

JES2 Product Update and Latest Status

Updated March 12th



Monday 4:30 PM – Session 10640

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Agenda . . .



■ JES2

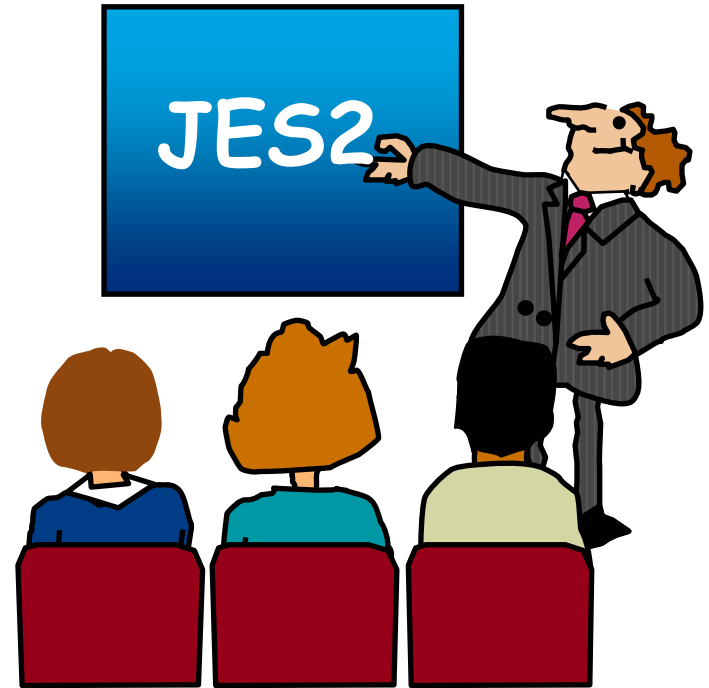
- ▶ Current JES2 Releases
- ▶ Migration & Implementation Tips
- ▶ Recent Service

■ References

- ▶ Documentation & Web Sites

▶ Other Presentation

- ▶ **10639: JES2 What's new in z/OS 1.13**
 - ▶ Tuesday 11:00 AM
- ▶ **10844: JES2 SPOOL: Defining, Managing, and Updating**
 - ▶ Thursday 8:00AM
- ▶ **10845: JES2/JES3 JCL/JECL Differences**
 - ▶ Thursday 11:00AM



Current JES2 Releases



FMIDs, Birthdays & Obituaries

JES2 Rel.#	FMID	First Available	No Longer Available	End of Service
z/OS 1.4	HJE7707	9/02	9/04	3/07
z/OS 1.5	HJE7708	3/04	9/04	9/07
z/OS 1.6	HJE7708	9/04	10/05	9/07
z/OS 1.7	HJE7720	9/05	10/06	9/08
z/OS 1.8	HJE7730	9/06	10/07	9/09
z/OS 1.9	HJE7740	9/07	10/08	9/10
z/OS 1.10	HJE7750	9/08	10/09	9/11
z/OS 1.11	HJE7760	9/09	10/10	9/12*
z/OS 1.12	HJE7770	9/10	10/11	
z/OS 1.13	HJE7780	9/11		

See http://www-03.ibm.com/systems/z/os/zos/support/zos_eos_dates.html

* = projected...

JES2/MVS Compatibility



JES2 Release:

z/OS Release	JES2 z/OS R.7 HJE7720	JES2 z/OS R.8 HJE7730	JES2 z/OS R.9 HJE7740	JES2 z/OS R.10 HJE7750	JES2 z/OS R.11 HJE7760	JES2 z/OS R.12 HJE7770	JES2 z/OS R.13 HJE7780
z/OS R7	X						
z/OS R8	X	X					
z/OS R9	X	X	X				
z/OS R10		X	X	X			
z/OS R11			X	X	X		
z/OS R12				X	X	X	
z/OS R13					X	X	X

IBM recommends the same level of z/OS & JES2 throughout your plex.

-JES levels supported by a given z/OS release are same as the JES levels that can coexist in a MAS,
See "**z/OS V1R13.0 Planning for Installation**" Ch. 4 (GA22-7504)

at <http://publibz.boulder.ibm.com/cgi-bin/bookmgr OS390/BOOKS/e0z2b1c0/4.5.1>

JES2/MVS Compatibility



Statement of Direction

- **z/OS 1.13 will be the last z/OS release that supports running a down level JES.**
- **As of z/OS 1.13+1, IBM only supports running the 1.13+1 JES on the 1.13+1 MVS**
 - ▶ z/OS 1.13 will not be **supported** running on a z/OS 1.13+1 z/OS
- **This does NOT affect what members can co-exist in a MAS**
 - ▶ Just the mixing and matching of JES and MVS levels.
- **New messages during initialization (proposed)**
 - WTO - JES2 *level (HJExxxx)* is not supported running on *mvs_level*
 - WTOR - Reply "CONTINUE" to initialize JES2 in this unsupported environment, "TERM" to shut down JES2

Survey Questions



What is your JES2 Release level (are you \$ACTIVATED) ?

JES2 Rel.#	SHARE 118 3/2012	SHARE 117 8/2011	SHARE 116 2/2011	SHARE 115 8/2010	SHARE 114 3/2010	SHARE 113 8/2009	SHARE 112 3/2009	SHARE 111 8/2008	SHARE 110 2/2008	SHARE 109 8/2007	SHARE 108 3/2007	SHARE 107 8/2006	SHARE 105 8/2005	SHARE 104 3/2005
z/OS R2													1	2
z/OS R4			1						1	4(4)	4(4)	6(4)	22(17)	28(22)
z/OS R5				1						6(6)	5(5)	14(10)	13	8
z/OS R7						2	1	2	12	19	10	6	-	
z/OS R8			1			3	4	14	13	18	6			
z/OS R9	1	1	5	5	19	31	14	16	5					
z/OS R10		3	8	9	12	20	5							
z/OS R11	21(19)	20(9)	26(7)	12(5)	9(2)	3(0)								
z/OS R12	15(15)	14(7)	13											
z/OS R13	8(8)													

z/OS 1.12 Overview



- **Support for JES2 data sets in EAS storage**
 - ▶ New `CYL_MANAGED=ALLOW|FAIL` keyword
- **Support for 31 bit UCB addresses**
 - ▶ No longer capture SPOOL UCBs in 24 bit CSA
- **Better notify support with multiple TSO logons**
- **Printer information via SSI**

z/OS 1.12 JES2 EAV support



- **Problem Statement / Need Addressed:**

- ▶ With z/OS V1R12, DFSMS is adding basic and large format sequential data sets to the list of Extended Address Space (EAS) eligible data sets.
- ▶ Customers will want exploit this capability for JES2 data sets.

- **Solution:**

- ▶ JES2 has been designed to allow SPOOL and checkpoint data sets to be anywhere on an Extended Address Volume (EAV).

- **Benefit:**

- ▶ The JES2 support allows customers to further exploit the increased z/OS addressable disk storage provided by EAVs.

Note: Other data sets (INIT decks, SPOOL Offload, etc) work without any changes.

z/OS 1.12 EAS eligible summary



- **EAS Eligible: A data set on an EAV that is eligible to have extents in the EAS (cylinder managed space) and described by extended attribute DSCBs (format 8/9)**
 - ▶ In z/OS V1R12, basic and large format sequential data sets are EAS eligible.
 - SMS-managed or non-SMS managed.
 - Data set can reside in track-managed or cylinder-managed space.
 - Allocated extents can start in track-managed space and end in cylinder-managed space.
- **EATTR: Data set attribute keyword to define if extended attribute DSCBs are allowed thus controlling EAS eligibility.**

z/OS 1.12 JES2 exploitation



- **With z/OS 1.12, you can:**

- ▶ Define basic and large format sequential data sets anywhere on an EAV and use them for JES2 SPOOL and checkpoint data set extents.

- **Value:**

- ▶ Both SPOOL and checkpoint datasets may be located anywhere on EAV.
- ▶ Provides the ability to have SPOOL data sets larger than 65,520 cylinders (982,800 tracks). Spool data sets can be 6% larger and more importantly builds foundation for larger spool data sets in future releases.

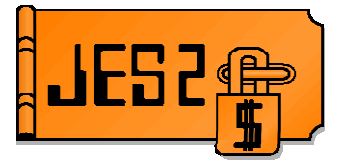
z/OS 1.12 Enable EAS (Cylinder Managed) Allocation



▪ **\$TSPOOLDEF,CYL_MANAGED=ALLOWED|FAIL**

- ▶ This new parameter enables SPOOL and checkpoint data set allocation anywhere on a EAV volume. This capability pertains to both disposition new (\$SSPOOL(),SPACE=) and disposition old. The default is FAIL.
- ▶ Pre-conditions for CYL_MANAGED=ALLOWED are:
 - All MAS members must be JES2 z/OS V1R12 or later.
 - LARGEDS must not be set to fail.
- ▶ Pre-conditions for CYL_MANAGED=FAIL are:
 - Current SPOOL and checkpoint data sets must not reside in cylinder managed space.
 - No pending start SPOOL commands.
- ▶ **Once CYL_MANAGED=ALLOWED -- then no members prior to JES2 V1R12 will be allowed to join the MAS.**
 - Setting CYL_MANAGED back to FAIL will not affect this restriction. CYL_MANAGED=ALLOWED enables later exploitation of MQTRs.

z/OS 1.12 Stop Capturing UCBs for SPOOL



■ Need Addressed:

- ▶ JES2 captures SPOOL UCBs to common storage
- ▶ Field problems where UCBs are unexpectedly uncaptured
 - Forces IPL to recover system

■ Solution:

- ▶ Stop using captured UCBs for SPOOL by exploiting new uncaptured UCB support

z/OS 1.12 MQTR updates



- **Continued migration from 4 byte MTTRs to 6 byte MQTRs**
 - ▶ Variable length PDDDB support
 - Preparation for future changes
 - z/OS 1.12, all PDDDBs same length
 - But assembly time length PDBLENG deleted
 - Use existing run time length PDBSIZE
 - ▶ SPOOL CBs changed from MTTR to MQTR
 - Based on CYL_MANAGED=ALLOWED
 - Always MQTRs in memory
 - Translate on read/write to SPOOL
 - CHK, JCT, NHSB, and OCT affected
 - Old MTTR fields renamed with `_Z11` suffix

z/OS 1.12 Multiple TSO Logon Updates



- **TSO has improved support for logging on same userid on multiple members of the MAS/SYSPLEX**
 - ▶ Limited to one logon per image
- **JES2 has improved notification processing**
 - ▶ Will prefer sending messages to member where job was submitted
 - ▶ If notify userid not logged on, old method is used
 - ▶ Works for job level notify messages
 - No automatic support OUTPUT NOTIFY=
 - Notify SSI does support target member name/number

z/OS 1.12 SSI Updates



- **New printer device information SSI added**
 - ▶ Returns information for local and RJE printers
 - Similar to \$D PRT/\$D Rx.PRx commands
 - ▶ MAS view of the data
 - From z/OS 1.11 members and up
 - Data gatherer APAR on z/OS 1.11
 - ▶ SSI 83, SSOB extension is IAZSSJD
- **Initiator information (SSI 82) MAS wide**
 - ▶ Information from z/OS 1.12 members only
- **Enhanced SYSOUT ENF notifications**
 - ▶ Can requests ENFs as a result of a SAPI request

JES2 1.12 Migration/Coexistence



- **From JES2 z/OS 1.7, 1.8, 1.9**

- ▶ Can all member warm start z/OS 1.12
- ▶ No coexistence support
- ▶ Fall back implications
 - Some new data structures created by z/OS 1.11 JES2 may result in problems in z/OS 1.8 and prior

- **From JES2 z/OS 1.10, or z/OS 1.11**

- ▶ APAR **OA28532** needed on z/OS 1.10 or z/OS 1.11 member to coexist in MAS with z/OS 1.12
 - PTFs
 - **HJE7750 - UA52850**
 - **HJE7760 - UA52851**
 - Also recommended for fall back
- ▶ APARs **OA31703** and **OA32712** are required to correct functional problems with the new/updated z/OS 1.12 SSI interfaces

z/OS 1.13 Overview



■ Batch Modernization

- ▶ Instream data in PROCs (cataloged and instream)
- ▶ Controlling job return code
- ▶ Spin and SPIN data set
- ▶ Requeue job by command on a step boundary

■ SPOOL Enhancements

- ▶ Extend SPOOL data set
- ▶ Greater flexibility on names and volumes
- ▶ SPOOL Migration

■ Enhanced SSIs

- ▶ Completion of device SSI



■ Instream data in PROCs and INCLUDEs

- ▶ Simplifies writing JCL PROCs
 - No need for separate control data set
- ▶ Support DD * and DD DATA in full in PROCs and INCLUDEs
 - Works with instream PROCs
 - No automatic generation of SYSIN DD * like JCL
- ▶ Works for all users of PROC (batch and started tasks)
 - Job must run under JES2 (no MSTR subsystem)
- ▶ Must convert on a z/OS 1.13 member
 - Can run on any level member



■ Instream data in PROC example

```
//HELLO   PROC
//STEP1   EXEC ASMHCLG
//C.SYSIN DD *
TEST     CSECT ,
          STM   14,12,12(13)
          BALR  12,0
          USING *,12
          ST    13,SAVAREA+4
          LA   13,SAVAREA
          SPACE 1
          WTO  'Hello world!'
          SPACE 1
          L    13,SAVAREA+4
          LM   14,12,12(13)
          SR   15,15
          BR   14
          SPACE 1
SAVAREA  DC   18F'0'
          END
//L.TEST  DD DUMMY
//L.SYSXX DD *
//        PEND
```

z/OS 1.13 Job Return Code



- **New job card operand to control job RC**
 - ▶ JOBRC= MAXRC | LASTRC | (STEP,*name.name*)
 - MAXRC is existing processing (default)
 - LASTRC is return code of last step
 - (STEP,*name.name*) is return code of identified step
 - If step not executed, defaults to MAXRC
- **Affects return code seen in**
 - ▶ Extended status (eg SDSF)
 - ▶ ENF 70
 - ▶ HASP165 message
 - ▶ \$DJ,CC= command
- **JOBCLASS JOBRC= MAXRC|LASTRC to affect processing for all jobs in the job class**
- **Two additional error case return codes defined**
 - ▶ CONVERTER ERROR – Conversion processing ABENDED processing the job
 - ▶ SYSTEM FAILURE – System crashed while job was running and job could not be restarted.

z/OS 1.13 Spin Any SPIN



- **Added function to spin any spin data set**
 - ▶ Similar to what was done for JESLOG
 - ▶ Applies to any data set allocated as SPIN
 - No application code/JCL change needed
 - ▶ Spin based on size, time, operator command
- **Update to SPIN= DD operand**
 - ▶ SPIN=(UNALLOC,*option*)
 - ‘*hh:mm*’ - Spin at specific time
 - ‘+*hh:mm*’ - Spin every *hh:mm* interval
 - *nnn*, *nnnK*, *nnnM* - Spin every *nnn* lines
 - NOCMND - Cannot be spun by command
 - CMNDONLY - Can be spun via operator command (default if no interval)
- **\$TJ*n*,SPIN,DDNAME=*name* command added**

z/OS 1.13 Requeue Job



- **Remove job on step boundary**
 - ▶ New STEP operand on \$EJ command
 - Causes job to exit execution at end of current step
 - Optional HOLD operand makes job held
 - Job is requeued for execution
 - ▶ Job must be journaling (JOURNAL=YES on JOBCLASS)
 - ▶ Uses existing continue restart function of z/OS
 - Previously used to restart jobs after an IPL
 - ▶ Full syntax \$EJxxx,STEP [,HOLD]
 - Full cross member support

z/OS 1.13 Extend SPOOL



- **Command to extend SPOOL to adjacent free space**
 - ▶ `$TSPOOL(xxxxxx),SPACE=`
 - `SPACE=` same as `$S SPOOL`
- **SPACE is total size after expand is complete (NOT increment)**
- **Total size limited to architecture**
 - ▶ JES2 limit is based on `LARGEDS` on `SPOOLDEF`
 - Allowed/Always limit is 1M tracks
 - Fail limit is 64K
 - ▶ DSCB format limits expansion into EAS storage
 - Should migrate to `CYL_MANAGED=ALLOWED`
 - Allocate SPOOL using `DD EATTR = OPT` to build format 8/9 DSCB



- **Data set name for SPOOL can now be specified on \$\$ SPOOL**
 - ▶ SPOOLDEF DSNMASK limits values
 - Can have generics
 - ▶ Default is only SPOOLDEF DSNAME value allowed
 - ▶ Must be in z11 \$ACTIVATE mode
- **SPOOL volume prefix can now have generics**
 - ▶ SPOOLDEF VOLUME= still 5 characters
 - ▶ If no generics, then prefix
 - ▶ If generics, then volume must match pattern
- **New SPOOL initialization statement**
 - ▶ Used on COLD start to locate SPOOL volumes
 - ▶ If present, only SPOOLS with initialization statements used
 - ▶ If SPOOL volume has generics, then SCAN is not done
 - ▶ UCB scan for SPOOL volumes only done if no SPOOL init stmts and no generics in VOLUME=
- **Should not use until all members migrated to z/OS 1.13**

z/OS 1.13 SPOOL Migration



- **\$M SPOOL command to move data off volume**
 - ▶ Faster than \$P SPOOL (Minutes not days)
 - ▶ Function enabled with OA36158 (PTF UA64366)
- **Command works with active address spaces using volume**
 - ▶ Less activity is better/faster but no need to IPL to stop active jobs
- **Goal of SPOOL migration is to stop using SPOOL data set**
 - ▶ It is NOT to eliminate the internal representation of the volume
 - ▶ Old data set can be deleted and SPOOL volume taken offline
- **After a successful SPOOL migration**
 - ▶ \$DSPOOL still shows volume
 - ▶ \$DJQ,SPOOL= still displays volume
 - ▶ New status is MAPPED

z/OS 1.13 SPOOL Migration



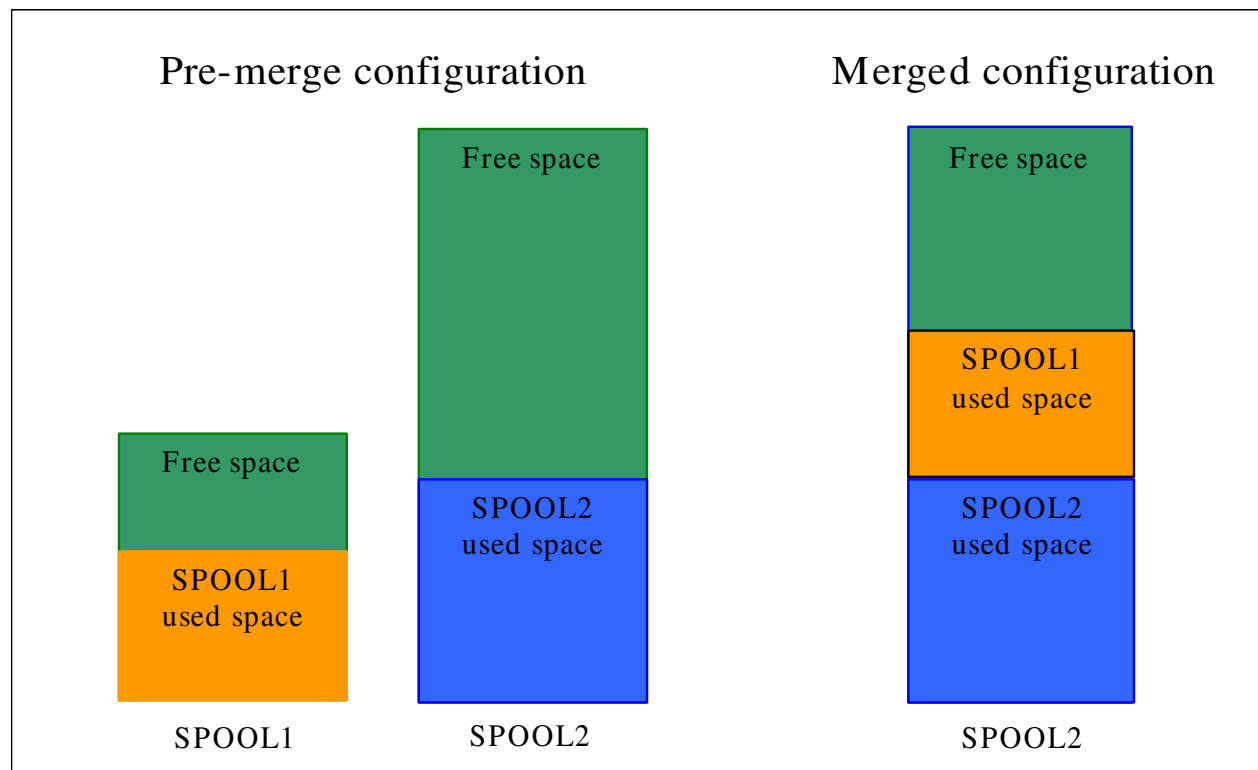
- **Two forms of SPOOL migration, MOVE and MERGE**
 - ▶ Move takes all data on an existing volume and moves it to a new one
 - Source must be INACTIVE (\$Z SPOOL done)
 - No active jobs on the volume
 - Target cannot be currently an active SPOOL volume
 - Can specify space to create data set on target
 - At the end of move, old (source) volume does not exist
 - Target after a move is active
 - ▶ Merge takes all data on one volume and merges it onto free space on another volume
 - Most flexible migration option
 - Source can be in any state with active jobs/address spaces
 - Less activity is good
 - Results is a mapped volume that goes away when all jobs using it are deleted
 - Similar to \$P SPOOL but device is no longer in use

z/OS 1.13 SPOOL Migration



- **MERGE Migration :**

- ▶ Copies an existing *Source Volume* to free space on a *Target Volume* :



- **Upon completion, the *Source Volume* becomes a *Mapped Volume*.**

- ▶ Remains *MAPPED* until all jobs and SYSOUT that have space on the *Source Volume* are purged. It then goes away (no longer exists).

z/OS 1.13 SSI Enhancements



- **SSI 82 – JES Property SSI**
- **Node information SSI – sub-function of JES properties SSI (SSI 82)**
 - ▶ Enhanced to provide information from all active members of JES2 MAS
 - ▶ Available from MAS members starting from z/OS 1.11
 - Requires APAR OA35942 (760 – UA90569, 770 – UA90570)
- **New function is exploited by SDSF**
- **For more information, see publication MVS Using the Subsystem Interface**



■ **SSI 83 – Device information SSI**

- ▶ Enhanced to support all types of devices managed by JES2 (readers, punches, transmitters, receivers, lines, offload etc.)
- ▶ Provides extensive filtering capabilities – e.g. by device state, device name, a variety of device attributes
- ▶ Provides information about all devices managed by all active members of JES2 MAS
- ▶ Device information is available from JES2 MAS members starting from z/OS 1.11 (requires coexistence APAR on z/OS 1.11 and 1.12)

■ **New function is exploited by SDSF**

- **For more information, see publication MVS Using the Subsystem Interface**

z/OS 1.13 SSI Enhancements



- **JES subsystem data set allocation support for XTIOT**
 - ▶ Option on DYNALLOC request
 - S99TIOEX bit for authorized callers
 - S99DXACU bit supports all callers (unauthorized)
 - ▶ Moves allocations control blocks from 24 to 31 bit storage
- **Relieves pressure on 24 bit storage**
- **Increases number of concurrent allocations**
 - ▶ Reduces pressure on 24 bit TIOT
- **Implications include not being able to find DD in TIOT**
 - ▶ Could break applications looking into TIOT
 - ▶ Very unlikely
- **Controlled by parmlib option**
 - ▶ NON_VSAM_XTIOT=NO|YES in DEVSUP_{xx}
- **Good ideas for use include**
 - ▶ SPOOL data set browse, SPIN data set allocation

z/OS 1.13 Migration/Coexistence



■ From JES2 z/OS 1.9 or 1.10

- ▶ Can all member warm to z/OS 1.13
- ▶ No coexistence support
- ▶ Fall back implications
 - Some new data structures created by z/OS 1.13 JES2 may result in problems in z/OS 1.10 and prior
 - Prior to z/OS 1.10 may not be able to use SPOOL volumes with non-standard data set names

■ From JES2 z/OS 1.11 or z/OS 1.12

- ▶ COMPAT APAR OA31806 is needed on a z/OS 1.11, or z/OS 1.12 member to coexist in a MAS with z/OS 1.13
 - HJE7760 UA59434
 - HJE7770 UA59435
- ▶ APAR also highly recommended for fall back as well
 - Some new data structures created by z/OS 1.13 JES2 may result in problems if OA31806 is not installed.

z/OS 1.13 JES2 SPOOL Migration Enabled



- **z/OS 1.13 SPOOL migration function has been enabled**
 - ▶ APAR OA36158 (PTF UA64366) closed February 24, 2012
- **New SPOOL migration page on the web**
 - ▶ http://www-03.ibm.com/systems/z/os/zos/jes2_spoolmigration.html
- **SHARE session**
 - ▶ **10844: JES2 SPOOL: Defining, Managing, and Updating**
 - Thursday 8:00AM

JES2 spool migration

A JES2 spool migration moves an existing JES2 spool volume (an extent or data set) to a new spool volume, or merges an existing volume with another existing spool volume.

The following resources provide information to help you migrate spool volumes:

Spool migration FAQ

Spool migration frequently asked questions [[PDF-0.23 MB](#)]

z/OS V1R13 JES2 Migrating spool volumes documentation

JES2 Infocenter [[HTML](#)]

SHARE presentations on JES2 spool migration

- **JES2 Product Update - SHARE, August 2011:**
 - Overview of JES2 function added in z/OS V1.13 [[PDF-0.93MB](#)]
- **z/OS 1.13 JES2 New Functions, Features, and Migration Actions - SHARE, August 2011**
 - Technical details of the changes made in z/OS 1.13 JES2 [[PDF - 0.73MB](#)]
- **SHARE conference (Scheduled March 15, 2012)**
 - JES2 SPOOL: Defining, Managing, and Updating [[HTML](#)]

JES2 Service Information



HiPer APARs (Hi Impact, or Pervasive)

<u>yy/mm/dd</u>	<u>APAR</u>	<u>COMMENTS</u>
12/02/03	OA38671	High CPU utilization after \$CJ or ABEND in converter
11/12/02	OA38254	\$HASP9202 JES2 MAIN TASK LOOP DETECTED NEAR HASPSASR+000987
11/11/08	OA37992	JES2 errors following termination
11/10/04	OA37835	Improvements to SPOOL track group recovery
11/09/27	OA37654	\$DJ2 error after \$DOGJQE WAIT=(NO,DEFER) is issued
11/08/04	OA37233	SP230 KEY1 storage leak in initiators
11/07/29	OA37147	ABEND02A RC28 in HASCPHAM after restart
11/07/26	OA37104	I/O error writing JCT during conversion causes loop
11/06/08	OA36674	Duplicate jobs not executing or invalidly marked as such
11/07/21	OA37018	Specifying JESLOG=(SPIN,criterion) can result in creating unnecessary spin data sets (z/OS 1.13)
11/06/30	OA36873	JOE (Job Output Element) chain corrupted resulting in CPU loop
11/05/04	OA36328	\$TO commands to change DEST= can take a long time
11/04/28	OA36168	After OA32333, age filters may incorrectly affect output that appears 110+ years old
11/04/20	OA35483	ABEND0F7 RCD4 in HASCPOOL due to TRE cell pool exhaustion
11/03/22	OA35871	After OA34412, \$SA1 in HASPSASR in z2 checkpoint mode
11/03/04	OA35081	SYSLOG task hung waiting for PBUFs after a hot start of JES2
11/01/26	OA35313	Security APAR (JESPOOL)
11/01/24	OA35010	VFREEPRG DISTERR due to NJE buffer mismanagement
11/01/12	OA35165	JOE name of 00000001 in SDSF JDS display
11/01/07	OA34987	High CPU with many idle NJE lines

SDSF Performance APARs



Problem

Performance problems with extended status SSI

- ▶ Could affect any user of SSI 80

Fixes

- OA37204 – PE fix for OA34347 (SDSF owner filter not matching - z/OS 1.11 and up)
- OA34347 – Improve SYSOUT class and owner filtering
- OA34521 – PE fix for OA33063 (OC4 with multi-tasking user of extended status)
- OA33725 – PE fix for OA33063 (Extended status requests under initiator causes ABEND)
- OA33063 – High CPU for terse and verbose requests and with large numbers of DESTIDs/NODEs
- OA31565/OA31571 – High CPU due to linkage stack and extra queue scan
- OA28856/OA28918 – Problems when filters are active
- OA27885 – PE fix for OA24615
- OA26013 – Job position value
- OA24615 – Excessive CPU returning WLM queue Position
- OA25498 – Poor performance returning information for a large number of jobs/SYSOUT

Security APARs



- **OA34611 and OA35313**

- ▶ Obscure problems in special environments
- ▶ No relationship between 2 problems
 - SECLABEL issue
 - JESSPOOL issue
- ▶ Put them on

Other Performance APARs

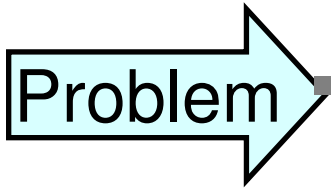


- **OA36328 – \$TO commands to change DEST= can take a long time due to unnecessary subtask processing**
- **OA34987 – Problems with many idle NJE SYSOUT or job transmitters (z/OS 1.11, 1.12)**
- **OA33407 – Excessive \$#POSTing for SYSOUT processors (SAPI), POST even if dest does not match (z/OS 1.11, 1.12)**



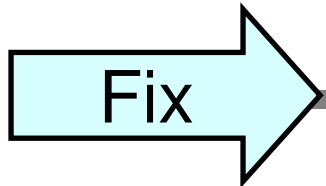
- **\$HASP492 message indicates start process status**
 - \$HASP492 JES2 MEMBER-N1M1 QUICK START HAS COMPLETED
- **APAR OA24118 dealt with ABENDs during \$E MEMBER**
 - ▶ ABENDs caused the \$E MEMBER processing to fail
 - ▶ New variant of \$HASP492 was issued in this case
 - \$HASP492 JES2 MEMBER-N1M1 RESTART HAS FAILED
 - ▶ Variant is ONLY for RESTART (\$E MEMBER) processing
 - Other starts just fail to complete and JES2 terminates
- **Message update appeared in recent manuals**
 - ▶ Not clear when HAS FAILED came out
 - ▶ Was a concern for automation
- **DOC APAR clarified the message and variants**
- **Ironically, automation was part of the reason for using the same message ID**
 - ▶ It indicated that the process completed

OA38043 – Allow Null JOBCLASS QAFF=



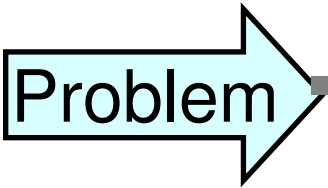
Can remove members from QAFF but list cannot be null

- ▶ Wanted to shut down last member in QAFF but had to hold the jobclass instead of removing member
- **No good reason to disallow null list**
- **Code that ensures list not null removed**



JES2 z/OS 1.11, 1.12, 1.13

OA38951 – JES2 CKPT hung after System managed process

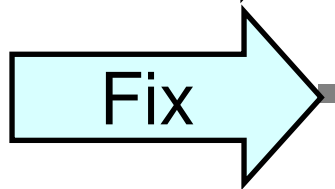


■ **The JES2 CKPT process (PCE) can hang**

- ▶ CKPT must be on CF
- ▶ A system managed process has just completed
 - Such as a rebuild
- ▶ The post of the CKPT on CF subtask is lost
- ▶ CKPT PCE waiting for subtask, subtask waiting for PCE
- ▶ Very small timing window
- **No CKPT work will happen (Start, logon, etc)**
 - ▶ Hot start clears problem

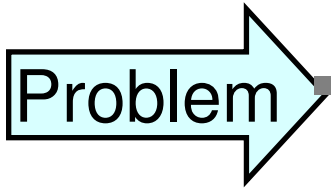


■ **System managed rebuild of CKPT CF structure**



■ **JES2 z/OS 1.11, 1.12, 1.13 - OPEN**

OA38135 – SYSLOG Browse Hang (SDSF)



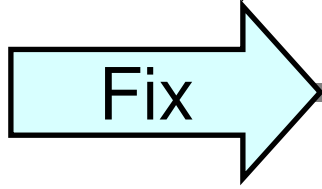
▪ **Loop can occur if browsing SYSLOG as it is SPUN**

▶ Easy to re-create if writelog done from SDSF browse panel

▪ **TSO user in a never ending loop with an I/O in it**

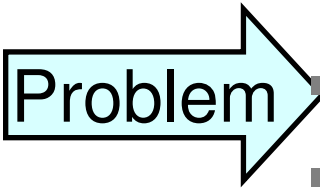
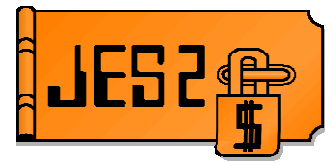


▪ **WRITELOG from SDSF SPOOL Browse panel**

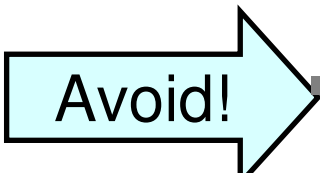


▪ **JES2 z/OS 1.11, 1.12, 1.13**

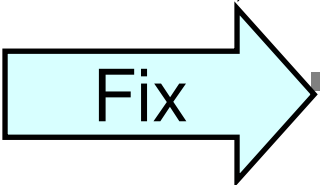
OA38671 – CPU Loop after \$CJ



- **Loop in JES2 converter processing**
- **Caused when job is \$CJed while in converter**
 - ▶ \$CJ has to occur at an inopportune moment
 - Middle of JES2 chaining an SDB for a data set
- **Loops occurs due to additional validation during free**

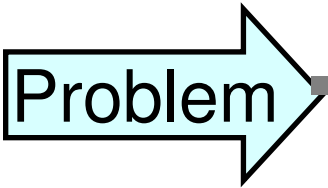


- **\$CJ of jobs in conversion (unless truly hung)**



- **JES2 z/OS 1.13**

OA37992 – Errors after JES2 ABENDs

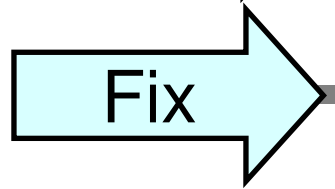


Processing of a JES2 ABEND has two issues

- ▶ Cross member requests could be denied
 - SPOOL Browse from other members cannot get in storage buffers
- ▶ A failed HOT start can result in member appearing to be in MVS-GONE state
 - Other members could \$E MEMBER the hot startable member
 - Would force an IPL of member
 - Could have same job running on multiple members

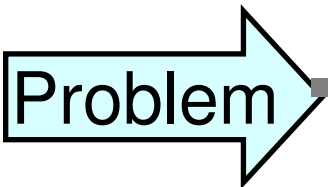


Failing a hot start due to parameter errors



JES2 z/OS 1.11, 1.12

OA37835 – Track Group Recovery Improvements



■ Unusual undiagnosed problem in disaster recovery

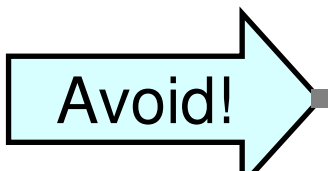
- ▶ Seems to be related to PPRC and Flash Copy of SPOOL
- ▶ Signature records (SPOOL ownership records) corrupted
- ▶ Causes double allocation of SPOOL at target (recovery) site

■ APAR makes SPOOL garbage collector more conservative

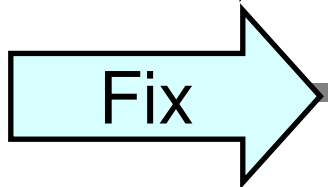
- ▶ Examines data and signature record before reclaiming space
- ▶ Could delay SPOOL recovery

■ DOES NOT FIX UNDIAGNOSED PROBLEM

- ▶ Reduces impact if you hit the problem

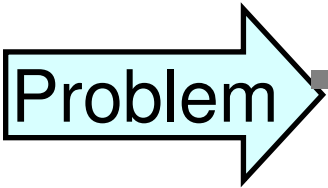


■ Flash Copy and PPRC of SPOOL



■ JES2 z/OS 1.11, 1.12, 1.13

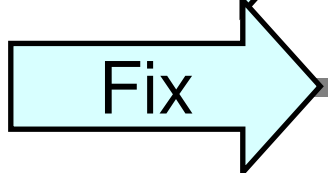
OA36865 – \$MASCOMM Job's SPOOL Used Mask Wrong



- **\$MASCOMM's SPOOLS used mask can be wrong**
 - ▶ Code that manages the mask does not work
 - ▶ \$MASCOMM may be using less or more SPOOLS than indicated
- **SPOOL volume halt/drain errors can occur**
 - ▶ If more bits on, then volume may not drain/halt
 - ▶ If less bits on, then volume may drain/halt prematurely
 - This can cause I/O errors, etc
- **APAR (when on all members) fixes the bad mask**
- **May be reason for customer request to delete \$MASCOMM job**

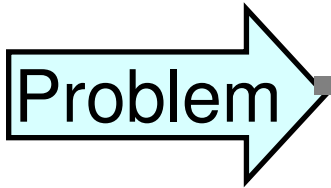


■ **Put fix on ASAP**



■ **JES2 z/OS 1.11, 1.12, 1.13**

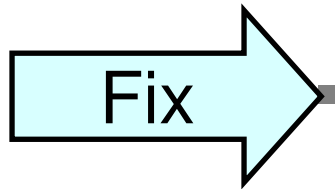
OA36142 – Offload Job Reload Problems



- **OFFLOAD job receiver can improperly handle jobs being reloaded**
 - **Job with JCL error may reload but not be accessible**
 - **Other odd things may happen**



▪ **Selective reloads of pre-execution jobs**



▪ **JES2 z/OS 1.10, 1.11, 1.12, 1.13 - F107**

OA37104 – Loop in Converter



Problem

- If converter encounters I/O errors writing the JCT
or
- If there is a JCT overlay that damages JCT
eyecatcher
then
- Converter error recovery can loop trying to write
the JCT to a new place on SPOOL until all SPOOL
space has been tried (and SPOOL is at 100%)
- z/OS 1.12 aggravated problem
(CYL_MANAGE=FAIL)

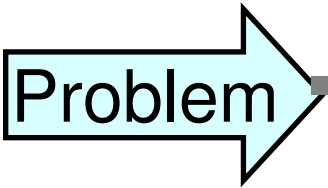
Change

Corrected I/O error recovery and retry logic

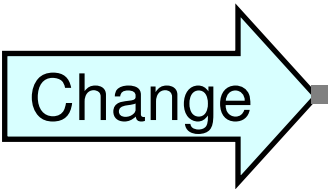
Fix

JES2 z/OS 1.12, 1.13

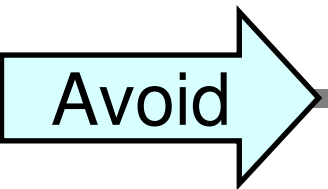
OA36674 - Duplicate Job Errors



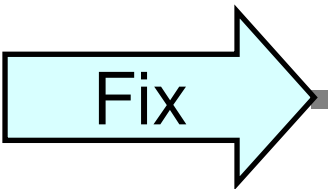
- Lots of duplicate job error with z/OS 1.12 member active
- Extra CPU overhead processing duplicate jobs
- Long dead pre-z/OS 1.8 member still active (was \$PJES2,TERMed years ago but never reset)



▪ Automatically reset ancient members even if AUTOEMEM is not set



▪ Ensure old/dead members are reset (use AUTOEMEM)



▪ JES2 z/OS 1.10, 1.11, 1.12, 1.13

OA37147 – ABEND 02A Accessing SPOOL



Problem → SPOOL volume incorrectly marked as unavailable during initialization

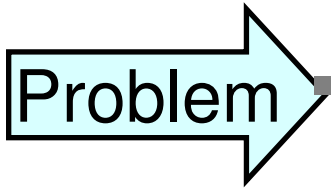
- Old members are being deleted or redefined

Change → Corrected member status processing during restart

Avoid → Ensure old/dead members are reset (use AUTOEMEM)

Fix → JES2 z/OS 1.10, 1.11, 1.12, 1.13

OA37233 - Memory Leak in Initiator Address Space



▪ **Slow memory leak of SP230 key 1 31 bit storage**

▶ ~750 bytes per job

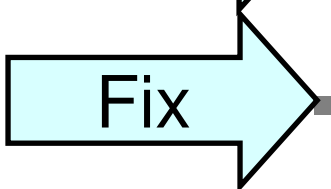
▪ **Occurs in batch address spaces**

▪ **Can slow down batch job**

▶ extra CPU spent in GETMAIN, local lock contention, etc



▪ **Occasionally recycle initiators**



▪ **JES2 z/OS 1.12, 1.13**

OA35770 - NJE Multi-line Messages Truncated



Problem

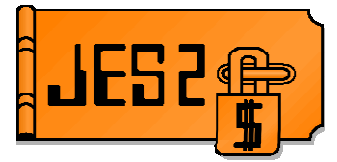
- **Multi-line messages from TCP/IP NJE node truncated**
 - ▶ Requires NJE over TCP/IP and SNA or BSC
 - ▶ Connection can be to different nodes
- **Messages from TCP/IP ignored while processing SNA/BSC messages**
- **TCP/IP message will time out**

Change

- **Message processing logic was corrected**

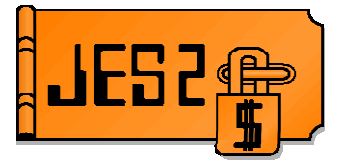
Fix

- **JES2 z/OS 1.10, 1.11, 1.12, 1.13 - F106**



- **Don't run out of BERTs**

Questions?



QUESTIONS?

Session 10640

OA36873 - Missing JOE CKPTs



Problem

- CPU loop processing free JOEs in a MAS
- Missing \$CKPT of JOE chain fields
- Running in z11 checkpoint mode
- Related to unusual re-queuing of SYSOUT

Avoid!

▪ Z11 CKPT mode without fix

Fix

▪ JES2 z/OS 1.11, 1.12

OA35483 - TRE CPOOL Cell Leak



Problem

- SRB mode JES2 requests fail to free a \$TRE cell pool element
- Slow leak occurs over time
- Happens for SYSLOG in master address space
- SYSLOG will not restart

Avoid!

- Larger SYSLOGs (less spinning) leak a bit faster

Fix

- JES2 z/OS 1.10, 1.11, 1.12 - F105

OA35661 - Old SPOOL Won't Go Away



- Problem**
- **SPOOL volume inactive since z/OS 1.8**
 - **Attempts to start or drain volume fail**
 - ▶ Allocation failure due to missing data set name

- Avoid!**
- **Having INACTIVE SPOOLS for extended periods of time (especially over multiple release migrations)**

- Fix**
- **JES2 z/OS 1.11, 1.12 – F105**

OA35165 – JOENAME displays as 00000001



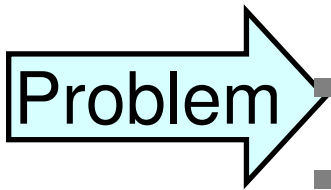
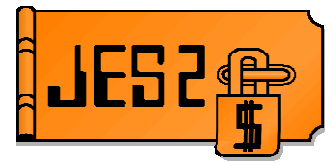
Problem → **Extended status data set list returns a JOE name of
00000001**

- ▶ Only for data sets that do not have JOEs
- ▶ Shows up in SDSF JDS display off ST and DA panel
- ▶ Meaningless clutter

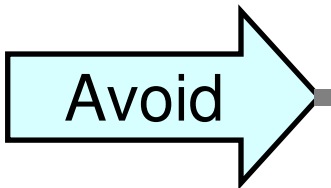
Change → **Area set to blanks if no JOE name**

Fix → **JES2 z/OS 1.10, 1.11, 1.12 – F101**

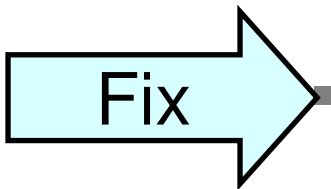
OA34796 – Jobs don't run after WLM service definition change



- **Jobs in a MODE=WLM job class do not run**
- **Incorrect processing if job assigned new service class**
 - ▶ Service class is changed but job not requeued
 - ▶ Not on WLM queue so cannot run in WLM init
 - ▶ Class is WLM so cannot run on JES2 init

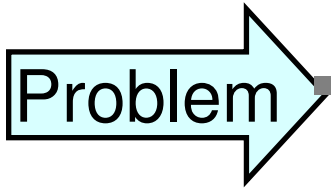


▪ **WLM service definition changes that alter job's service class**



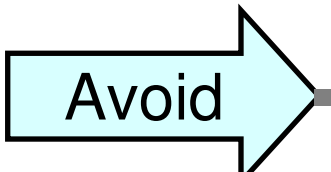
▪ **JES2 z/OS 1.11, 1.12 – F012**

OA32551 – SPOOL Browse Problems

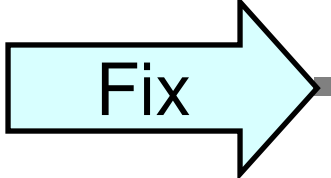


Problems processing instorage buffers

- ▶ Browsed job submitted on z/OS 1.10 viewed on z/OS 1.11
- ▶ Problems with data sets that get ENDREQed
 - Timing window
- **Can cause 24 bit private storage overlays (key 0)**
- **Has resulted in IPL when captured UCB overlaid**



Running mixed level MAS for long periods



JES2 z/OS 1.9, 1.10, 1.11, 1.12 – F009

OA32799 – \$ACTIVATE \$K05 ABEND



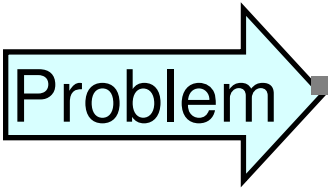
Problem → **\$ACTIVATING from z11 to z2 mode and then back to z11 mode can result in errors**

- ▶ DEBUG options cause \$K05 ABEND
- ▶ W/O DEBUG, bad data, ABENDs or Loops in extended status SSIs
- ▶ ABEND on member that did not \$ACTIVATE

Avoid → **Issuing \$ACTIVATEs from z11 to z2 to z11 in a MAS**

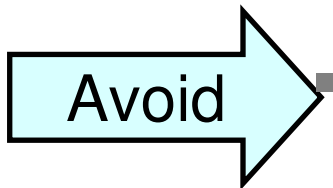
Fix → **JES2 z/OS 1.11– F008**

OA32292 – Jobs SPOOL Mask Incorrect After a Hot Start

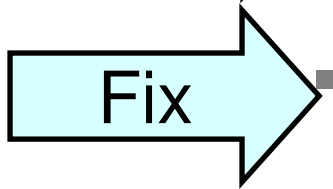


■ **Various problems result in a jobs SPOOL usage mask missing entries on a hot start**

- ▶ Mask is important to ensuring no jobs using a SPOOL volume being drained or halted
- ▶ Could result in premature draining of a SPOOL volume

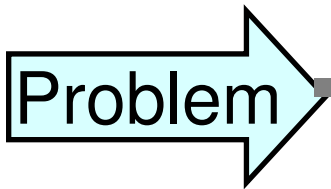


■ **Draining SPOOLS after a hot start**



■ **JES2 z/OS 1.9, 1.10 – F008**

OA33407 – SAPI/Printer Performance Problem

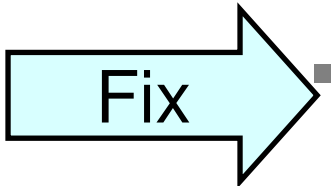


High CPU when printers/SAPI select on user routecode

- ▶ SAPI/Printer get posted to select work when nothing to select
- ▶ Device does a selection and then goes to sleep
- ▶ Happens when select on user destination (eg FRED)

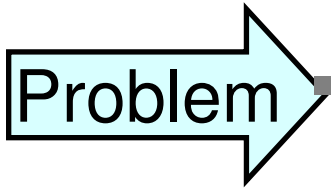


Selecting on user destinations without fix



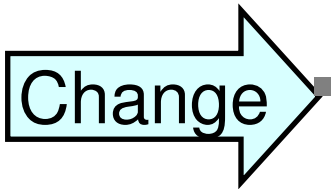
JES2 z/OS 1.11, 1.12 - F007

OA32636 – Improved HASP050

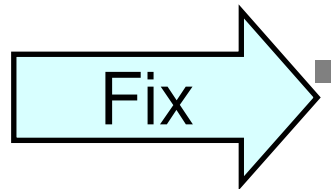


■ **\$HASP050 message issued when over threshold and percent usage changes**

- ▶ When at 100% usage, percentage does not change
- ▶ Message is missed when usage is very high and not changing



■ **\$HASP050 message issued every 30 second when 99% utilization or greater even if percent usage does not change**



■ **JES2 z/OS 1.9, 1.10, 1.11, 1.12 – F006**



Problem → After JES2 runs out of \$BERTs, JES2 restarts but ABENDs with \$DP3.

- ▶ Customer had to COLD Start after trying to WARM/HOT START...
- ▶ There must be a way for JES2 to come up so that \$BERTs can be added to avoid Cold Start.

Avoid! → **Moral: Don't run out of \$BERTs!**

- JES2 - all current releases . . .
 - ▶ (Fixed in future release)
- See also OA25562 (F808)
 - ▶ (Will highlight shortage messages.)
- **Again: Don't run out of \$BERTs!**

OA32216 - Unable to Warmstart - no \$BERTs



Problem → MISC processor waiting for BERTs to update CAT and WSC counts

- ABEND \$QG1 due to wait for BERTs in exit 49
- Unable to warm start in z/OS 1.9 and 1.10

Change → BERT threshold added in OA23689 increased

- 2x max for JQA plus 2x max for CAT plus max for WSC
- 48 for z/OS 1.9 and 1.10, 50 for z/OS 1.11 and 1.12

Avoid! → **Again: Don't run out of \$BERTs!**

Fix → **JES2 z/OS 1.9, 1.10, 1.11, 1.12 – F006**

OA32333 – Problems when OUTTIME=UPDATE



Problem

▪ **SAPI tracking of “don’t show” attribute for JOE incorrect if OUTDEF
OUTTIME=UPDATE**

- ▶ JOEs re-presented to application inappropriately
- ▶ SAPI application may have unpredictable error

Avoid!

▪ **Using OUTDEF OUTTIME=UPDATE**

Fix

▪ **JES2 z/OS 1.11 and 1.12 – F006**

PE

▪ **Fixing APAR OA36168 – F105**

OA33032 – SDSF PREFIX Filtering with Transaction Output Incorrect



Problem

SDSF PREFIX filtering (O and H) not matching transaction output in z2 CKPT mode

- ▶ Extended status not returning transaction jobs as requested
- ▶ Some performance problems may be noticed in z11 mode

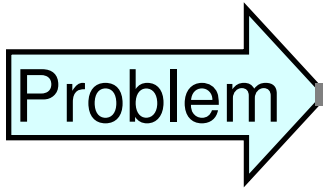
Avoid!

Transaction filtering in SDSF in z2 mode

Fix

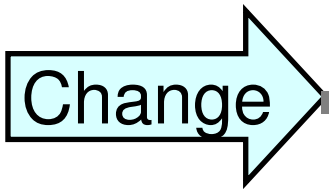
JES2 z/OS 1.11 and 1.12 – F008

OA32089 – New Message for Automatic/Init Command



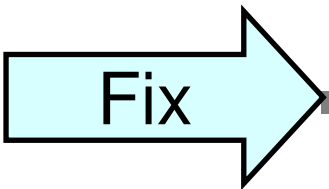
Commands from Init Deck and automatic commands are not echoed to the console

- ▶ If there is a syntax error, it is hard to determine the source
- ▶ Command responses without command echo in SYSLOG can be confusing

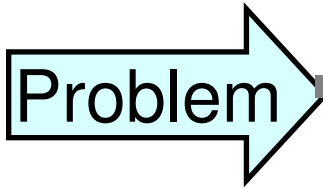


Issue HASP249 message to echo command

- ▶ Indicates source is “initialization” or “auto command id=xxx”



JES2 z/OS 1.9, 1.10, 1.11, 1.12 – F007



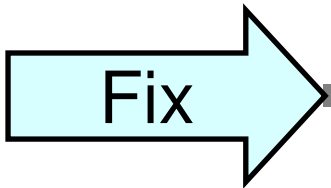
Command performance with multiple filters

- ▶ Filter optimization not working with more than one filter
- ▶ Problem introduced in z/OS 1.5
- ▶ More filters cause more problems
- ▶ Put filters most likely not to match first



Using multiple filters against large job range

- ▶ Split commands to have less jobs/JOEs per command



JES2 z/OS 1.9, 1.10, 1.11 – F005

Trial and tribulations of \$HASP150



- **OA10772 – MSGHASP150 will only display 3 digits of the JOEID1 value**

▶ \$HASP150 CICSPBR2 OUTGRP=48593.123.1 ON R6155.PR1 6 (6) RECORDS

- **Real “fix” incorporated into z/OS 1.8**

And then....

- **OA22397 – Wrong JOBID placed in \$HASP150 message**
- **OA23776 – MSGHASP150 incorrectly sent to PSF JOBLOG**
- **OA26451 – HASP003 RC=(28),ERROR BUILDING MESSAGE HASP150P on JES mode 3800 printers.**
- **OA29284 – \$HASP150 Message to remote RJE console contains bad text**
- **OA34006 - \$HASP704 JOEID1 truncated**