/DB -IMS DCCTL -IMS DBCTL	Exception	DFS3201	MSC link threshold exceeded	Yellow	Low
	Exception	DFS3202_MSC%	MSC link error	Yellow	Low
	Exception	DFS3203_MSC%	MSC link error	Yellow	Low
	Exception	DFS3205_MSC%	MSC link unavailable	Yellow	Low
	Exception	DFS3206_MSC%	MSC link error	Yellow	Low
	Exception	DFS3207_MSC%	MSC link threshold exceeded	Yellow	Low
	Exception	DFS3208_MSC%	MSC link unavailable	Yellow	Low
	Exception	DFS3209_MSC%	MSC link error	Yellow	Low
	Exception	DFS3212I_MSC%	MSC link error	Yellow	Low
	Exception	DFS3213I	MSC link error	Yellow	Low
	Exception	DFS3217	MSC link error	Yellow	Low
	Exception	DFS3218_MSC%	MSC link error	Yellow	Low
	Exception	DFS3220I_MSC%	MSC link error	Yellow	Low
	Exception	DFS3221_MSC%	MSC link error	Yellow	Low
IMS Subsystem -IMS TM/DB -IMS DCCTL -IMS DBCTL	Exception	DFS3222I_MSC%	MSC link error	Yellow	Low
	Exception	DFS3223_MSC%	MSC link error	Yellow	Low
	Exception	DFS3224_MSC%	MSC link error	Yellow	Low
	Exception	DFS3225_MSC%	MSC link error	Yellow	Low
	Exception	DFS3226_MSC%	MSC link error	Yellow	Low
	Exception	DFS3227_MSC%	MSC link error	Yellow	Low
	Exception	DFS3228_MSC%	MSC link error	Yellow	Low
	Exception	DFS3229_MSC%	MSC link error	Yellow	Low
	Exception	DFS3230_MSC%	MSC link error	Yellow	Low
	Exception	DFS3231_MSC%	MSC link error	Yellow	Low
	Exception	DFS3232_MSC%	MSC link error	Yellow	Low
	Exception	DFS3233_MSC%	MSC link error	Yellow	Low
	Exception	DFS3234_MSC%	MSC link error	Yellow	Low
	Exception	DFS3235_MSC%	MSC link error	Yellow	Low

Object Type	State	Event ID	Description	Alert State	Priority
IMS Subsystem -IMS TM/DB -IMS DCCTL -IMS DBCTL	Exception	DFS3236_MSC%	MSC link error	Yellow	Low
	Exception	DFS3237_MSC%	MSC link error	Yellow	Low
	Exception	DFS3238_MSC%	MSC link error	Yellow	Low
	Exception	DFS3239_MSC%	MSC link error	Yellow	Low
	Exception	DFS3240_MSC%	MSC link threshold exceeded	Yellow	Low
	Exception	DFS3241_MSC%	MSC link error	Yellow	Low
	Exception	DFS3245_MSC%	MSC link error	Yellow	Low
	Exception	DFS3246_MSC%	MSC link error	Yellow	Low
	Exception	DFS3247I_MSC%	MSC link error	Yellow	Low
	Exception	MSC%_	polled MSC restricted	Yellow	Low
	Exception	DFS970I	MTO failure error	Yellow	Critical
	Exception	DFS998I	MTO failure error	Yellow	Critical
	Exception	DFS2000I	MTO failure error	Yellow	Critical
	Exception	DFS1194I	MTO failure error	Yellow	Low
IMS Subsystem -IMS TM/DB -IMS DCCTL -IMS DBCTL	Exception	MTO_%	polled MTO state down	Yellow	Critical
	Exception	DFS2606I	Database area error	Yellow	Low
	Message	DFS206	Message dataset full	Red	High
	Message	DFS207	Message dataset full	Red	High
	Message	DFS208	Message dataset full	Red	High
	Exception	DFS2013	Message dataset full	Yellow	Medium
	Exception	DFS2014	Message dataset full	Yellow	Medium
	Exception	DFS2015	Message dataset full	Yellow	Medium
	Exception	DFS3257I	Available log below threshold	Yellow	Low
	Exception	DFS2021	IMS VTAM ACB error	Yellow	High
	Exception	DFS2027I	IMS VTAM ACB error	Yellow	High
	Exception	DFS2109	IMS VTAM ACB unavailable	Yellow	High
	Exception	DFS2110A	IMS VTAM ACB unavailable	Yellow	High
	Exception	DFS2111I	IMS VTAM ACB unavailable	Yellow	Low
	Exception	DFS2178I	IMS VTAM ACB unavailable	Yellow	High
	Exception	DFS2179I	IMS VTAM ACB unavailable	Yellow	High

Object Type	State	Event ID	Description	Alert State	Priority
IMS Database	Exception	DFS983I	Database error	Yellow	Critical
	Exception	DFS838I	Database error	Yellow	Critical
	Exception	DFS840I	Database error	Yellow	Critical
	Exception	DFS842I	Database full over threshold	Yellow	High
	Exception	DFS843I	Database full over threshold	Yellow	Low
	Exception	DFS844I	Database full over threshold	Yellow	High
IMS Database	Exception	DFS845I	Database full over threshold	Yellow	Low
IMS Area	Exception	DFS2605I	Database area error	Yellow	Low
	Exception	DFS2524I	Database area error	Yellow	Low
	Exception	DFS2571I	Database area error	Yellow	Low
	Exception	DFS2572I	Database area error	Yellow	Low
	Exception	DFS2573I	Database area error	Yellow	Low
	Exception	DFS2683A	Database area error	Yellow	Critical
	Exception	DFS2684I	Database area error	Yellow	Critical
	Exception	DFS3702I	Database area error	Yellow	Critical
IMS program	Exception	PGM_%	Polled Program restricted	Yellow	Critical
Transaction Log	Exception	DFS554A	Transaction abend	Yellow	Critical
	Exception	TXN_%	Polled Transaction restricted	Yellow	Critical
	Exception	TXQ_%	Polled Transaction Q length	Yellow	High
IMS Log	Exception	DFS3259I	Archive failure log unavailable	Yellow	Low
	Exception	DFS3263I	Archive failure log unavailable	Yellow	Low
	Exception	DFS3264I	Archive failure log error	Yellow	
	Exception	DFS0414I	Log Error	Yellow	Low
	Exception	DFS3265I	Log Error	Yellow	Low
	Exception	DFS3256I	Log Error	Yellow	Low
	Exception	DFS3258I	Log shortage	Red	High
IMS Log	Exception	DFS3260I	Log shortage	Yellow	Medium
	Exception	DFS3262I	Log shortage	Yellow	Medium
	Exception	DFS0737A	Log shortage	Red	High
	Exception	DFS2484I	Log archive time over threshold	Yellow	Low

Object Type	State	Event ID	Description	Alert State	Priority
IMS MPR IMS IFP IMS BMP	Active	DFS551I	Dependent region up	Green	
	Inactive	DFS552I	Dependent region down	Red	Medium
	Abended	IEF450I	Dependent region down	Red	Medium
IMS IRLM	Exception	DFS625I	IRLM reconnect error	Yellow	Critical
		DFS625I	IRLM reconnect available	Green	
	Exception	DFS039A	IRLM connect unavailable	Red	High
	Exception	DFS2011I	IRLM connect unavailable	Yellow	Critical
	Exception	DXR122E	IRLM connect error	Red	Critical
	Exception	DXR123E	IRLM connect error	Red	Critical
	Exception	DXR162I	IRLM long wait over threshold	Yellow	Low
	Active	DXR117I	IRLM up	Green	
IMS IRLM	Active	DXR009I	IRLM up	Green	
	Inactive	DXR121I	IRLM down	Red	High
	Inactive	DXR011I	IRLM down	Red	High
	Abended	IEF450I	IRLM abended	Red	Critical
IMS CQS	Exception	CQS0111W	IMS CQS error	Yellow	Critical
	Exception	CQS0018E	IMS CQS error	Red	Critical
	Exception	CQS0019E	IMS CQS error	Yellow	High
	Active	CQS0020I	IMS CQS up	Green	
	Inactive	CQS0021I	IMS CQS down	Red	High
	Abended	EF450I	IMS CQS abended	Red	Critical
IMS FDBR	Active	DFS4161I	FDBR up	Green	
	Inactive	DFS4169I	FDBR down	Red	High
	Abended	IEF450I	FDBR abended	Red	Critical
ESAF DB2 ESAF MQS	Inactive	DFS0800I	ESAF unavailable	Yellow	Critical
	Active	DFS0800I	ESAF available	Green	
	Exception	DFS3607I	ESAF error	Yellow	Critical
	Exception	DFS3611I	ESAF error	Yellow	Critical

Object Type	State	Event ID	Description	Alert State	Priority
IMS ITOC	Exception	HWSR0800E	FWE error	Yellow	Low
	Exception	HWSR0700E	FWE error	Yellow	Low
	Exception	HWSD0252W	Client unavailable	Yellow	Low
	Exception	HWSD0727W	Client unavailable	Yellow	Low
	Exception	HWSD0730W	Port unavailable	Yellow	Low
	Exception	HWSC0100W	Storage threshold exceeded	Yellow	Low
	Exception	HWSC0110W	Storage threshold exceeded	Yellow	Low
	Exception	HWSD0212E	Storage threshold exceeded	Yellow	Low
	Exception	HWSD0222E	Storage threshold exceeded	Yellow	Low
	Exception	HWSD0227W	Storage threshold exceeded	Yellow	Low
	Exception	HWSO1100W	Storage threshold exceeded	Yellow	Low
	Exception	HWSO1101W	Storage error	Yellow	Low
IMS ITOC	Exception	HWSO1105W	Storage threshold exceeded	Yellow	Low
	Exception	HWSO1205W	Storage threshold exceeded	Yellow	Low
	Exception	HWSO1305W	Storage threshold exceeded	Yellow	Low
	Exception	HWSP1405W	Storage threshold exceeded	Yellow	Low
	Exception	HWSP1410W	Storage error	Yellow	Low
	Exception	HWSR0810E	Storage threshold exceeded	Yellow	High
	Exception	HWSR0712E	Storage threshold exceeded	Yellow	High
	Exception	HWSR0714E	Storage threshold exceeded	Yellow	Low
	Exception	HWSR0746W	Storage error	Yellow	Low
	Exception	HWSX0901E	Storage threshold exceeded	Yellow	Critical
	Exception	HWSD0252W	TCP/IP error	Yellow	Low
	Exception	HWSP1420E	TCP/IP error	Yellow	Low
	Exception	HWSP1430E	TCP/IP error	Yellow	Low

Object Type	State	Event ID	Description	Alert State	Priority
IMS ITOC	Exception	HWSP1415E	TCP/IP error	Yellow	Low
	Exception	HWSP1485E	TCP/IP error	Yellow	Low
	Exception	HWSD0250W	Data store error	Yellow	Low
	Exception	HWSD0254W	Data store error	Yellow	Low
		HWSD0260I	Data store is unavailable	Yellow	Low
	Exception	HWSD0270I	Data store error	Yellow	Low
		HWSD0280I	Data store is unavailable	Yellow	Critical
		HWSD0282I	Data store is unavailable	Yellow	Critical
		HWSD0284I	Data store is unavailable	Yellow	Critical
IMS ITOC	Exception	HWSD0286I	Data store error	Yellow	Medium
		HWSD0290I	Data store is available	Green	
		HWSO1110W	Data store is unavailable	Yellow	Low
		HWSO1115W	Data store is unavailable	Yellow	Low
		HWSO1210W	Data store is unavailable	Yellow	Low
		HWSO1215W	Data store is unavailable	Yellow	Low
		HWSO1220W	Data store is unavailable	Yellow	Low
		HWSO1310W	Data store is unavailable	Yellow	Low
	Exception	HWSO1315W	Data store error	Yellow	Low
	Exception	HWSO1320W	Data store error	Yellow	Low
	Exception	HWSO1325W	Data store error	Yellow	Low
	Active	HWSC0000I	ITOC is up	Green	
	Inactive	BPE0009I_HWS	ITOC is down	Red	High
	Abended	IEF450I	ITOC abended	Red	Critical

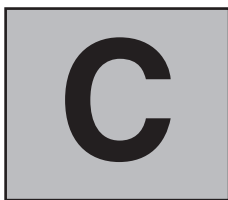
Object Type	State	Event ID	Description	Alert State	Priority
IMS ITOC	Exception	HWSP1470E	ITOC error	Yellow	Low
	Exception	HWSP1475E	ITOC error	Yellow	Low
	Exception	HWSP1480E	ITOC error	Yellow	Low
	Resolution	HWSR0890I	ITOC is available	Green	
	Inactive	HWSR0890I	ITOC is unavailable	Yellow	Low
	Inactive	HWSS0761I	ITOC is unavailable	Yellow	Low
	Exception	HWSS0770I	ITOC error	Yellow	Low
	Exception	HWSS0771W	ITOC error	Yellow	Low
	Exception	HWSS0775W	ITOC error	Yellow	Low
	Resolution	HWSS0785	ITOC is available	Green	
	Exception	HWSS0785W	ITOC error	Yellow	Low
	Resolution	HWSS0770I	ITOC is available	Green	
	Exception	HWSX0902E	IMS connect over threshold	Red	Critical
	Exception	HWSX0903E	IMS connect over threshold	Red	Critical
IMS ITOC	Exception	HWSX0904E	IMS connect over threshold	Red	Critical
	Exception	HWSX0905E	IMS connect over threshold	Red	Critical
	Exception	HWSX0907E	IMS connect over threshold	Red	Critical
	Exception	HWSX0909E	IMS connect over threshold	Red	Critical
	Exception	HWSX0910E	IMS connect over threshold	Red	Critical
	Exception	HWSX0911E	IMS connect over threshold	Red	Critical
	Exception	HWSX0912E	IMS connect over threshold	Red	Critical
	Exception	HWS0912W	User init warning	Yellow	Low
	Exception	HWSX0913E	User init error	Red	High
IMS Sysplex	Exception	CQS0205E	CQS structure full over threshold	Red	High
	Resolution	CQS0205E	CQS structure full below threshold	Green	
	Exception	CQS0014E	CQS structure fail error	Red	High
	Exception	CQS0242E	CQS structure fail error	Red	High
	Exception	CQS0008W	CQS structure volatile error	Yellow	Low



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Object Type	State	Event ID	Description	Alert State	Priority
IMS Sysplex	Exception	CQS0009W	CQS structure volatile error	Yellow	Low
	Exception	CQS0200I	CQS structure quiesce error	Yellow	Low
	Resolution	CQS0200I	CQS structure quiesce reset	Green	
	Exception	DXR142I	Lock structure full over threshold	Yellow	Low
	Resolution	DXR142	Lock structure full below threshold	Green	
	Exception	DXR166E	Lock structure failure	Red	Critical

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# Messages for TBSM IMS Monitoring Components

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The NetView instrumentation and discovery generate the following error messages for the components of Tivoli Business Systems Manager:

<b>IHS300I</b>	<b>pgm ENDED. RC = nn</b> <b>Explanation:</b> Indicates completion of the initial discovery process and the final return code issued. <b>Message Variables:</b> pgm = IHSIPDIS nn = the return code <b>Operator Response:</b> None <b>Module:</b> IHSIPDIS
<b>IHS301E</b>	<b>EXECIO ERROR ON PARM MEMBER. RC = nn</b> <b>Explanation:</b> Indicates a READ error on the parameter member being processed. For the return codes see <i>TSO/E REXX User's Guide</i> . <b>Operator Response:</b> Investigate cause of failure and resolve <b>Module:</b> IHSISPRM
<b>IHS302E</b>	<b>EXECIO ERROR ON PROG/TRAN FILE. RC = nn</b> <b>Explanation:</b> Indicates a READ error on the Program/Transaction file being processed. This refers to the file created by program, IHSIDPGx. For the return codes (nn) see <i>TSO/E REXX User's Guide</i> SC28-1974-01. <b>Operator Response:</b> Investigate the cause of failure and resolve <b>Module:</b> IHSIPPRO
<b>IHS303E</b>	<b>EXECIO ERROR ON DB/AREA FILE. RC = nn</b> <b>Explanation:</b> Indicates a READ error on the Database/Area file being processed. This refers to the file created by program, IHSIDDBx. For the return codes (nn) see <i>TSO/E REXX User's Guide</i> SC28-1974-01. <b>Operator Response:</b> Investigate cause of failure and resolve <b>Module:</b> IHSIPPRO
<b>IHS304E</b>	<b>EXECIO ERROR ON JES PROCLIB MEMBER. RC = nn</b> <b>Explanation:</b> Indicates a READ error on the JES procedure library being processed. For the return codes (nn) see <i>TSO/E REXX User's Guide</i> . <b>Operator Response:</b> Investigate cause of failure and resolve <b>Module:</b> IHSIRJCL

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**IHS305E**

**EXECIO ERROR ON CONFIG FILE. NO RECORDS IN FILE.**

**Explanation:** Indicates a READ error on the CONFIG file being processed. This refers to the file created by IHSIPDIS and reprocessed here to create a Tivoli Business Systems Manager file.

**Operator Response:** Investigate cause of failure and resolve

**Module:** IHSITM39

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**IHS306E**

**EXECIO ERROR ON SYSLOG DATASET(s). RC = nn**

**Explanation:** Indicates a READ error on the SYSLOG dataset(s) being processed. For the return codes (nn) see *TSO/E REXX User's Guide* SC28-1974-01.

**Operator Response:** Indicates a READ error on the SYSLOG dataset(s) being processed. For the return codes (nn) see *TSO/E REXX User's Guide* SC28-1974-01.

**Module:** IHSIPDIS

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**IHS307E**

**EXECIO ERROR ON rds FILE. RC = nn**

**Explanation:** Indicates a READ error on the Restart dataset being processed. This is only relevant for a restart run.

**Message Variables:**

rds = the DD name of the restart dataset being processed.

nn = the return code.

For the return codes (nn) see *TSO/E REXX User's Guide* SC28-1974-01.

**Operator Response:** Investigate cause of failure and resolve

**Module:** IHSIPDIS

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**IHS308E**

**PARAMETER MEMBER ERROR. member NOT FOUND.**

**Explanation:** Indicates a READ error on a parameter member being processed. This is issued in a number of situations for various parameter members.

**Message Variables:**

member = the dataset/member name combination being processed.

**Operator Response:** Investigate cause of failure and resolve

**Module:** IHSIPDIS

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**IHS309I**

**RESTART STAGE HAS BEEN REACHED. CODE RESTART=0 IF JOB FAILS.**

**Explanation:** Indicates that IHSIPDIS has processed to a point where a RESTART run could be submitted in the event of a failure. A restart run will not reprocess the original SYSLOG datasets as all relevant information has been saved away.

**Operator Response:** code RESTART=0 on input parameter list.

**Module:** IHSIPDIS

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**IHS310W****ALLOCATION FAILED FOR dataset. RC =nn**

**Explanation:** Indicates that a failure has occurred for an ALLOCATE command. This is issued in a number of different places for various DDNAMEs.

**Message Variables:**

dataset = the DDNAME being allocated.

nn = the return code.

For the return codes see *TSO/E REXX User's Guide*.

**Operator Response:** Investigate cause of failure and resolve

**Module:** IHSIPDIS

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**IHS311W****FREE FAILED FOR dataset. RC = nn**

**Explanation:** Indicates that a failure has occurred for an FREE command. This is issued in a number of different places for various DDNAMEs.

**Message Variables:**

dataset = the DDNAME being freed.

nn = the return code.

For the return codes see *TSO/E REXX User's Guide*.

**Operator Response:** Ignore this message if rc = 48 (not freed not allocated) as a free is performed at the top of each REXX. For other return codes investigate cause of failure and resolve. See *TSO/E REXX User's Guide* for more information on return codes.

**Module:** IHSIPDIS

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**IHS312W****IRLM IGNORED - object subsys. NO MATCHING IMS REGION.**

**Explanation:** Indicates that an IRLM has been discovered for which there is no matching IMS region. No output will be created for this IRLM.

**Message Variables:**

object = the IRLM object name (job name).

subsys = the IRLM subsystem name.

**Module:** IHSIPDIS

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**IHS313W****CQS IGNORED - object subsys. NO MATCHING IMS REGION.**

**Explanation:** Indicates that a CQS has been discovered for which there is no matching IMS region. No output will be created for this CQS.

**Message Variables:**

object = the CQS object name (job name).

subsys = the CQS subsystem name.

**Module:** IHSIPDIS

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**IHS314W**      **ITOC IGNORED - *object*. NO MATCHING IMS REGION.**

**Explanation:** Indicates that an ITOC has been discovered for which there is no matching IMS region. No output will be created for this ITOC.

**Message Variables:**

*object* = the ITOC object name (job name).

**Module:** IHSIPDIS

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**IHS314W**      **ITOC IGNORED - *object*. NO MATCHING IMS REGION.**

**Explanation:** Indicates that an ITOC has been discovered for which there is no matching IMS region. No output will be created for this ITOC.

**Message Variables:**

*object* = the ITOC object name (job name).

**Module:** IHSIPDIS

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**IHS315I**      **TABLE OVERFLOW IN IMS PREDISCOVERY**

**Explanation:** This message is issued when the amount of data gathered in predisccovery exceeds the available memory available to the discovery program.

**Operator Response:** Contact your Tivoli Customer Support.

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**IHS320I**      **TBSM START DISPLAY FOR REQUEST - *request*.**

**Explanation:** Indicates a header message for the display.

**Message Variables:**

*request* = the command request

**Module:** IHSITASK

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**IHS321I**      *out*

**Explanation:** Indicates a data output of the display.

**Message Variables:**

*out* = the output from the display

**Module:** IHSITASK

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**IHS322I**      **TBSM END DISPLAY FOR REQUEST - *request*.**

**Explanation:** Indicates an end of display.

**Message Variables:**

*request* = the command request

**Module:** IHSITASK

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<b>IHS323I</b>	<b>OBJECT NAME (<i>object</i>) NOT KNOWN.</b>  <b>Explanation:</b> Indicates an object is not known to Tivoli Business Systems Manager.  <b>Message Variables:</b>  <i>object</i> = the object name  <b>Module:</b> IHSITASK
<b>IHS324I</b>	<b>DISPLAY MASTER STATUS COMMAND HAS FAILED.</b>  <b>Explanation:</b> This is issued when a /DISPLAY MASTER STATUS command fails.  <b>Module:</b> IHSITASK
<b>IHS360I</b>	<b>AO Controller Exit IHSIAOEC initialized for IMS v.r.m type system imsid</b>  <b>Explanation:</b> The Tivoli Business Systems Manager AO Controller Exit was initialized.  In the message text:  <b>v.r.m</b> The version, release, and modification level of the IMS under which IHSIAOEC is executing.  <b>type</b> The type of IMS, TM/DB, DCCTL, or DBCTL.  <b>imsid</b> The IMS subsystem id.  <b>Module:</b> IHSIAOEC  <b>System Action:</b> Tivoli Business Systems Manager continues processing.  <b>Operator Response:</b> None.
<b>IHS361I</b>	<b>Successfully loaded Exit Control Table IHSIAOEE imsid</b>  <b>Explanation:</b> The Tivoli Business Systems Manager AO Controller Exit loaded the Exit Control Table.  In the message text:  <b>imsid</b> The IMS subsystem id.  <b>Module:</b> IHSIAOEC  <b>System Action:</b> Tivoli Business Systems Manager continues processing.
<b>IHS362E</b>	<b>Error loading Exit Control Table IHSIAOEE, CSRC=<i>rc</i> CSRSN=<i>rsn</i> imsid</b>  <b>Explanation:</b> The Tivoli Business Systems Manager AO Controller Exit was not able to load the Exit Control Table.  In the message text:  <b><i>rc</i></b> Return code from IMS Callable Services.  <b><i>rsn</i></b> Reason code from IMS Callable Services.  <b><i>imsid</i></b> The IMS subsystem id.  <b>Module:</b> IHSIAOEC  <b>System Action:</b> The Tivoli Business Systems Manager AO Controller Exit remains active, and continue to be called by IMS, but performs no action. Additional AO type 2 exits do not get invoked. Tivoli Business Systems Manager is not able to capture all of the expected IMS events.  <b>Operator Response:</b> Check that the Exit Control Table has been correctly customized and installed, into either a load library on the IMS JCL procedure's STEPLIB, or in the system link-list. For further investigation of IMS Callable Services return and reason codes, refer to the <i>IMS Customization Guide</i> .

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**IHS363I****Successfully loaded exit** *name imsid***Explanation:** The Tivoli Business Systems Manager AO Controller Exit loaded a user specified exit.

In the message text::

*name*     Name of the user specified AO type 2 exit.*msid*     The IMS subsystem id.**Module:** IHSIAOEC**System Action:** Tivoli Business Systems Manager continues processing.**Operator Response:** None.

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**IHS364E****Error loading exit** *name, CSRC=rc CSRSN=rsn imsid***Explanation:** The Tivoli Business Systems Manager AO Controller Exit was not able to load a user specified exit.

In the message text:

*name*     Name of the user specified AO type 2 exit.*rc*        Return code from IMS Callable Services.*rsn*        Reason code from IMS Callable Services.*imsid*     The IMS subsystem id.**Module:** IHSIAOEC**System Action:** The Tivoli Business Systems Manager AO Controller Exit disables this exit so that it will not be invoked.**Operator Response:** Check that the user specified exit, as defined in the Exit Control Table, has been correctly customized and installed, into either a load library on the IMS JCL procedure's STEPLIB, or in the system link-list.For further investigation of IMS Callable Services return and reason codes, refer to the *IMS Customization Guide*.

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**IHS365E****Error obtaining storage** *CSRC=rc CSRSN=rsn imsid***Explanation:** The Tivoli Business Systems Manager AO Controller Exit was not able to obtain storage for use by a user-specified exit.

In the message text:

*rc*        The return code from IMS Callable Services*rsn*        Reason code from IMS Callable Services.*imsid*     The IMS subsystem id.**Module:** IHSIAOEC**System Action:** The Tivoli Business Systems Manager AO Controller Exit disables this exit, and it will not be invoked.**Operator Response:** Check IMS for indications of a storage shortage. For further investigation of IMS Callable Services return and reason codes, refer to the *IMS Customization Guide*.



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<b>IHS367W</b>	<p><b>System Contents Directory (SCD) could be discovered</b> <i>imsid</i></p> <p><b>Explanation:</b> The Tivoli Business Systems Manager AO Controller Exit was not able to find the IMS System Contents Directory (SCD) control block.</p> <p>In the message text:</p> <p><b>imsid</b>     The IMS subsystem ID.</p> <p><b>Module:</b> IHSIAOEC</p> <p><b>System Action:</b> Tivoli Business Systems Manager AO Controller Exit uses default IMS settings for WTO descriptor and routing codes.</p> <p><b>Operator Response:</b> Check that IMS has initialized correctly and if so notify support.</p>
<b>IHS370I</b>	<p><b>AOI Exit IHSIAOE0 initialized for IMS v.r.m type system</b> <i>imsid</i></p> <p><b>Explanation:</b> The Tivoli Business Systems Manager AOI Exit was initialized.</p> <p>In the message text:</p> <p><b>v.r.m</b>     The version, release, and modification level of the IMS under which IHSIAOE0 is executing.</p> <p><b>type</b>     The type of IMS, either TM/DB, DCCTL, or DBCTL.</p> <p><i>imsid</i>     The IMS subsystem id.</p> <p><b>Module:</b> IHSIAOE0</p> <p><b>System Action:</b> Tivoli Business Systems Manager continues processing.</p> <p><b>Operator Response:</b> None.</p>
<b>IHS371I</b>	<p><b>Successfully loaded Message Control Table IHSIAOEM</b> <i>imsid</i></p> <p><b>Explanation:</b> The Tivoli Business Systems Manager AO Exit has loaded it's Message Control Table.</p> <p>In the message text:</p> <p><i>imsid</i>     The IMS subsystem id.</p> <p><b>Module:</b> IHSIAOE0</p> <p><b>System Action:</b> Tivoli Business Systems Manager continues processing.</p> <p><b>Operator Response:</b> None.</p>
<b>IHS372E</b>	<p><b>Error loading Message Control Table IHSIAOEM, CSRC=rc CSRSN=rsn</b> <i>imsid</i></p> <p><b>Explanation:</b> The Tivoli Business Systems Manager AO Exit was not able to load it's Message Control Table.</p> <p>In the message text:</p> <p><i>rc</i>        Return code from IMS Callable Services.</p> <p><i>rsn</i>       Reason code from IMS Callable Services.</p> <p><i>imsid</i>     The IMS subsystem id.</p> <p><b>Module:</b> IHSIAOE0</p> <p><b>System Action:</b> The Tivoli Business Systems Manager AO Exit remains active, continue to be called by IMS, and perform IMS command capture, but does not perform any IMS MTO message capture.</p> <p>Tivoli Business Systems Manager will not be able to capture all of the expected IMS events.</p> <p><b>Operator Response:</b> Check that the Message Control Table has been correctly installed, into either a load library on the IMS JCL procedure's STEPLIB, or in the system link-list. For further investigation of IMS Callable Services return and reason codes, refer to the <i>IMS Customization Guide</i>.</p>

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<b>IHS373I</b>	<p><b>DETECTED /MODIFY PREPARE ACBLIB.</b></p> <p><b>Explanation:</b> This is issued when a MODIFY PREPARE ACBLIB has been detected.</p> <p><b>Module:</b> IHSIAOE0</p>
<b>IHS374I</b>	<p><b>DETECTED /MODIFY PREPARE MODBLKS.</b></p> <p><b>Explanation:</b> This is issued when a MODIFY PREPARE MODBLKS has been detected.</p> <p><b>Module:</b> IHSIAOE0</p>
<b>IHS375I</b>	<p><b>DETECTED /MODIFY COMMIT.</b></p> <p><b>Explanation:</b> This is issued when a MODIFY COMMIT has been detected.</p> <p><b>Module:</b> IHSIAOE0</p>
<b>IHS376I</b>	<p><b>DETECTED /START OLDS.</b></p> <p><b>Explanation:</b> This is issued when a START OLDS has been detected.</p> <p><b>Module:</b> IHSIAOE0</p>
<b>IHS377W</b>	<p><b>System Contents Directory (SCD) could not be discovered insid</b></p> <p><b>Explanation:</b> The Tivoli Business Systems Manager AO Exit was not able to find the IMS System Contents Directory control block.</p> <p>In the message text:</p> <p><i>insid</i>     The IMS subsystem id.</p> <p><b>Module:</b> IHSIAOE0</p> <p><b>System Action:</b> The Tivoli Business Systems Manager AO Exit uses default IMS settings for WTO descriptor and routing codes.</p> <p><b>Operator Response:</b> Check that IMS has initialized correctly and if so notify support.</p>
<b>IHS400W</b>	<p><b>MULTIPLE MATCHES FOR IMS SUBSYSTEM 'IMS_SUBSYSTEM'. POSSIBLE ERROR IN THE IMS INITIAL DISCOVERY FILE. ONLY ONE MATCH EXPECTED PER OS/390 IMAGE.</b></p> <p><b>Explanation:</b> This is issued when an unexpected match is found for an IMS subsystem. The entry is ignored and processing continues.</p>
<b>IHS401I</b>	<p><b>NEW IMS SUBSYSTEM <i>subsys</i> FOUND.</b></p> <p><b>Explanation:</b> This informational message is issued when a new instance of an IMS subsystem is found.</p> <p><b>Message Variables:</b></p> <p><i>subsys</i>     IMS subsystem name</p>
<b>IHS402I</b>	<p><b>V1 V2 V3 V4 V5 V6 V7 V8 V9</b></p> <p><b>Explanation:</b> This message is issued in DEBUG mode to display internal data and is only for use by the service team. The variables <i>V1..V9</i> are used to display DEBUG data only.</p> <p><b>Module:</b> IHSIOTMA</p>

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<b>IHS403I</b>	<p><i>object</i> NOT KNOWN TO TBSM IMS</p> <p><b>Explanation:</b> Indicates that an object is not known to Tivoli Business Systems Manager IMS.</p> <p><b>Message Variables:</b></p> <p><i>object</i>    the object name</p> <p><b>Module:</b> IHSIMDBS, IHSIMPGM, IHSIMTXN , IHSIMV01, IHSI0001,IHSI0002, IHSI0003, IHSI0004, IHSI0005, IHSI0006, IHSI0007 IHSI0008, IHSI0009, IHSI0012, IHSI0013, IHSI0030, IHSI0036, IHSI0037</p>
<b>IHS404I</b>	<p><b>PROGRAM IN RESTRICTED STATE</b></p> <p><b>Explanation:</b> This is issued when a program is in a restricted state.</p> <p><b>Operator Response:</b> Investigate cause of failure and resolve</p> <p><b>Module:</b> IHSIMPGM</p>
<b>IHS405I</b>	<p><b>TRANSACTION IN RESTRICTED STATE</b></p> <p><b>Explanation:</b> This is issued when a transaction is in a restricted state.</p> <p><b>Operator Response:</b> Investigate cause of failure and resolve</p> <p><b>Module:</b> IHSIMTXN</p>
<b>IHS406I</b>	<p><b>DATABASE IN RESTRICTED STATE</b></p> <p><b>Explanation:</b> This is issued when a database is in a restricted state.</p> <p><b>Operator Response:</b> Investigate cause of failure and resolve</p> <p><b>Module:</b> IHSIMDBS</p>
<b>IHS407I</b>	<p><b>AREA IN RESTRICTED STATE</b></p> <p><b>Explanation:</b> This is issued when an area is in a restricted state.</p> <p><b>Operator Response:</b> Investigate cause of failure and resolve</p> <p><b>Module:</b> IHSIMDBS</p>
<b>IHS408I</b>	<p><b>MTO IN RESTRICTED STATE</b></p> <p><b>Explanation:</b> This is issued when a MTO is in a restricted state.</p> <p><b>Operator Response:</b> Investigate cause of failure and resolve</p> <p><b>Module:</b> IHSIMMTO</p>
<b>IHS409I</b>	<p><b>TRANSACTION QUEUE LENGTH EXCEED THRESHOLD</b></p> <p><b>Explanation:</b> This is issued when a transaction queue length exceeds the threshold. This is either the NetView global variable IHSI.sid.\$TXQLEN if it exists or else the default variable IHSI.\$TXQLEN.</p> <p><b>Operator Response:</b> Investigate cause and resolve</p> <p><b>Module:</b> IHSIMTXQ</p>

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<b>IHS410I</b>	<p><i>buffer</i></p> <p><b>Explanation:</b> This message prefixes all IMS command response buffers output from the OTMA CI.</p> <p><b>Message Variables:</b></p> <p><i>buffer</i>     IMS command response buffer</p> <p><b>Module:</b> IHSIOTMA</p>
<b>IHS411E</b>	<p><b>IHSIOTMA FAILED IN THE</b> <i>name</i> <b>ROUTINE WITH RETRSN=</b><i>code1 code2 code3 code4 code5</i></p> <p><b>Explanation:</b> This message is issued when the OTMA CI receives an error return from an external OTMA service routine.</p> <p>This message is issued when the OTMA CI receives an error return from an external OTMA service routine.</p> <p><i>name</i>     routine name</p> <p><i>code1..code5</i>          OTMA return codes.</p> <p><b>Operator Response:</b> Contact your Tivoli Customer Support.</p> <p><b>Module:</b> IHSIOTMA</p>
<b>IHS412E</b>	<p><b>IHSIOTMA WAS CALLED WITH INSUFFICIENT PARAMETERS, RETRY.</b></p> <p><b>Explanation:</b> This is issued when the call has insufficient parameters, it must have at least 9.</p> <p><b>Operator Response:</b> Ensure that the number of parameters is correct and retry the call.</p> <p><b>Module:</b> IHSIOTMA</p>
<b>IHS413E</b>	<p><i>text</i></p> <p><b>Explanation:</b> This message is issued in DEBUG mode to display internal data and is only for use by the service team.</p> <p><b>Message Variables:</b></p> <p><i>text</i>     message text</p> <p><b>Module:</b> IHSIOTMA</p>
<b>IHS414I</b>	<p><b>DEBUG</b> <i>string1 string2 string3 string4 string5 string6 string7 string8 string9</i></p> <p><b>Explanation:</b> This message is issued in DEBUG mode to display the input parameters and is only for use by the service team.</p> <p><b>Module:</b> IHSIOTMA</p>
<b>IHS415I</b>	<p><b>MSC IN RESTRICTED STATE</b></p> <p><b>Explanation:</b> This is issued when MSC is in a restricted state.</p> <p><b>Module:</b> IHSIMMSC</p>

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IHS416I	<b>MOUSE CLICK RE-DISCOVERY FOR</b> <i>object</i> <b>Explanation:</b> This is issued when a Mouse click rediscovery is requested for an object. <b>Message Variables:</b> <i>object</i> the object name <b>Module:</b> IHSIRMOU
IHS420I	<b>AVAILABLE LOGS BELOW THRESHOLD</b> <b>Explanation:</b> This is issued when the number of available logs is below the threshold. This is either the NetView global IHSI.sid.\$LOGAVAIL if it exists or else the default variable IHSI.\$LOGAVAIL <b>Operator Response:</b> Investigate cause and resolve <b>Module:</b> IHSI0006
IHS421I	<b>AVAILABLE LOGS ABOVE THRESHOLD</b> <b>Explanation:</b> This is issued when the number of available logs is above the threshold. This is either the NetView global variable IHSI.sid.\$LOGAVAIL if it exists or else the default variable IHSI.\$LOGAVAIL <b>Module:</b> IHSI0006
IHS422I	<b>LOG ARCHIVE DURATION ABOVE THRESHOLD</b> <b>Explanation:</b> This is issued when the log archive duration is above the threshold. This is either the NetView global variable IHSI.sid.\$ARCHTIME if it exists or else the default variable IHSI.\$ARCHTIME <b>Operator Response:</b> Investigate cause of delay and resolve <b>Module:</b> IHSI0006 and IHSISUB6
IHS423I	<b>LOG ARCHIVE DURATION BELOW THRESHOLD</b> <b>Explanation:</b> This is issued when the log archive duration is below the threshold. This is either the NetView global variable IHSI.sid.\$ARCHTIME if it exists or else the default variable IHSI.\$ARCHTIME <b>Module:</b> IHSISUB6
IHS424I	<b>MASTER</b> <i>name</i> <b>HAS A FAILURE</b> <b>Explanation:</b> This is issued when a MASTER has a failure. <b>Message Variables:</b> <i>name</i> master name <b>Operator Response:</b> Investigate cause of failure and resolve
IHS425I	<b>COUNT OF LOGS AVAILABLE IS</b> <i>count</i> <b>Explanation:</b> This is issued when the log archive duration is above the threshold to indicate number of logs currently available. <b>Message Variables:</b> <i>count</i> number of logs currently available

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**IHS426I**

**OTMA TIMED OUT**

**Explanation:** This is issued when IHSIOTMA times out after 10 seconds.

**Operator Response:** Investigate cause of time-out and resolve

**Module:** IHSIOTMA

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**IHS427I**

**XCF PARMS INCOMPLETE FOR *subsys***

**Explanation:** This is issued when the XCF parameters for an IHSIOTMA call is incomplete. Both XCFGRP and XCFMEM must be not NULL.

**Message Variables:**

*subsys*    IMS subsystem name (job name)

**Operator Response:** Investigate cause of failure and resolve

**Module:** IHSIMDBS, IHSIMMSC, IHSIMMTO, IHSIMPGM, IHSIMTXN, IHSIMTXQ, IHSI0001 and IHSI0006

---

**IHS428I**

**IHSITRAP TIMED OUT**

**Explanation:** This is issued when IHSITRAP times out.

**Module:** IHSIMDBS, IHSIMPGM, IHSIRDB2, IHSIRESA, IHSRLOG and IHSIRPG2

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**IHS429I**

**IHSITRAP TERMINATED WITH EVENT()*= rc***

**Explanation:** This is issued when IHSITRAP terminated with a return code.

**Message Variables:**

*rc*            The return code

**Module:** IHSIMDBS, IHSIMPGM, IHSIRDB2, IHSIRESA, IHSRLOG and IHSIRPG2

---

**IHS430I**

**HALT FROM EXTERNAL SOURCE IN *pgm***

**Explanation:** This is issued when a HALT is encountered in a program.

**Message Variables:**

*pgm*            the program name

**Operator Response:** Investigate cause of failure and resolve

---

**IHS431I**

**ERROR CONDITION RETURNED FROM COMMAND IN *pgm***

**Explanation:** This is issued when an ERROR is encountered in a program.

**Message Variables:**

*pgm*            the program name

**Operator Response:** Investigate cause of failure and resolve

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<b>IHS432I</b>	<b>FAILURE: CONDITION RETURNED FROM COMMAND IN <i>pgm</i></b> <b>Explanation:</b> This is issued when a FAILURE is encountered in a program. <b>Message Variables:</b> <i>pgm</i> the program name <b>Operator Response:</b> Investigate cause of failure and resolve.
<b>IHS433I</b>	<b>NOVALUE: UNINITIALIZED VALUE USED IN <i>pgm</i></b> <b>Explanation:</b> This is issued when a NOVALUE condition is encountered in a program. <b>Message Variables:</b> <i>pgm</i> the program name <b>Operator Response:</b> Investigate cause of failure and resolve.
<b>IHS434I</b>	<b>SYNTAX PROCESSING ERROR OCCURRED IN <i>pgm</i></b> <b>Explanation:</b> This is issued when a SYNTAX error is encountered in a program. <b>Message Variables:</b> <i>pgm</i> the program name <b>Operator Response:</b> Investigate cause of failure and resolve
<b>IHS435I</b>	<b>PROBLEM ALLOCATING THE <i>ddname</i> DATASET <i>rc</i></b> <b>Explanation:</b> This is issued when a file allocation fails. <b>Message Variables:</b> <i>ddname</i> the DDname of the dataset <i>rc</i> the return code. See <i>TSO/E REXX User's Guide</i> for information on return codes. <b>Operator Response:</b> Investigate cause of failure and resolve <b>Module:</b> IHSIRAOE
<b>IHS436I</b>	<b>PROBLEM FREEING THE <i>ddname</i> DATASET</b> <b>Explanation:</b> This is issued when a free dataset fails. <b>Message Variables:</b> <i>ddname</i> the DDname of the dataset <b>Operator Response:</b> Ignore this message as a free is performed at the top of each REXX and the datasets are not allocated at this point. <b>Module:</b> IHSIRAOE, IHSIRISS
<b>IHS438I</b>	<b>ERROR OPENING <i>ddname</i> RETURN CODE = <i>rc</i></b> <b>Explanation:</b> This is issued when an open fails. <b>Message Variables:</b> <i>ddname</i> the DDname of the dataset <i>rc</i> the return code <b>Operator Response:</b> Investigate cause of failure and resolve

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<b>IHS439I</b>	<b>PROGRAM <i>pgm</i> COMPLETE</b> <b>Explanation:</b> This is issued when a program completes. <b>Message Variables:</b> <i>pgm</i> the program name <b>Module:</b> IHSILCFG, IHSILCFR, IHSIRISS, IHSIRAOE
<b>IHS440E</b>	<b><i>pgm</i> RECEIVED INCORRECT VALUE <i>offset</i> FOR ENTRY <i>name</i> FROM MVTABLE: <i>table</i></b> <b>Explanation:</b> Incorrect data type for offset value in MV table. <b>Message Variables:</b> <i>pgm</i> program name <i>offset</i> offset value from MV table <i>name</i> entry value from MV table <i>table</i> name of MV table <b>Operator Response:</b> Correct the input data in MVTABLE. <b>Module:</b> IHSI0030, IHSI0031, IHSI0033, IHSI0034, IHSI0035, IHSI0036, IHSI0036.
<b>IHS441E</b>	<b><i>pgm</i> ERROR READING MV TABLE <i>name</i>.</b> <b>Explanation:</b> Unable to read named MV table. <b>Message Variables:</b> <i>pgm</i> Program name <i>name</i> MV table name <b>Operator Response:</b> Investigate cause of failure and resolve <b>Module:</b> IHSI0030, IHSI0032, IHSI0036, IHSI0037, IHSIPMVT
<b>IHS442E</b>	<b><i>pgm</i> ERROR MATCHING MV TABLE FOR SPECIFIED MESSAGE <i>msgid</i></b> <b>Explanation:</b> Unable to match message id from MAT with entries read from MV table. <b>Message Variables:</b> <i>pgm</i> program name <i>msgid</i> message id from MAT <b>Operator Response:</b> Investigate cause of failure and resolve. <b>Module:</b> IHSIPMVT
<b>IHS443E</b>	<b><i>error</i> CONDITION TRAPPED IN <i>pgm</i> LINE <i>lnum</i> (CODE <i>rc</i>) DESCRIPTION <i>msg</i>.</b> <b>Explanation:</b> Handle REXX Signal error processing. <b>Message Variables:</b> <i>error</i> error condition <i>pgm</i> program name <i>lnum</i> line in code where error occurred. <i>rc</i> return code (optional) <i>msg</i> description of error, if available <b>Operator Response:</b> Investigate cause of failure and resolve.

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IHS444E	<p><i>pgm</i> <b>OBJECT NAME <i>mvobj</i> GIVEN DOES NOT MATCH WITH <i>sysobj</i> FOUND.</b></p> <p><b>Explanation:</b> Object name read from MV table does not match the one found in system global variables.</p> <p><b>Message Variables:</b></p> <p><i>pgm</i>      program name</p> <p><i>mvobj</i>    object name from MV table</p> <p><i>sysobj</i>    object name found in system global variables</p> <p><b>Operator Response:</b> Investigate cause of failure and resolve.</p> <p><b>Module:</b> IHSI0031, IHSI0034, IHSI0035</p>
IHS445E	<p><i>pgm</i> <b>NULL VALUE FOUND IN GLOBAL VARIABLE. PROCESSING TERMINATED.</b></p> <p><b>Explanation:</b> NULL value found in system global variables.</p> <p><b>Message Variables:</b></p> <p><i>pgm</i>      program name</p> <p><b>Operator Response:</b> If you are unable to resolve the problem contact Tivoli Customer Support.</p> <p><b>Module:</b> IHSIMVIN, IHSI0031, IHSI0033, IHSI0034, IHSI0035</p>
IHS446I	<p><b>UNEXPECTED VALUE <i>value</i> FOR GLOBAL VARIABLE <i>name</i>.</b></p> <p><b>Explanation:</b> This message is used when reading global variables whose initial values may later be changed to something different by the rediscovery process. E.g. MODBLKS initially will be changed to A or B.</p> <p><b>Message Variables:</b></p> <p><i>value</i>      the actual value received by the program</p> <p><i>name</i>        the variable name</p>
IHSI447E	<p><b>pgm RETURN CODE <i>nn</i> FROM IHSMMSG. PROCESSING TERMINATED.</b></p> <p><b>Explanation:</b> Unable to send events to TBSM Source/390 Object Pump.</p> <p>Return codes (<i>nn</i>) from TBSM Source/390 Object Pump (IHSMMSG)</p> <p><i>pgm</i> the program name</p> <p><b>Operator Response:</b> Report the error message to Tivoli Customer Support.</p> <p><b>Module:</b> IHSIMDBS, IHSIMMSC, IHSIMMTO, IHSIPGM, IHSITXN, IHSI0030, IHSI0032, IHSI0036, IHSI0037</p>
IHSI448I	<p><b>IMS RE-DISCOVERY IN PROGRESS. THIS EXECUTION OF <i>pgm</i> TERMINATED.</b></p> <p><b>Explanation:</b> The rediscovery program is currently executing.</p> <p><b>Message Variables:</b></p> <p><i>pgm</i>      name of the program</p> <p><b>Operator Response:</b> None.</p> <p><b>Module:</b> IHSIMDBS,IHSIMMSC,IHSIMMTO ,IHSIMPGM,IHSIMTXN ,IHSIMTXQ,IHSIRMOU,IHSI0001,IHSI0002,IHSI0003,IHSI0004,IHSI0005,IHSI0006,IHSI0007,IHSI0008,IHSI0009,IHSI0010,IHSI0011</p>

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<b>IHSI449I</b>	<p><b>MOUSE CLICK RE DISCOVERY FOR <i>jobname</i> TERMINATED. STATE =<i>currentstate</i></b></p> <p><b>Explanation:</b> Re discovery of IMS subsystem using the mouse click terminated because IMS subsystem state not found ACTIVE.</p> <p><b>Message Variables:</b></p> <p><i>jobname</i> IMS subsystem job name</p> <p><i>currentstate</i> current state of the IMS subsystem as known to Tivoli Business Systems Manager</p>
<b>IHS451I</b>	<p><b>pgm COMPLETED WITH RETURN CODE nn</b></p> <p><b>Explanation:</b> This message is issued to indicate whether the program completed successfully or unsuccessfully with a return code nn</p> <p><i>pgm</i> the program name</p> <p><b>Operator Response:</b> None, if the return code nn is zero. If the return code nn is non-zero report the error to Tivoli Customer Support.</p> <p><b>Module:</b> IHSIINIT</p>
<b>IHS452</b>	<p><b>subsystem STATUS <i>status</i> AT NETVIEW INITIALIZATION</b></p> <p><b>Explanation:</b> This message is issued to indicate the status of the IMS subsystem at NetView initialization.</p> <p><i>status</i> state the subsystem was found (UP/DOWN)</p> <p><b>Module:</b> IHSIINIT</p>
<b>IHS453</b>	<p><b>DSIPARM MEMBER <i>member name</i> NOT FOUND</b></p> <p><b>Explanation:</b> This message is issued to indicate that the member name provided for the IHSILCFG program does not exist.</p> <p><b>Module:</b> IHSILCFG</p>
<b>IHS454</b>	<p><b>IHSILCFG HAS ALREADY BEEN RUN COMMAND IGNORED</b></p> <p><b>Explanation:</b> This message is issued to indicate that the loading of the configuration file has already been done and subsequent loads are not permitted.</p> <p><b>Module:</b> IHSILCFG</p>

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## Creating REXX Function Package Aliases

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Use the following sample as a guideline if you want to create IRXFLOC and DSIRXLFP REXX function package aliases. The data set used in the SYSLMOD data definition (DD) statement must be authorized for the authorized program facility (APF) and concatenated to the STEPLIB DD statement in the procedure used to start NetView for OS/390. It is recommended that this data set be the first data set in the concatenation stream.

```
//LKEDJOB MSGLEVEL=(1,1),REGION=4M
//*****
//*                LINKEDIT OF EYU9AR00 TO ADD ALIAS OF DSIRXLFP
//*****
//                EXEC PGM=IEWL,REGION=4096K,
//                PARM='RENT,REUS,NCAL,LIST,MAP,LET,
//                AMODE=31,RMODE=ANY
//SYSLIB          DD DISP=SHR,DSN=IMS130.SEYAUTH
//SYSLMOD          DD DISP=SHR,DSN=CPSM.USERLINK
//SYSUT1          DD UNIT=SYSDA,SPACE=(TRK,(30,30))
//SYSPRINT        DD SYSOUT=*
//SYSLIN          DD *

                  INCLUDE SYSLIB(EYUPAR00)
                  ORDER   EYU9AR00
                  ENTRY   EYU9AR00
                  MODE     AMODE(31)
                  MODE     RMODE(ANY)
                  ALIAS    EYU9AR01
                  ALIAS    IRXFLOC
                  ALIAS    DSIRXFLP
                  SETCODE  AC(1)
                  NAME     EYU9AR00(R)
```

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# TBSM Source/390 Object Pump Input Parameters

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## General

TBSM Source/390 Object Pump (Object Pump) initialization parameters are input via the AOPSYISIN DD card (LRECL=80, RECFM=F or FB). Most are optional and defaults are used if not supplied. Some, however, are required and some functions of the Object Pump may not be available if these are omitted.

The ACC1IDxx DD card in the Object Pump startup JCL supplies a two character ID (the xx characters of the DD name) used to identify and connect each set of Object Pump, Dataspace, and Server regions (the Tivoli Business Systems Manager regions) on an MVS system.

The characters default to 01 if no ACC1IDxx DD card is included in the startup JCL. By using a different suffix for each set of Tivoli Business Systems Manager regions, you can run multiple copies of Tivoli Business Systems Manager on a single MVS system (for example for testing purposes).

You can also cause Object Pump to insert the ACC1IDxx characters into Object Pump startup parameters, thus allowing you to automatically configure Object Pump depending upon the ID characters in use. To do this, code two dots (..) at each point in the parameter where you want the characters to be inserted. For example, each Object Pump region on an MVS system needs its own MCS console name. By coding .. in the CONSOLE\_NAME parameter operand, Object Pump inserts the ID chars into the name, thus ensuring that the name is unique within that MVS system.

Thus if:

```
CONSOLE_NAME=ACCPRD..
```

and the ACC1IDxx DD card is coded as:

```
//ACC1IDPD DD DUMMY
```

The console name used by Object Pump will be ACCPRDPD.

## Continuing Parameters

If a parameter needs to be continued onto one or more cards then specify a comma followed by a space at the end of the data and start the continued data in column one of the next card.

Thus:

---

```
KEYWORD=partof,  
thedata
```

is the same as:

```
KEYWORD=partofthedata
```

Notice that the comma is NOT part of the data for the keyword. If you want a comma to be part of the data code two commas. Either of the following is valid:

```
KEYWORD=part1,,  
part2
```

or

```
KEYWORD='part1',  
'part2'
```

Both of these are the same as:

```
KEYWORD=part1,part2
```

The data for KEYWORD will be "part1,part2".

The first comma is included in the data, the last comma indicates that the data is continued on the next card.

## Parameters

**INITIAL\_EXEC=@AOPEXEC** | *name*

Specifies the one to eight character name of the initial REXX EXEC that Object Pump will run, once initialization has completed. The default is @AOPEXEC. You can change this to run a different initialization REXX EXEC if required.

**CONSOLE=ACCESS..** | *name* | **NO**

Specifies the one to eight character name to be assigned to the AOP MCS console. The default is ACCESS.. (where .. are the ID chars from the ACC1ID DD card in the Object Pump startup JCL, or 01 if omitted).

If CONSOLE=NO is coded then console messages are not trapped by Object Pump and operator commands cannot be issued (by the REXX OPER command, or the OPER action in traps).

**CONSOLE\_MSCOPE=LOCAL** | **ALL**

Specifies the message scope of the console. LOCAL specifies that the console only receive messages from the local system (the one Object Pump is running on). ALL specifies that the console receive messages from all systems in the Sysplex.

The default is LOCAL.

**MAX\_TRAPS = 2016** | *number*

Specifies the maximum number of traps that Object Pump is able to define. The actual number that can be defined may be slightly smaller than this, depending upon the mix of trap types defined. The number defined is rounded UP to a multiple of 32. If storage is not available for the defined number of traps then Object Pump calculates the maximum number of traps that it can handle in the storage available.

*number* can be in the range 512-20000.

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**TERMINAL\_PREFIX=prefix | AOPTERM**

Specifies a one to seven character prefix that is used as a prefix to build the LU names of the terminals used to logon to Omegamon and other VTAM applications.

If no prefix is supplied VTAM services will NOT be available in Object Pump. The default is AOPTERM.

**NUMBER\_OF\_TERMINALS=0 | number**

Specifies the number of virtual terminals to be available to Object Pump in the range 0-99999. If 0 is specified or allowed to default then VTAM services are not available to Object Pump. A pool of virtual terminals is created by using the prefix value from the TERMINAL\_PREFIX operand with a number in the specified range.

The combined length of the prefix and the number of digits in the largest number must not exceed 8. Thus if the prefix is AOPLU2, the maximum number of virtual terminals is 99 (giving AOPLU201 through AOPLU299).

The numeric suffix of each terminal is zero filled and right justified to the number of digits in the NUMBER\_OF\_TERMINALS operand, Thus if NUMBER\_OF\_TERMINALS=80 (2 digits) then the numeric suffix of each terminal will be 01, 02 etc to 80. If NUMBER\_OF\_TERMINALS=200 (3 digits) then the numeric suffix of each terminal will be 001, 002 etc to 200.

**MODEL2\_LOGMODE=D4A32782 | name**

Specifies the logmode name to be used for model 2 (24 x 80) terminals.

This should be an SNA non queriable logmode.

**MODEL3\_LOGMODE=D4A32783 | name**

Specifies the logmode name to be used for model 3 (32 x 80) terminals.

This should be an SNA non queriable logmode.

**MODEL4\_LOGMODE=D4A32784 | name**

Specifies the logmode name to be used for model 4 (43 x 80) terminals.

This should be an SNA non queriable logmode.

**MODEL5\_LOGMODE=D4A32785 | name**

Specifies the logmode name to be used for model 5 (27 x 132) terminals.

This should be an SNA non queriable logmode.

**LOG\_SCREEN=NO | YES**

Specifies whether screen images from the VTAM 3270 virtual session should be logged or not.

The default is NO.

**EDI=NO | YES**

Specifies whether Object Pump is to initialize the External Data Interface.

The default is NO.

**EDI\_BUFFER\_SIZE=2048 | size**

Specifies the size (in K, 1K = 1024 bytes) of the External Data Interface buffer.

The default is 2048 K (2 Megabytes).

size can be in the range 50 (50 K) to 20480 (20 Megabytes).

---

**EXEC\_REFRESH=YES | NO**

Specifies whether REXX EXECs are loaded from disk each time (**YES**) the default, or only loaded once and then held in storage (**NO**).

**YES** is suitable for a development environment where REXX execs may be being changed while Object Pump is running.

**NO** is suitable for a production environment where the performance impact of continually re-loading the REXX EXECs is best avoided.

**SUBSYSTEM\_NAME=AS.. | *name* | NO**

Specifies the four character name of the subsystem created and used by Object Pump.

The default is **AS..** (where .. are the ID chars from the ACC1ID DD card in the Object Pump startup JCL, or 01 if omitted).

Coding the value **NO** prevents Object Pump from initializing the Object Pump subsystem. In that case command (CMD) traps are not processed as no system commands are captured.

**SUBSYSTEM\_MAXTHREADS = 2 | *nn***

Specifies the maximum number of concurrent operator commands that can be processed by the Object Pump subsystem/address space. The default is 2.

*nn* can be in the range 1 to 50.

**MAXTHREADS\_PROMPT = YES | NO**

Specifies whether Object Pump should prompt the operator to increase the number of subsystem threads or not by issuing message ACC7560 when SUBSYSTEM\_MAXTHREADS is reached by the subsystem command interface.

**YES** indicates that Object Pump should issue the WTOR message. **NO** indicates that Object Pump should not issue the WTOR message.

If **NO** is coded the operator is NOT prompted to increase the maximum number of subsystem command threads when the limit (SUBSYSTEM\_MAXTHREADS) is reached. Some operator commands may not be trapped by Object Pump in this case.

**LOAD=*program\_name***

Causes Object Pump to pre-load the named program and save its entry point in an internal table which can then be used at trap match time to CALL a program when a trap match occurs. This parameter can be specified as many times as required in the input parm stream.

**USE\_DATASPACE = YES | NO**

Specifies whether the region should connect to the TBSM dataspace or not. The default is **YES**. The TBSM dataspace must be initialized and the server running before Object Pump is started when **YES** is coded.

**CMD=*command*,PROGRAM=*program***

Defines a modify command that Object Pump recognizes and the handling program is invoked to process the command.

**CALL *program* ATTACH *program* [,TYPE=MAIN]**

The CALL and ATTACH statements can only be coded within the region initialization table. They cannot be coded as user input in the Object PumpPARM input deck. They define the sequence and names of programs to CALL or ATTACH during Object Pump startup to initialize the region.



**TYPE=MAIN** indicates that the attached program runs as an extension of MAIN and is shutdown last after all subtasks have ended. It should NOT be used for most normal managers.

**OMEGAMON\_REFRESH\_PERIOD=hh:mm:ss | 00:04:00**

Defines the default setting for how frequently Omegamon sessions should be polled for exceptions. The default setting is 4 minutes.

**OMEGAMON\_EXCEPTION\_CNTRL=ALL | DELTA**

Specifies if ALL Omegamon exceptions should be sent to NT (the default) or only changes.

**TRAP\_REPORT=destination | SYSOUT(A)**

Specifies the destination for trap reports. The default is SYSOUT class A.

**LOG\_FILE=destination | SYSOUT(A)**

Specifies the destination of the log file. The default is SYSOUT class A.

**LOG\_FILE\_RECORD\_LENGTH=length | 200**

Specifies the lrecl for the log file. The default is 200.

**LOG\_SPIN\_INTERVAL=hh:mm:ss | 04:00:00**

Specifies how often the log file should be spun off. The default is 4 hours

**COMMAND\_PREFIX=string**

Specifies the character string that Object Pump recognizes as commands intended for the pump. This should be unique within your system and not duplicate any existing command string, for example \$ (for JES) or D for system commands.

**SHUT\_OBJECT\_SERVER=YES | NO**

Specifies whether the pump is shutdown and the Object Server when the pump is terminated. **YES** indicates the pump terminates the object server. **NO** indicates that it will not. The default is **NO**.

**SHUTDOWN\_DELAY=n | 0**

Specifies the number of seconds that the pump will wait before terminating. The default is zero seconds. *n* is the number of seconds to wait in the range 0 to 30 where zero specifies no wait will occur.

**OPC\_JOBNAME=jobname [,jobname,jobname,...]**

Specifies one or more job names for OPC address spaces. A Generalized EDI message trap will be created for each jobname specified.

**SA390\_JOBNAME=jobname [,jobname,jobname,...]**

Specifies one or more job names for SA/390 address spaces. A Generalized EDI message trap will be created for each jobname specified.

**AFOPER\_JOBNAME=jobname [,jobname,jobname,...]**

Specifies one or more job names for AF/Operator address spaces. A Generalized EDI message trap will be created for each jobname specified.

**OPSMVS\_JOBNAME=jobname [,jobname,jobname,...]**

Specifies one or more job names for OPS/MVS address spaces. A Generalized EDI message trap will be created for each jobname specified.

**PPI=YES | NO**

Specifies whether Object Pump is to initialize the PPI Interface. The PPI interface is used to receive Netview's application management instrumentation data from CICSplex, DB2PM, and IMS. The default is NO.

---

**PPI\_RECEIVER\_NAME=NETVAOP** | *receiver\_name*

Specifies the 1 to 8 character name used for the PPI receiver task. The default is NETVAOP.

**PPI\_BUFFER\_SIZE=512** | *size*

Specifies the size (in bytes) of the Receive Buffer that is used to receive the application management instrumentation data.

The default is 512 bytes. The size can be in the range from 256 bytes to 32768 bytes.

**PPI\_BUFFER\_QUEUE\_LIMIT=1000** | *number*

Specifies the maximum number of outstanding buffers that a receiver buffer queue can have in storage. The default is 1000. The range can be from 100 to 10000.

**PPI\_TRACE=YES** | **NO**

YES specifies whether the data sent over the PPI interface is written to AOPLOG.

The default is NO.



## TBSM Source/390 Object Pump Modify Commands

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The TBSM Source/390 Object Pump accepts the following MVS Modify commands (F-pump,command [ options]):

### ■ REFRESH

The REFRESH command causes the TBSM Source/390 Object Pump to re-load a REXX EXEC into storage, when running with EXEC\_REFRESH=NO (No automatic refresh of REXX EXECs). This can be used if a REXX EXEC has changed and needs to be re re-loaded without restarting the TBSM Source/390 Object Pump. It is not valid if EXEC\_REFRESH=YES was coded in the startup parameters, and has no effect if the EXEC being refreshed was not previously loaded.

**Syntax:**

**F pump,REFRESH** *execname*

**Where:**

*execname* is the name of the REXX EXEC to reload.

### ■ LOGSCREENS

The LOGSCREENS command allows you to turn 3270 screen logging on or off dynamically while the TBSM Source/390 Object Pump is running. Logged screens are written to the AOPLOG DD.

**Syntax:**

**F pump,LOGSCREENS ON | OFF**

**Where:**

**ON** specifies that screen logging should be started.

**OFF** specifies that screen logging should be stopped.

IF the command is issued without either ON or OFF being specified then the command displays the current status of screen logging.

### ■ SHOW

The SHOW command can be used to display the various resources within the TBSM Source/390 Object Pump.

**Syntax:**

**F pump,SHOW** *resource* [options]

**Where:**

*resource* I the resource type to display.

*options* are any options valid for the resource type.

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## ■ SHOW TRAPS

The SHOW TRAPS command displays information about the selected traps and/or trap types

### Syntax:

**F pump,SHOW TRAPS** *mask type* [**LONG** | **NOLIST**]

### Where:

*mask* is a generic or specific trap name that is used to select the trap name(s) to display. The default is \* (all traps of the selected type).

*type* is the trap type, which can be one of WTO, TOD, XOM, XOC, XOI, XO2, CMD or \*. The default is \* (all trap types).

**LONG** specifies that the long form of the selected traps be displayed. The long form includes all the information about the trap and the action that it takes. If the short form is allowed to default then only the trap name and the number of matches is displayed for each trap.

**NOLIST** specifies that only the summary line is to be displayed, which shows a count by trap type for the selected traps (bask on mask).

## ■ SHOW SESSIONS

The SHOW SESSIONS command displays information about the current 3270 sessions.

### Syntax:

**F pump,SHOW SESSIONS** *mask*

### Where:

*mask* is a generic or specific session name that is to be used to select the session name(s) to display. The default is \* (all sessions).

## ■ SHOW POOLS

The SHOW POOLS command displays the names of the currently defined global variable pools.

### Syntax:

**F pump,SHOW POOLS** [ *mask* ]

### Where:

*mask* is a generic or specific pool name to select the pools to be displayed. The default is \* (all pools).

## ■ SHOW VARS

The SHOW VARS command displays the variable names and currently assigned values of the selected variables in the selected pool(s).

### Syntax:

**F pump,SHOW VARS** *varnamemask poolnamemask*

### Where:

*varnamemask* specifies a generic or specific variable name to display. The default is \* (all variables in the selected pools).

*poolnamemask* specifies a generic or specific pool name that is to be used to select the pool(s) to scan for the selected variable names. The default is \* (all pools).

Two pools are always defined. They are the following:

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**System Pool**

Contains Read only variables.

**User pool**

The User pool always exists, even when empty. Contains work variables used by the source/390 Object Pump.

**■ SHOW MSGCOUNT**

The SHOW MSGCOUNT command displays the number of console messages received by the console interface.

**Syntax:**

**F *pump*,SHOW MSGCOUNT**

**■ SHOW PPICOUNT**

The SHOW PPICOUNT command displays the number of application instrumentation (AMI) messages received by the PPI interface.

**Syntax:**

**F *pump*,SHOW PPICOUNT [\* | *type*]**

**Where:**

*type* specifies the format type for which the count is to be displayed. The following values are valid types:

- **DB2**
- **IMS**
- **CPSM**
- **AMI**

**■ RODM**

The RODM command can be used to start or stop the TBSM Source/390 Object Pump RODM Interface.

**Syntax:**

**F *pump*,RODM START | STOP**

**Where:**

**START** indicates that the TBSM Source/390 Object Pump should attempt to start communications with RODM

**STOP** indicates that the TBSM Source/390 Object Pump should stop communications with RODM.

**■ PPI ENABLE**

Starts the TBSM Source/390 Object Pump PPI Interface.

**Syntax:**

**F *pump*,PPI ENABLE**

**■ PPI DISABLE**

Stops the TBSM Source/390 Object Pump PPI Interface.

**Syntax:**

**F *pump*,PPI DISABLE**

**■ PPI STATUS**

---

Displays the status of the TBSM Source/390 Object Pump PPI receiver task.

■ **PPI TRACE**

The PPI TRACE command will start, stop or display the PPI trace.

**Syntax:**

**F** *pump*,**PPI TRACE** [ **ON\YES** | **NO\OFF** ]

**Where**

**ON** (or **YES**) specifies that PPI tracing should start. Data received by the PPI Listener is written to the TBSM Source/390 Object Pump AOPLOG DD.

**OFF** (or **NO**) specifies that tracing by the PPI listener should stop.

If no option is specified the command displays the current state of PPI tracing.

■ **PPI RESET**

Displays or resets the PI buffer queue limit.

**Syntax:**

**F** *pump*,**PPI RESET** [ *buffer\_queue\_limit* ]

**Where:**

*buffer\_queue\_limit* specifies the new limit to be applied to the PPI buffer. The valid range is 100 to 10000. If the *buffer\_queue\_limit* operand is omitted then the command displays the current setting for the buffer queue limit.





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