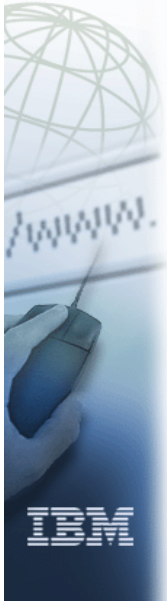


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Console Message Flood Automation



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Trademarks



eNetwork	DFSMS/MVS	IMS	RMF
geoManager	DFSMSdfp	IMS/ESA	RS/6000
AD/Cycle	DFSMSdss	IP PrintWay	S/390
ADSTAR	DFSMSshsm	IPDS	S/390 Parallel Enterprise Server
AFP	DFSMSrmm	Language Environment	SecureWay
APL2	DFSORT	Multiprise	StorWatch
APPN	Enterprise System 3090	MQSeries	Sysplex Timer
BookManger	Enterprise System 4381	MVS/ESA	System/390
BookMaster	Enterprise System 9000	Network Station	System REXX
C/370	ES/3090	NetSpool	SystemView
CallPath	ES/4381	OfficeVision/MVS	SOM
CICS	ES/9000	Open Class	SOMobjects
CICS/ESA	ESA/390	OpenEdition	SP
CICS/MVS	ESCON	OS/2	VisualAge
CICSPlex	First Failure Support Technology	OS/390	VisualGen
COBOL/370	FlowMark	Parallel Sysplex	VisualLift
DataPropagator	FFST	Print Services Facility	VTAM
DisplayWrite	GDDM	PrintWay	WebSphere
DB2	ImagePlus	ProductPac	3090
DB2 Universal Database	Intelligent Miner	PR/SM	3890/XP
DFSMS	IBM	QMFr	z/OS
	IBM System z	RACF	z/OS.e

Domino (Lotus Development Corporation)

DFS (Transarc Corporation)

Java (Sun Microsystems, Inc.)

Lotus (Lotus Development Corporation)

Tivoli (Tivoli Systems Inc.)

Tivoli Management Framework

(Tivoli Systems Inc.)

Tivoli Manger (Tivoli Systems Inc.)

UNIX (X/Open Company Limited)

Windows (Microsoft Corporation)

Windows NT (Microsoft Corporation)



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Message Flood Automation



Message Flood Automation is a new component of z/OS console support that was made available as a small programming enhancement (SPE) for z/OS Version 1 Release 6, Release 7 and Release 8 at the end of November 2006

Message Flood Automation is being incorporated into z/OS Version 1 Release 9



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Message Flood Automation SPE



Release 709 : UA30810 available 06/11/29 (F611)

Release 720 : UA30811 available 06/11/29 (F611)

Release 730 : UA30812 available 06/11/29 (F611)

Parent APAR: OA17514

The Message Flood Automation function is accompanied by a User's Guide which can be found at the following link:

<http://publibz.boulder.ibm.com/zoslib/pdf/mfaguide.pdf>



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Console Problems



- ❑ Malfunctioning I/O devices and programs (loops) can:
 - Generate very large volumes of messages in a very short amount of time
- ❑ Large volumes of messages can overwhelm system resources
 - Causes loss of operator control
 - Sometimes a system outage
- ❑ Monopolize system resources and prevent the operator – and automation -- from seeing and reacting to other system messages in a timely manner

Message Flood Causes



- ❑ Messages can be produced at very high volumes due to:
 - Malfunctioning I/O devices such as DASD, DASD controllers
 - ESCON/Ficon switches, etc.
 - Malfunctioning network devices
 - Errant programs (unintentional)
 - Malicious programs

Console Message Flow Problems



- ❑ Large numbers of messages to the z/OS consoles can obscure important messages and delay them from being acted on
- ❑ Large numbers of messages to the automation system can delay the processing of normal messages
- ❑ Messages can use excessive CPU and storage resources
 - Buffering excessive message traffic may use large amounts of virtual and real storage and it can cause SQA to overflow into CSA
 - This can cause jobs, subsystems, and even complete systems to be delayed or even to fail



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Message Flood Implementation



- ❑ Use of Message Flood Automation is optional
- ❑ You must take overt action
 - To install Message Flood Automation
 - To activate Message Flood Automation

Based on the Message Flood Automation function that has been distributed with the Geographically Dispersed Parallel Sysplex (GDPS) high availability product since 2003



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Message Flood Implementation



- ❑ Make sure messages do not result in large residual buffers or queues of messages that must be “worked down” to return to normal operation
 - No need to take manual or automated action against each console to discard unwanted messages
 - Handles messages to all consoles, including EMCS
- ❑ Make sure large message volumes do not result in “throwing the baby out with the bathwater”
 - Targets the offending message
 - Targets the offending job or started task



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Message Flood Implementation



- ❑ The Message Flood Automation function is able to react to potential message flooding situations in a matter of tens or hundreds of messages
 - Well before message buffers have begun to fill
 - Well before console address space queues begin to fill
 - Well before message rates begin to increase considerably
- ❑ Message flood automation is implemented as a message processing facility (MPF) IEAVMXIT routine
 - Called as a part of z/OS WTO processing
 - Runs as part of MPF processing



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WTO(R) Messages and MPF Processing



- ❑ Message Flood Automation runs as part of MPF processing
 - This occurs after the control block that represents the message has been created
- ❑ Message Flood Automation is able to see and alter any processing of the message that occurs prior to the creation of this control block

Some automation products replace the Write-To-Operator (WTO) Supervisor Call (SVC) with their own code and then invoke the WTO code when they are finished - Message Flood Automation is able to see and react to messages that have been "front-ended" by other automation in this way



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WTO(R) Messages and MPF Processing

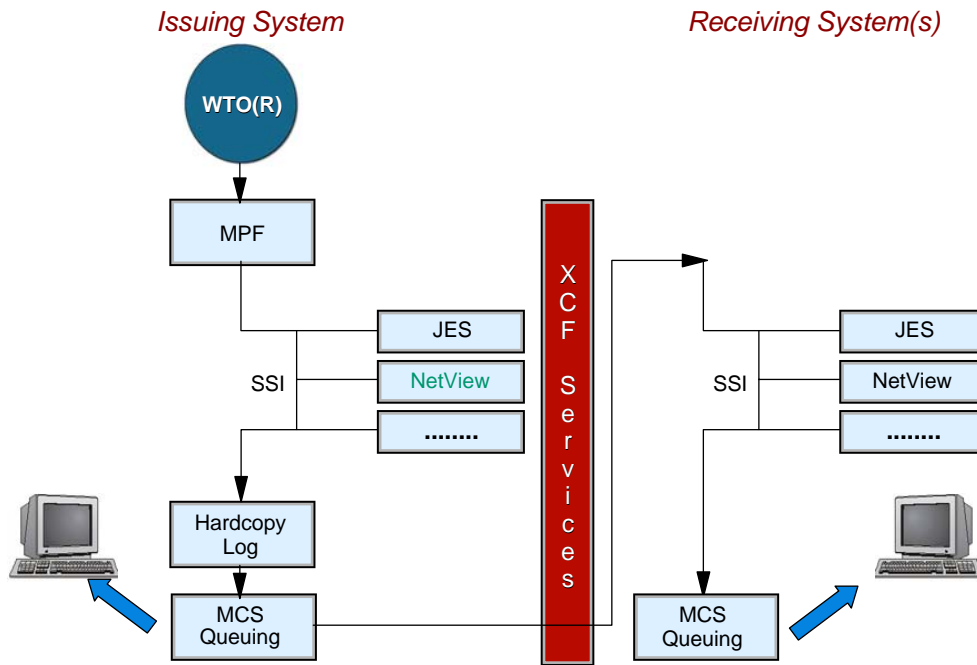


- ❑ MPF processing for specific MPF exits
 - Specify on the USEREXIT parameter in an MPFLSTxx member of SYS1.PARMLIB
 - Allows modifications to message processing in a system or sysplex
 - An MPF exit routine does processing that is specific to a certain type of message or a particular message ID
- ❑ IEAVMXIT is the general-purpose exit routine that does processing that is common to many messages (WTOs)



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Message Flow in a Sysplex

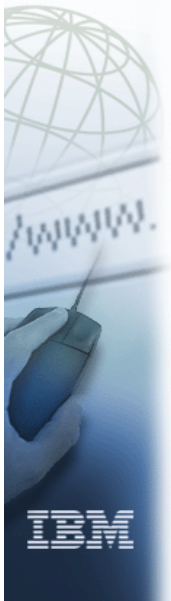


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Installing Message Flood Automation



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SYS1.LINKLIB and SYS1.SAMPLIB



- ❑ Message Flood Automation consists of the following load modules in SYS1.LINKLIB:
 - CNZZCMXT
 - CNZZVMXT
- ❑ Message Flood Automation uses two system exit points;
 - IEAVMXIT as a general message exit
 - CNZZCMXT as a system command exit
- ❑ The following sample assembly language programs are in SYS1.SAMPLIB
 - Select one and assemble, linkedit to the CNZZVMXT load module
 - CNZZVXT1
 - CNZZVXT2



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Message Flood Installation



- ❑ Message flood automation has two system exit points:
 - IEAVMXIT general message exit
 - System command exit
- ❑ Some assembly required
 - Message flood automation does not ship a part named IEAVMXIT, but the exit must have that name
 - Message flood automation provides two sample programs which can become the IEAVMXIT front-end
 - You must select one of them, assemble it, and link it with the message flood automation CNZZVMXT load module



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IEAVMXIT Exit Considerations



- ❑ IEAVMXIT exit already installed, you will need to either:
 - Rework your IEAVMXIT to invoke Message Flood Automation from it
 - Insert logic from your IEAVMXIT into one of the sample programs provided by message flood automation
 - User's Guide has sample programs how to do this
- ❑ Level of the IEAVMXIT message exit and the level of the command exit must be the same
 - Primarily a consideration for GDPS customers that are migrating from a previous level of Message Flood Automation



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MPF – Message Processing Facility



- ❑ Changes that can be made to messages:
 - **Suppression** - Message appears in hardcopy log but not on a console
 - SUP(YES/NO)
 - **Automation** - This lets the automation subsystem know to process a particular message
 - AUTO(YES/NO/token) - Specifying AUTO(YES) will route the message to EMCS consoles with the AUTO attribute
 - **Presentation** - Color, highlighting, and intensity attributes that the system uses when displaying messages on an operator console and specify these attributes on the .MSGCOLR statement



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CNZZVXT1 or CNZZVXT2



- ❑ CNZZVXT1 provides a stub for if there is no IEAVMXIT routine installed - CNZZVXT1 will invoke the CNZZVMXT
- ❑ CNZZVXT2 invokes CNZZVMXT using a slightly modified calling mechanism
 - CNZZVXT2 is documented to show how to place installation function in the exit both before and after the invocation of CNZZVMXT
- ❑ In this implementation, CNZZVMXT returns to CNZZVXT2, not to the caller of CNZZVXT2. The CNZZVXT1 implementation has CNZZVMXT return to the caller of CNZZVXT1, not to CNZZVXT1.

IEAVMXIT Exit Considerations



- ❑ If you already have an IEAVMXIT exit installed, you will need to do one of the following:
 - Either put the invocation of message flood automation into your IEAVMXIT using sample program CNZZVXT2 as an example of how to do this
 - Fit your existing IEAVMXIT logic into the sample program CNZZVXT2 and rename it IEAVMXIT

CNZZVXT1 is the simplest to use, but CNZZVXT2 can be used without change if desired. The difference is that CNZZVXT2 has additional complexity that CNZZVXT1 does not.

MPFLSTxx Parmlib Member Example



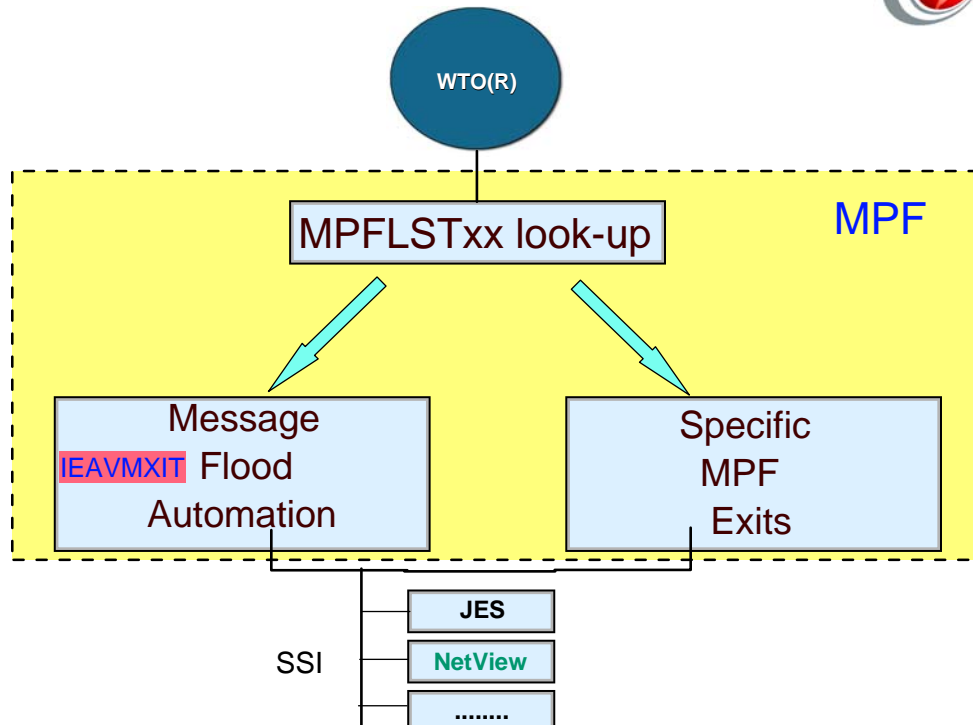
```
.NO_ENTRY , SUP(NO) , RETAIN(I) , AUTO(YES)
.DEFAULT , SUP(NO) , RETAIN(NO) , AUTO(NO)
IST1051I , SUP(YES) , RETAIN(YES) , AUTO(YES)
IST1062I , SUP(YES) , RETAIN(YES) , AUTO(YES)
AOF* , SUP(NO) , RETAIN(NO) , AUTO(YES)
CSA* , SUP(YES) , RETAIN(NO) , AUTO(YES)
EQQ* , SUP(NO) , AUTO(YES)
EVJ* , SUP(NO) , AUTO(YES)
IXG054A , USEREXIT(MPFPLOC)
IEF125I , USEREXIT(MPFASID) , RETAIN(NO) , SUP(NO) , AUTO(YES)
IEF403I , USEREXIT(MPFASID) , RETAIN(NO) , SUP(NO) , AUTO(YES)
IEF126I , USEREXIT(MPFASID) , RETAIN(NO) , SUP(NO) , AUTO(YES)
IEF404I , USEREXIT(MPFASID) , RETAIN(NO) , SUP(NO) , AUTO(YES)
IEE391A , USEREXIT(MPFSMFC)
IEE366I , USEREXIT(MPFSMFC)
BDT3130 , USEREXIT(MPFSBDTN)
```

If an MPFLSTxx entry does not exist for a message, the settings from the NO_ENTRY specification are applied. NO_ENTRY allows you to specify the default processing you want for messages that are NOT identified in any of the active MPFLSTxx parmlib members.



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MPF Processing



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Linkedit IEAVMXIT in SYS1.LINKLIB



- ❑ Result of the link is a part named IEAVMXIT in SYS1.LINKLIB
 - For SYSLMOD, use any data set in LINKLIB concatenation
- ❑ CNZZVXT1, CNZZVXT2, CNZZVMXT and CNZZCMXT are all AMODE=31 and RMODE=ANY

```
//LKED      EXEC PGM=IEWL,REGION=0M,  
// PARM='XREF,LIST,RENT,REUS,AC(0)'  
//SYSPRINT DD SYSOUT=A  
//BASE      DD DSN=SYS1.LINKLIB,DISP=SHR  
//SYSUT1    DD UNIT=SYSDA,SPACE=(CYL,(1,1))  
//SYSLMOD   DD DSN=SYS1.LINKLIB,DISP=SHR  
//SYSLIN    DD DSN=userid.SAMPLIB.OBJ(CNZZVXT1),DISP=SHR  
//          DD *  
          SETCODE AC(0)  
          INCLUDE BASE(CNZZVMXT)  
          ENTRY IEAVMXIT  
          NAME IEAVMXIT(R)
```



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Link-edit and z/OS V1R9 Binder



Important

The attribute RF was removed from members CNZZCMXT and CNZZVMXT in SYS1.LINKLIB in z/OS Version 1 Release 9 - You must remove the parameter REFR from your linking JCL when executing in a Version 1 Release 9 system



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Creating an SMP/E ++USERMOD

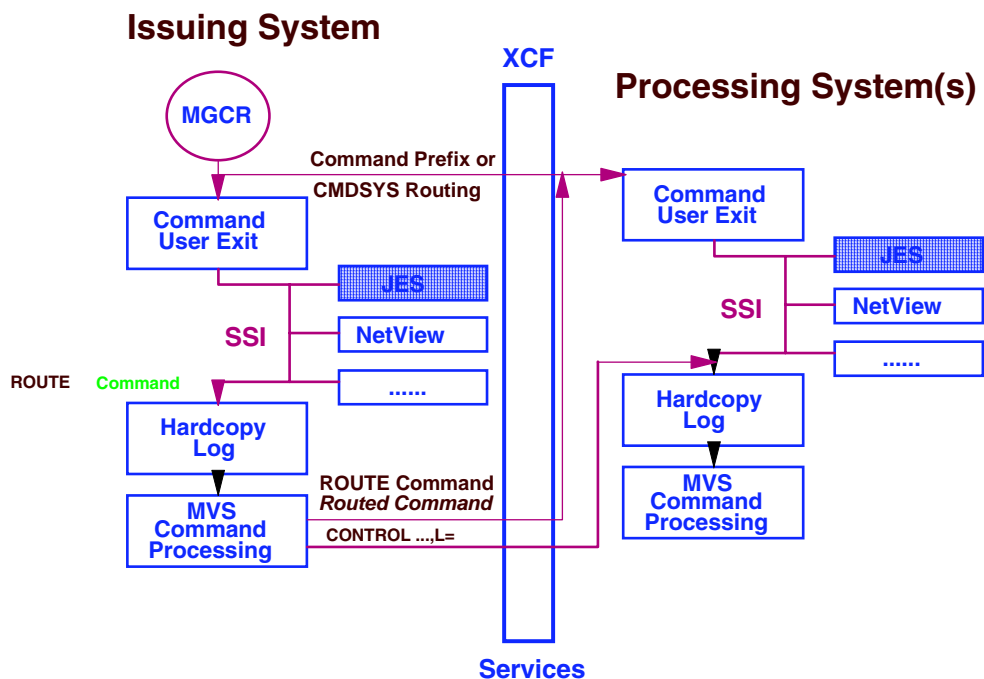


- ❑ As an alternative to manually assembling and linking CNZZVXT1 or CNZZVXT2 with CNZZVMXT
 - Use SMP/E to perform the operation creating an SMP/E ++USERMOD
 - Allows SMP/E to automatically determine if and when your user exit must be relinked
- ❑ A sample is available in R9 documentation:
 - z/OS MVS Planning: Operations, SA22-7601



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Command Flow in a Sysplex



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MPFLSTxx Parmlib Member



- ❑ **MPFLSTxx parmlib member for command exit**
 - Add a .CMD USEREXIT
 - .CMD USEREXIT(CMDRPL,CMDMVS,CMDGSYS,CMDCPF,CNZZCMXT)
 - Causes the Message Flood Automation command exit to be automatically loaded at IPL or whenever a SET MPF= command is processed
 - If you already have one or more command exit(s) specified, just add CNZZCMXT to the existing specification
 - Add CNZZCMXT either before or after any existing exit(s) - the .CMD statement supports a maximum of 6 exit specifications



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CONSOLxx Parmlib Member



- ❑ **Add a UEXIT(Y) parameter to the INIT statement**
 - Causes automatic loading of the Message Flood Automation message exit at IPL - or --
 - When following command is issued:
 - K M,UEXIT=Y
- ❑ **Do the following in order to loading and activating Message Flood Automation dynamically:**
 - Use a F LLA,REFRESH command to load the Message Flood Automation code
 - Use a K M,UEXIT=Y command to enable the Message Flood Automation message exit
 - Use a SET MPF= command to reload MPFLSTxx and cause the .CMD entry to be processed, loading the Message Flood Automation command exit



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Commands for a Refresh

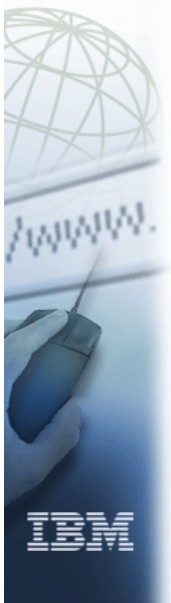


```
F LLA,REFRESH
CSV210I LIBRARY LOOKASIDE REFRESHED
K M,UEXIT=Y
CNZZ016I Message Flood Automation policy initialized.
IEE712I CONTROL PROCESSING COMPLETE
SET MPF=J3
IEE252I MEMBER MPFLSTJ3 FOUND IN SYS1.PARMLIB
IEE712I SET MPF PROCESSING COMPLETE
D MF,STATUS
CNZZ042I Message Flood Automation V2R0M00 DISABLED. 289
Policy INITIALIZED. Using PARMLIB member: internal
Intensive modes: REGULAR-OFF ACTION-OFF SPECIFIC-OFF
Message rate monitoring DISABLED. 0 msgs 0 secs
```



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MSGFLDxx Parmlib Member (Defines a Policy)



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MSGFLDxx Parmlib Member Statement Types



- ❑ comment statements - /*-----text-----*/
- ❑ msgtype statements (classes)
 - REGULAR, ACTION, and SPECIFIC
- ❑ DEFAULT statements
 - Default action taken for a specific address space that exceeds job threshold message rates or a specific message that exceeds message threshold message rates
- ❑ DEFAULTCMD statements
 - Specifies the default command that is issued if a CMD action has been specified for the address space
- ❑ JOB statements
 - Identify up to 10 specific jobs for which specific actions are to be taken if REGULAR or ACTION messages from the job are involved in a message flood
- ❑ MSG statements
 - Defines up to 30 specific messages for specific actions are taken if the message is involved in a message flood



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MSGFDLxx Parmlib Member in CNZZMFXX Samplib Member



```
REGULAR MSGTHRESH=50,JOBTHRESH=20,INTVLTIME=1
REGULAR SYSIMTIME=2,JOBIMTIME=2
DEFAULT LOG,NOAUTO,NODISPLAY,NOCMD
DEFAULTCMD '&,CANCEL & -- cancelled by Message Flood Automation'
JOB AOC%NV* AUTO
JOB LLA* AUTO
JOB ZAP1 CMD

ACTION MSGTHRESH=50,JOBTHRESH=20,INTVLTIME=1
ACTION SYSIMTIME=2,JOBIMTIME=2
DEFAULT LOG,NOAUTO,NODISPLAY,NOCMD,NORETAIN
DEFAULTCMD '&,CANCEL & -- cancelled by Message Flood Automation'
JOB AOC%NV* AUTO,RETAIN
JOB LLA* AUTO
JOB ZAP2 CMD

SPECIFIC MSGTHRESH=50,INTVLTIME=1
SPECIFIC SYSIMTIME=2
SPECIFIC MSGIMTIME=2
SPECIFIC MSGLIMIT=20
DEFAULT LOG,NOAUTO,NODISPLAY,NORETAIN
MSG IOS001E
MSG IOS003A
MSG IOS050I
MSG IOS051I
MSG IOS071I
MSG IOS251I
MSG IOS444I
MSG IOS450E
```



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Types of Message Classes Processed



- ❑ **SPECIFIC messages**
 - A set of messages identified by the installation that are to be handled separately
- ❑ **ACTION messages:**
 - Messages that have the following descriptor codes set:
 - 1- System failure messages
 - 2- Immediate action required messages
 - 3- Eventual action required messages
 - 11- Critical eventual action required messages
- ❑ **REGULAR messages:**
 - Messages that do not fall into any of the above categories
- ❑ **Message class modes - normal and intensive**
 - Message classes run in one of the modes



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Message Class Controls



- ❑ **Each message class has its own set of controls**
 - INTVLTIME (Interval limit time)
 - JOBIMTIME (Job inter-message mean time) - not supported for SPECIFIC
 - JOBTHRESH (job message threshold) - not supported for SPECIFIC
 - MSGIMTIME (Message inter-message time) - not supported for REGULAR and ACTION
 - MSGLIMIT (Message threshold limit) - not supported for REGULAR and ACTION
 - MSGTHRESH (Message threshold)
 - SYSIMTIME (System inter-message time)



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Message Class Types and Parameters



MSGTYPE=REGULAR	MSGTYPE=ACTION	MSGTYPE=SPECIFIC
INTVLTIME	INTVLTIME	INTVLTIME
JOBIMTIME	JOBIMTIME	
JOBTHRESH	JOBTHRESH	
		MSGIMTIME
		MSGLIMIT
MSGTHRESH	MSGTHRESH	MSGTHRESH
SYSIMTIME	SYSIMTIME	SYSIMTIME



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Message Class Control Defaults



```
REGULAR MSGTHRESH=50
REGULAR JOBTHRESH=20
REGULAR INTVLTIME=1
REGULAR SYSIMTIME=2
REGULAR JOBIMTIME=2
```

```
ACTION MSGTHRESH=50
ACTION JOBTHRESH=20
ACTION INTVLTIME=1
ACTION SYSIMTIME=2
ACTION JOBIMTIME=2
```

```
SPECIFIC MSGTHRESH=50
SPECIFIC MSGLIMIT=20
SPECIFIC INTVLTIME=1
SPECIFIC SYSIMTIME=2
SPECIFIC MSGIMTIME=2
```

The following command can be used in any of the following forms:

```
DISPLAY MSGFLD,MSGTYPE=msgtype,keyword
DISPLAY MF,MSGTYPE=msgtype,keyword
D MSGFLD,MSGTYPE=msgtype,keyword
D MF,MSGTYPE=msgtype,keyword
```

For example:

```
D MF,MSGTYPE=REGULAR,MSGTHRESH
CNZZ301I Value of REGULAR MSGTHRESH is 20
```



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Message Class Controls Limits



- ❑ The value for `JOBTHRESH`, `MSGLIMIT`, and `MSGTHRESH` is a positive, non-zero integer count of messages in the range 1 to 999999999
- ❑ The value for `INTVLTIME` is a positive, non-zero integer time in seconds in the range 1 to 999999999
- ❑ The value for `SYSIMTIME`, `JOBIMTIME` and `MSGIMTIME` is a positive, non-zero floating point time in seconds in the range 0.000001 to 16777215.0

The interval time value should be set to one for all of the message types. Setting the value to one will allow Message Flood Automation to be responsive without entailing undue overhead



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Normal Mode



- ❑ Messages are counted
 - When a threshold number (`MSGTHRESH`) of messages have been counted, the time taken to count those messages is determined
 - If the time is less than a limit value (`INTVLTIME`), the system is placed into intensive mode
 - It is expected that this determination is likely to be done relatively infrequently, every 50-100 messages or more
 - The `INTVLTIME` value should be set to identify high message rates
 - A value of 5 seconds for `INTVLTIME` indicates an average rate of 20 messages/second if `MSGTHRESH` is set to 100



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Intensive Mode



- ❑ Each message is subject to extra processing
 - Messages are counted for each address space (up to a max of 10) issuing messages and compared to the limit value JOBTHRESH
 - If any one address space issues JOBTHRESH messages within INTVLTIME, it is subject to action from that time on
 - This action may be installation-specified, but is typically defaulted to be no-display and no-automation
- ❑ At the end of each interval of MSGTHRESH messages a check is made to see if intensive mode should be maintained, and whether address space(s) in 'act-upon mode' should remain so
- ❑ When in intensive mode, if the time since the last message is greater than SYSIMTIME, then intensive mode is discontinued



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Intensive Mode



- ❑ If the time since the last message is greater than SYSIMTIME, then intensive mode is discontinued
 - This ensures that the first message after a break is not acted upon
 - Similarly, if an address space is in act-upon mode, and the time since its last message exceeds the JOBIMTIME, then it is removed from act-upon mode
 - For specific messages, if a message is in act-upon mode, and the time since the last message exceeds the MSGIMTIME, then the message is removed from act-upon mode

D MSGFLD,MODE

CNZZ040I Intensive modes: REGULAR-OFF ACTION-OFF SPECIFIC-OFF



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Guidelines for Specifications



- ❑ Setting MSGTHRESH=50 and INTVLTIME=1 specifies a message rate of 50 messages/second
- ❑ Setting MSGTHRESH=100 and INTVLTIME=2 also specifies a message rate of 50 messages/second
- ❑ You can use different combinations of threshold and interval to trade-off message flood detection responsiveness and message flood detection overhead
- ❑ The general idea is to set the various thresholds high enough that they are not being triggered by normal fluctuations in message rates but are triggered when sudden, very high message rates are encountered



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Setting Thresholds Based on Message Rates



- ❑ The general idea is: set the various thresholds high enough that they are not being triggered by normal fluctuations in message rates
 - But are triggered when sudden, very high message rates are encountered
- ❑ The Message Rate Monitoring function measures the message rate for all messages that are subject to control by Message Flood Automation
 - The suggested thresholds provided in message CNZZ043I in response to a D MSGFLD,MSGRATE command are good values to start with



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Message Rate Monitoring



- ❑ It is very important that the message rate thresholds be properly set in the Message Flood Automation policy
- ❑ You can determine the values that are appropriate for your system by using the Message Flood Automation Message Rate Monitoring function
 - Can be run without enabling any other Message Flood Automation function
 - Message rate monitoring commands

```
SETMF MONITORON
D MF,STATUS
D MF,MSGRATE,10
SETMF MONITOROFF
```



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Determining Current Message Rate



- ❑ You should run Message Rate Monitoring periodically (or whenever your processing load increases) to ensure that the message threshold values that you are using are still valid

```
SETMF MONITORON
CNZZ902I Message rate monitoring ENABLED.
D MF,STATUS
CNZZ042I Message Flood Automation V2R0M00  DISABLED.
Policy INITIALIZED.      Using PARMLIB member: internal
Intensive modes: REGULAR-OFF  ACTION-OFF  SPECIFIC-OFF
Message rate monitoring ENABLED.      120186 msgs      1167 secs
```

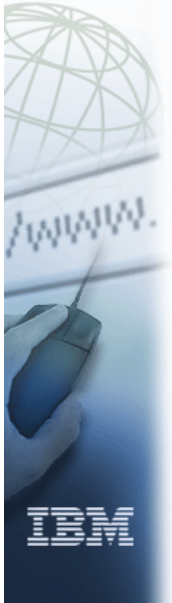


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Message Flood Automation Operational Considerations



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Activating Message Flood Automation



Commands to turn message flood ON|OFF

- Message Flood Automation command processing becomes active as soon as the message exit and command exits are loaded and enabled
 - Occurs automatically during an IPL -- or --
 - If a SET MPF=xx command is issued
 - Requires .CMD entry for the Message Flood Automation command exit
- Message flood commands
 - SET MSGFLD=xx
 - T MSGFLD=xx
 - SETMF ON
 - SETMF OFF

Can not be placed
in COMMNDxx



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Commands for Message Flood ON/OFF



```
SET MSGFLD=00
CNZZ016I Message Flood Automation policy initialized.
CNZZ401I Message Flood Automation loading: MSGFLD00
CNZZ410I Message Flood Automation loading of MSGFLD00 complete.
SETMF ON
CNZZ041I Message Flood Automation ENABLED.      PARMLIB member:MSGFLD00
D MF,STATUS
CNZZ042I Message Flood Automation V2R0M00  ENABLED.
Policy INITIALIZED.      Using PARMLIB member: MSGFLD00
Intensive modes: REGULAR-OFF ACTION-OFF SPECIFIC-OFF
Message rate monitoring DISABLED.              0 msgs              0 secs
SETMF OFF
CNZZ041I Message Flood Automation DISABLED.    PARMLIB member:MSGFLD00
D MF,STATUS
CNZZ042I Message Flood Automation V2R0M00  DISABLED.
Policy INITIALIZED.      Using PARMLIB member: MSGFLD00
Intensive modes: REGULAR-OFF ACTION-OFF SPECIFIC-OFF
Message rate monitoring DISABLED.              0 msgs              0 secs
```



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Display Message Flood Policy



□ Commands to display parmlib member

- D MSGFLD,parameters
- D MSGFLD,DEFAULTS
- D MSGFLD,JOBS
- D MSGFLD,MSGS
- D MSGFLD,MODE
- D MSGFLD,MSGRATE[,n]
- D MSGFLD,STATUS

MSGFLD can be specified as MF



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Display Message Flood Policy



```
DISPLAY MSGFLD,MSGTYPE=ACTION{ ,JOBTHRESH}
                               { ,MSGTHRESH}
                               { ,INTVLTIME}
                               { ,JOBIMTIME}
                               { ,SYSIMTIME}
```

```
DISPLAY MSGFLD,MSGTYPE=REGULAR{ ,JOBTHRESH}
                               { ,MSGTHRESH}
                               { ,INTVLTIME}
                               { ,JOBIMTIME}
                               { ,SYSIMTIME}
```

```
DISPLAY MSGFLD,MSGTYPE=SPECIFIC{ ,MSGTHRESH}
                               { ,INTVLTIME}
                               { ,SYSIMTIME}
                               { ,MSGIMTIME}
                               { ,MSGLIMIT}
```



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Modify the Message Flood Parameters



```
SETMF ON
SETMF OFF
SETMF FREE
```

```
SETMF MONITORON
SETMF MONITOROFF
```

```
SETMF MSGTYPE=ACTION{ ,JOBTHRESH=value}
                     { ,MSGTHRESH=value}
                     { ,INTVLTIME=value}
                     { ,JOBIMTIME=value}
                     { ,SYSIMTIME=value}
```

where value is a count of messages, or time in seconds or fractions of a second (SYSIMTIME and JOBIMTIME only)



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Modify the Message Flood Parameters



```
SETMF MSGTYPE=ACTION,  
      DEFAULT=action[,action]  
SETMF MSGTYPE=ACTION,JOB=jobname,  
      [,action][,action]  
where action is LOG|NOLOG, DISPLAY|NODISPLAY,  
             AUTO|NOAUTO, RETAIN|NORETAIN,  
             CMD|NOCMD
```

```
SETMF MSGTYPE=REGULAR{,JOBTHRESH=value}  
                {,MSGTHRESH=value}  
                {,INTVLTIME=value}  
                {,JOBIMTIME=value}  
                {,SYSIMTIME=value}
```

where value is a count of messages, or time in seconds or fractions of a second (SYSIMTIME and JOBIMTIME only)

```
SETMF MSGTYPE=REGULAR,  
      DEFAULT=action[,action]
```

```
SETMF MSGTYPE=REGULAR,JOB=jobname  
      [,action][,action]
```



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Recent Changes



- OA19764 fixes a PARMLIB allocation bug
- IBM Education Assistant
 - Charts (PDF) and audio presentation
 - Select: z/OS Operating System
 - Select: General
 - Select: Optimization and management capabilities
 - Select: Getting started with message flood automation
- <http://publib.boulder.ibm.com/infocenter/ieduasst/stgv1r0/index.jsp?>
- National Language Support available soon - (z/OS R9)



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