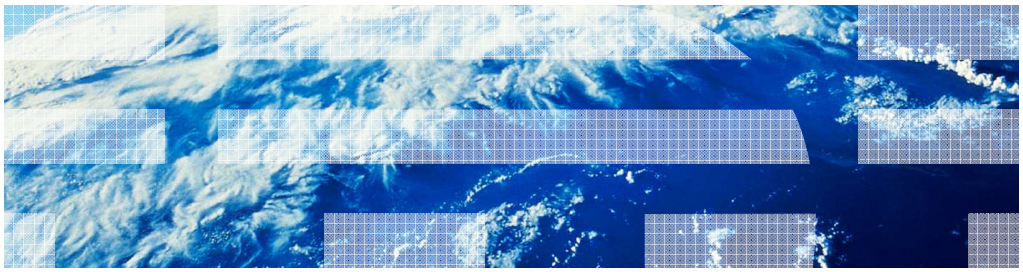
z/OS V1R13

BCP consoles: Message flood automation constraint relief



Overview (1 of 6)

- The Message Flood Automation Constraints line-item relieves many of the constraints that affected the usability of the Message Flood Automation facility.
- Problem Statement / Need Addressed
  - Basic HyperSwap®, GDPS® and customers want to be able to easily alter the set of messages handled by Message Flood Automation during early system initialization. Currently, this is handled by a built-in table that requires a code change to alter.
- Solution
  - Allow a MSGFLDxx PARMLIB member to be read much earlier during system initialization, obviating the need for the built-in table.
- Benefit / Value
  - Allows the messages to be handled during early system initialization to be defined by standard MSGFLDxx PARMLIB processing.

Overview (2 of 6)

- Problem Statement / Need Addressed
  - Basic HyperSwap, GDPS and customers want to be able to specify more than 50 SPECIFIC messages to be handled by Message Flood Automation. Currently, messages required by Basic HyperSwap and GDPS consume 35 of the 50 SPECIFIC messages, leaving only 15 for customer use.
  - Basic HyperSwap, GDPS and customers would like to *prevent* Message Flood Automation from taking action against messages which are critical to their automation but are unable to do so using the IGNORE option because of the SPECIFIC message limit.
- Solution
  - Allow up to 1024 SPECIFIC messages to be specified.
- Benefit / Value
  - Improves the usability of Message Flood Automation in Basic HyperSwap, GDPS and automation environments.

Overview (3 of 6)

- Problem Statement / Need Addressed
  - Customers want to be able to handle more than 10 simultaneously flooding address spaces (like CICS® regions).
  - Message Flood Automation is currently unable to distinguish between address spaces with the same jobname and can inadvertently take action against the wrong address space.
- Solution
  - Allow up to 128 address spaces to be tracked and acted on simultaneously.
  - Track address spaces by both jobname and ASID.
  - Allow the ASID to be symbolically substituted into the CMD action command text, allowing it to be directed to a specific ASID.
- Benefit / Value
  - Improves the ability of Message Flood Automation to handle instances of the same program flooding in multiple address spaces.

Overview (4 of 6)

- Problem Statement / Need Addressed
  - Customers want to be able to specify more than 10 jobs that are to have unique Message Flood Automation policies.
- Solution
  - Allow up to 64 REGULAR JOB statements and up to 64 ACTION JOB statements to be specified in a MSGFLDxx PARMLIB member.
- Benefit / Value
  - Allows customers to have unique Message Flood Automation policies for more jobs.

Overview (5 of 6)

- Problem Statement / Need Addressed
  - Customers do not have a good way of determining that a message flood is underway, who is causing the flood, and how long the flood has been underway. Currently, Message Flood Automation issues a message when it begins to take action against a flood, and another message when the flood is relieved, but there is no convenient way to tell that you are in the middle of a ongoing flood.
- Solution
  - Enhance the output of the DISPLAY MSGFLD,STATUS command to indicate when a message flood is underway, the type of flood, the jobname and ASID of the program causing the flood, and how long the flood has been underway.
- Benefit / Value
  - Allows operators to more quickly identify whether they are experiencing a message flood, and if so, who is causing it, so that they can take appropriate action.

Overview (6 of 6)

- Problem Statement / Need Addressed
  - Customers need additional assistance in setting Message Flood Automation message rate thresholds.
  - The DISPLAY MSGFLD,MSGRATE graph does not provide enough message rate detail and can be excessively long. It also does not provide recommended message rate thresholds at high enough percentages of the observed message rates.
- Solution
  - Enhance the DISPLAY MSGFLD,MSGRATE command so that the operator can restrict the output to the uppermost portion of the message rate graph.
  - Enhance the DISPLAY MSGFLD,MSGRATE graph to provide threshold recommendations at higher message rate percentages.
- Benefit / Value
  - Allow customers to more quickly and accurately establish Message Flood Automation thresholds.

Usage and invocation

The initial Message Flood Automation MSGFLDxx PARMLIB member may now be specified on a CONSOLxx INIT statement in the same way that the initial MPF PARMLIB member is specified:

MSGFLD(*xx*[,(*wrd*)])

xx is a two-character MSGFLDxx PARMLIB member suffix or the word NONE. NONE indicates that no MSGFLDxx PARMLIB is to be loaded.

wrd is optional and is either the word ON or OFF (OFF is the default)

If ON is specified, Message Flood Automation is immediately enabled.

```
MSGFLD(00)        -- MSGFLD00 loaded but not enabled
MSGFLD(00,(ON))   -- MSGFLD00 loaded and enabled
MSGFLD(NONE,ON)   -- built-in internal policy is used and enabled
```

Usage and invocation

The Message Flood Automation MSGFLDxx PARMLIB member DEFAULTCMD statement now supports the optional symbolic substitution of an ASID into the command text:

DEFAULTCMD '*jobchar*[*asidchar*],*command-text*

jobchar is a single character that will be replaced by the jobname the first time that it is found within the *command-text*

asidchar is optional and is a single character that will be replaced by a 4-digit hexadecimal ASID the first time that it is found within the *command-text. asidchar* cannot be the same as *jobchar.*

command-text is any system or subsystem command

```
DEFAULTCMD '&,CANCEL &'       -- cancels a job solely by jobname
DEFAULTCMD '&%,CANCEL &,A=%'  -- cancels a job by jobname and ASID
```

Usage and invocation

- You can display a subset of the graph produced by the Message Flood Automation DISPLAY MSGFLD,MSGRATE command:
- DISPLAY MSGFLD,MSGRATE [,*n*][,*m*]
- *n* is the length of the message rate graph to be produced, in lines. *n* defaults to 25, meaning a 25 line graph will be produced. *n* must be specified if *m* is specified. *n* is rounded to a value producing whole number values for each graph line. e.g. 25 yields 4% / line if *m*=100.
- *m* is the fraction of the graph to present, in %. For example, if 5 is specified, the *top* 5% of the graph will be presented in the number of lines specified by *n*. *m* defaults to 100 which mean 100% of the graph will be presented.

```
DISPLAY MSGFLD,MSGRATE  -- default to 25 lines and all of graph
D MF,MSGRATE,20,5       -- display top 5% of graph in 20 lines
```

Usage and invocation

- The recommended message rate thresholds, which follow the message rate graph produced by the DISPLAY MSGFLD,MSGRATE command, now cover higher fractions of the observed message rates:

```
D MF,MSGRATE,25,2       -- display top 2% of graph in 25 lines
CNZZ043I MSGFLD Message Rates
                 Instantaneous Message Rates
           2007 messages in      1584 seconds     1.267 msg/sec
% of time at msg rate              467 messages w/most common rate
     100.000%|             |    ******
      99.920%|             |   *******
      99.840%|             |   *******
          :                        :
      98.080%|             | *********
            0+--+--+>-+--+|-+--+---+<-+-------------------
             0           1  8 64  1K 8K  messages/second

             Suggested threshold for  99.900 % is      26
             Suggested threshold for  99.750 % is      15
             Suggested threshold for  99.500 % is      12
             Suggested threshold for  99.250 % is       9
             Suggested threshold for  99.000 % is       8
             Suggested threshold for  98.500 % is       6
             Suggested threshold for  97.750 % is       5
             Suggested threshold for  97.000 % is       4
             Suggested threshold for  95.000 % is       3
```

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The middle lines of the message rate graph have been removed so that it will fit on the page.

The purpose of the graph is to show the system programmer the relationship between a particular message rate and the *fraction of time that the system operates at that message rate or less.* The graph has a characteristic “S” shape, with must of the curvature occurring within a few percent of the bottom of the graph and within a few percent of the top. The curvature represents areas where *very small changes in the fraction of time that the system operates at a particular message rate (or less) results in very large changes in the observed message rate.*

Wnen a system programmer sets an MFA message threshold, the goal is to set the threshold high enough that it doesn't cause MFA to take action accidentally, but low enough that it takes action before a message flood is able to do much damage.

The recommended message thresholds are taken at various points before and after the uppermost “knee” in the graph.. Understanding where the “knee” in the graph occurs will allow a system programmer to select a message rate threshold that they are comfortable with.

Usage and invocation

- The operator can now use the DISPLAY MSGFLD,STATUS command to:
- determine if a message flood is underway
- who is causing it
- the type of flood
- how long it has been underway

```
D MF,STATUS

SY1  CNZZ042I MSGFLD Status: ENABLED. 146
Policy INITIALIZED.    Using PARMLIB member: MSGFLDKK
Message rate monitoring DISABLED.          0 msgs          0 secs
A message flood is underway.
JOBNAME    ASID T MSGS-ACTED-ON  --DURATION   -------STARTED-----
WTOFLDR    0026 R        129311     2:52.33   2010148 10:07:38.47
WTOFLDR    0033 R Tracking count        2 not > JOBTHRESH       10
WTOFLDA    0025 A        129586     2:53.43   2010148 10:07:38.47
WTOFLDA    0034 R Tracking count        2 not > JOBTHRESH       10
MSG-ID     ASID T MSGS-ACTED-ON  --DURATION   -------STARTED-----
FLDS001I   001F S        129264     2:52.21   2010148 10:07:38.47
FLDS101I   0032 S Tracking count        2 not > MSGLIMIT        10
```

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In the example:

- The text “A message flood is underway” is presented if a message flood is underway; otherwise, the text “A message flood is not underway” is presented.
- A JOB information title line
- If a REGULAR or ACTION message flood is underway, one or more data lines follow:
  - The first column contains the jobname associated with the address space
  - The second column contains the address space identifier
  - The third column identifies the type of flood: A for an ACTION message flood, R for a REGULAR message flood
  - The fourth column will usually contain a count of the number of messages that have had action taken against them
  - The fifth column will usually contain the current duration of the message flood, in minutes, seconds and hundredths of seconds.
  - The sixth column will usually contain the date and time that the message flood began. The format is the same as that used in the SYSLOG to make it easy to find the beginning of the flood in the SYSLOG.
  - If an address space is being tracked but no action is being taken against its messages, the text “tracking count” will appear in the fourth column, followed by the count of messages issued by the address space within the last measurement interval. This is followed by the text “not > JOBTHRESH” and the JOBTHRESH value.
- A MSG information title line
- If a SPECIFIC message flood is underway, one or more data lines follow. They have the same format as REGULAR and ACTION message flood data lines with the exception that the first column contains a message ID instead of a jobname. The ASID is for the first address space to issue the SPECIFIC message; it is possible that others are issuing the message as well. If the message is being tracked but no action is being taken, the MSGLIMIT value will be displayed instead of the JOBTHRESH value.

Interactions and dependencies

- Software Dependencies
  - None
- Hardware Dependencies
  - None
- Exploiters
  - None

Migration and coexistence considerations

- Toleration/coexistence APARs/PTFs
  - Compatibility APAR OA33652 for z/OS® R11 and z/OS R12
  - Allows the MSGFLD parameter on the CONSOLxx INIT statement to be tolerated (ignored) on z/OS R11 and z/OS R12 systems

Appendix - References

- SA22-7601 z/OS MVS Planning: Operations
- SA22-7592 z/OS MVS Initialization and Tuning Reference
- SA22-7627 z/OS MVS System Commands
- SA22-7634 z/OS MVS System Messages CBD-DMO

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