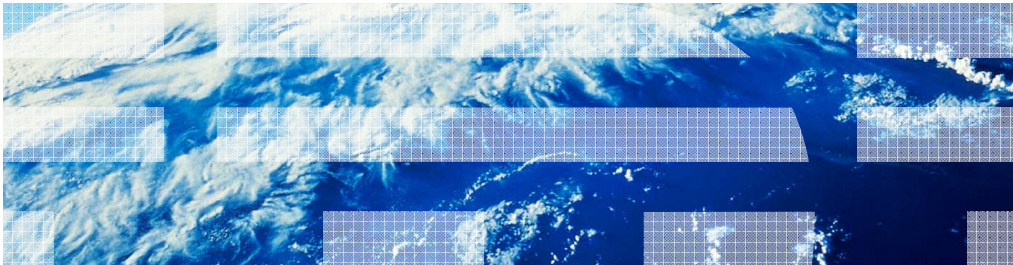


## z/OS V1R13

### BCP PFA: Damaged address space detection based on JES2 spool usage



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## Overview

- **Need** – Improved Availability and Resiliency to further detect damaged address spaces and damaged systems
- **Solutions**
  - PFA\_JES\_SPOOL\_USAGE Check
    - Detects abnormalities in persistent jobs by modeling the change in their JES2 spool usage (that is, the change in the number of track groups used from one collection to the next)
- **Benefit / Value**
  - Increased availability and resiliency by detecting abnormal behavior and alerting you before it causes an outage.

## New PFA\_JES\_SPOOL\_USAGE check

- Detects a *damaged address space or system* based on persistent jobs usage of the number of track groups
  - Persistent job = must have started within an hour after IPL
  - Persistent jobs tracked by name => restarts allowed
  - Jobs with duplicate names not tracked
- Models 15 persistent jobs with the highest *increase* in their track group usage from one collection to the next
  - The number of actual track groups used is irrelevant due to the fact we are looking for a damaged address space or system rather than exhaustion of track groups.
  - Dynamic modeling occurs when “top jobs” changes significantly to model new top jobs
- Note that an exception is caused by an abnormal *increase* in the number of track groups used, not the number of track groups used.
- JES2 only

## PFA\_JES\_SPOOL\_USAGE prediction report

- Exception message sent as WTO
- Prediction report and result message available in SDSF (sdsf.ck)
- Prediction report shows relevant tracked jobs. Examples,
  - All tracked jobs shown for everything OK
  - Only tracked jobs causing exception shown for exception.
- Example below shows report when exception occurs
  - The exception is issued based on an unexpected *increase* in the number of track groups used from one collection to the next (rather than the number of track groups used).
  - The current number of track groups used is provided as additional information.

```

JES Spool Usage Prediction Report

Last successful model time : 01/28/2011 06:10:15
Next model time           : 01/28/2011 18:11:57
Model interval            : 720
Last successful collection time: 01/28/2011 18:05:57
Next collection time      : 01/28/2011 18:10:57
Collection interval       : 5

Address spaces causing exception:

Job Name      ASID      Current Change in      Expected Change in      Current
              ASID      Number of Track        Number of Track        Number of Track
              ASID      Groups Used            Groups Used            Groups Used
-----
JOB1          0019          252                    10                      892
JOB55        000E          129                     3                       400
  
```

## Usage and invocation

- PFA is an address space started by “start pfa”
- Recommend to start at IPL
- New PFA exception messages
  - Automation recommended
  - AIRH198E – JES2 spool usage higher than expected

## Interactions and dependencies

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

## Migration and coexistence considerations

- As in z/OS 1.12, run AIRSHREP.sh directly or use the JCL file provided in SYS1.SAMPLIB(AIRINJCL)
  - If using AIRSHREP.sh directly, you must run it from the pfauser's home directory
  - If using AIRINJCL, you must update it to specify your pfauser's home directory
  - For either case, you must specify the required parameter: new or migrate
    - Use "new" if you are installing for the first time or want to delete data from previous releases
    - Use "migrate" if you want to retain data from previous releases (recommended)
- **ACTION:** Increase your allocated DASD. Total space recommended:
  - 300 cylinders primary; 50 cylinders secondary on a 3390 device.

## Installation

- See the migration actions on the previous slide for instructions on installation and migration that are new for z/OS 1.13.
- Refer to *z/OS Problem Management* for z/OS 1.13 for detailed installation instructions



## Session summary

- PFA\_JES\_SPOOL\_USAGE is a new Predictive Failures Analysis check to detect a damaged address space or system
- With the addition of this enhancement, z/OS 1.13 helps improve your system availability and resiliency by alerting you to system problems before they can cause an outage and impact your businesses!

## Appendix - References

- *z/OS Problem Management for z/OS 1.13 G325-2564*
- Two IBM Education Assistant presentations
  - Information on R10 and R11:  
[http://publib.boulder.ibm.com/infocenter/ieduasst/stqv1r0/index.jsp?topic=/com.ibm.iea.zos/zos/1.11/Availability/V1R11\\_PFA/player.html](http://publib.boulder.ibm.com/infocenter/ieduasst/stqv1r0/index.jsp?topic=/com.ibm.iea.zos/zos/1.11/Availability/V1R11_PFA/player.html)
  - Information on R12:  
[http://publib.boulder.ibm.com/infocenter/ieduasst/stqv1r0/index.jsp?topic=/com.ibm.iea.zos/zos/1.12/Availability/V1R12\\_Availability\\_PFA\\_Enhancements/player.html](http://publib.boulder.ibm.com/infocenter/ieduasst/stqv1r0/index.jsp?topic=/com.ibm.iea.zos/zos/1.12/Availability/V1R12_Availability_PFA_Enhancements/player.html)
- Two *z/OS Hot Topics* articles:
  - Issue #20 -- <http://publibz.boulder.ibm.com/epubs/pdf/e0z2n191.pdf>
  - Issue #23 -- [http://publibz.boulder.ibm.com/zoslib/pdf/e0z2n1b0\\_7.26.pdf](http://publibz.boulder.ibm.com/zoslib/pdf/e0z2n1b0_7.26.pdf)
- Article in *IBM Systems Magazine - Mainframe Edition*
  - [http://www.ibm.com/systemsmag/mainframedigital.com/nxtbooks/ibmsystemsmag/mainframe\\_20101112/index.php#/48](http://www.ibm.com/systemsmag/mainframedigital.com/nxtbooks/ibmsystemsmag/mainframe_20101112/index.php#/48)



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