JES2 Product Update and Latest Status

Updated July 30th

Monday 4:30 PM – Session 7396

SHARE 115 Technical Conference - Boston, 2010

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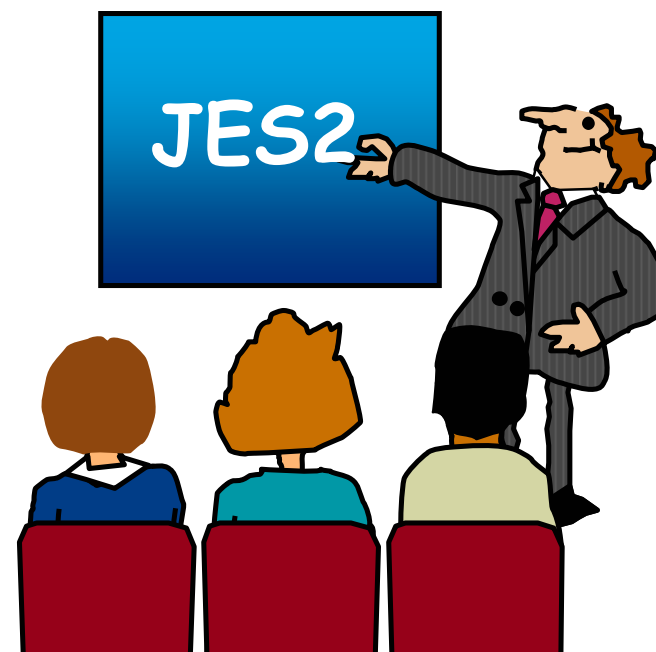IBM®, z/OS are trademarks of the IBM Corporation.

Agenda . . .

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

- References
  - ► Documentation & Web Sites

Current JES2 Releases

FMIDs, Birthdays & Obituaries

JES2 Rel.#	FMID	First Available	No Longer Available	End of Service
z/OS R. 3	**HJE7705**	3/02	9/02	3/05
z/OS R. 4	HJE7707	9/02	9/04	3/07
z/OS R. 5	HJE7708	3/04	9/04	9/07
z/OS R. 6	**HJE7708**	9/04	10/05	9/07
z/OS R. 7	HJE7720	9/05	10/06	9/08
z/OS R. 8	HJE7730	9/06	10/07	9/09
z/OS R. 9	HJE7740	9/07	10/08	9/10
z/OS R. 10	HJE7750	9/08	10/09	**9/11***
z/OS R. 11	HJE7760	9/09	**9/10***	**9/12***
z/OS R. 12	HJE7770	**9/10***		

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

* = projected...

JES2/MVS Compatibility

JES2 Release:

z/OS Release	JES2 z/OS R.5 HJE7708	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
z/OS R5	X						
z/OS R6	X						
z/OS R7	X	X					
z/OS R8	X	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

IBM recommends the same level of z/OS & JES2 thoughout 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 V1R11.0 Planning for Installation**" Ch. 4 (GA22-7504)

at http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOKS/E0Z2B1A1/4.5.1

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

JES2 Rel.#	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	SHARE 103 8/2004	SHARE 102 2/2004	SHARE 101 8/2003
OS/390R10										1 (1)	5	4	9(9)	11(11
z/OS R2										1	2	2	5(4)	5()
z/OS R4						1	4(4)	4(4)	6(4)	22(17	28(22	17	23(7)	8 (1)
z/OS R5	1						6(6)	5(5)	14(10	13	8	4		
z/OS R7			2	1	2	12	19	10	6	-				
z/OS R8			3	4	14	13	18	6						
z/OS R9	5	19	31	14	16	5								
z/OS R10	9	12	20	5										
z/OS R11	12(5)	9(2)	3(0)											
z/OS R12														

Survey Questions

	Boston	Seatle
Do you use NJE in your environment?		Everyone
- **BSC?**	1	1
- **SNA?**	17	14
- **TCP/IP?**	15	21
Do you use RJE in your environment?	3	6
- **BSC?**		0
- **SNA?**	3	6
Do you use BDT in your environment?	0	1
Do you use JES2 driven printers?	8	3
ESCON connected printers	3	

JES2 z/OS 1.12 - HJE7770

- **Support for EAS for JES2 data sets**
  - ► Extended addressing space (Cylinder managed storage)
  - ► SPOOL processing updated to support larger volumes
    - – Max size SPOOL still only 1M tracks
    - – Can be anywhere on volume
  - ► JES2 checkpoint data sets support also updated
    - – Max usable size is about 7K tracks
  - ► New CYL_MANAGED=FAIL|ALLOWED keyword on SPOOLDEF
    - – **Once set to ALLOWED cannot start down level member**
      - ▪ **Even if later set to FAIL**
    - – Also activates new MQTR support
  - ► Other data sets (init deck, SPOOL offload, etc) support EAS data sets
    - – No code change was needed, not linked to CYL_MANAGED

JES2 z/OS 1.12 - HJE7770

- **Stopped capturing SPOOL UCBs to CSA**
  - Use actual (31 bit) UCB addresses for I/O
  - IBM no longer recommends SPOOL UCBs be kept below the line
    - Ensure other applications can support 31 bit SPOOL UCBs
- **Updated HASP443 message (SPOOL start failure message)**
  - Added dynamic allocation failure text to the message
  - Rolled back to z/OS 1.11 in OA31171
- **Updated HASP414 message (OBTAIN failure message)**
  - Added text explanations for obtain return codes

JES2 z/OS 1.12 - HJE7770

More MQTR exploitation

- Continued migration from 4 byte MTTRs to 6 byte MQTRs
- Variable length PDDB support
  - Preparation for future changes
  - z/OS 1.12, all PDDBs 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

JES2 z/OS 1.12 - HJE7770

- **Printer information SSI**
  - Interface to get information on local and remote printers
  - Includes printer settings, status, active output
  - Supports printers on other members (for z/OS 1.11 and up)
- **Initiator query SSI supports inits on other members**
  - Enhancement to z/OS 1.11 support
  - Other members must be at z/OS 1.12 and above
- **Enhanced SYSOUT ENF processing**
  - Option to requests ENFs for data sets passed to SAPI
  - Enables more tracking of JES2 output

JES2 z/OS 1.12 - HJE7770

- **TSO Notify message processing enhancements**
  - ► Helps when multiple instances of a userid is logged on
  - ► Prefer to send notify message to userid on member that submitted job
- **Serviceability**
  - ► Improved SAPI trace formatting
  - ► SSOB & extension in SSI $SAVE/$RETURN trace records
- **MTTR (Mean time to restart) statistics**
  - ► JES2 creates new timed events data
    - – Via call to IEATEDS
  - ► Tracks initialization phases and warm start processing
  - ► Foundation for future efforts to reduce JES2 start times
    - – No changes other than gathering data

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

More details on HJE7770

Session 7525 – Tuesday 1:30 PM - z/OS 1.12 JES2 New Functions, Features, and Migration Actions

What's new in SDSF 1.12

- **Health Checker History panel**
- **Enhancements to INIT panel**
- **Additional JES3 support (PR panel)**
- **Search help support**
- **REXX log support**
- **SDSF data available through JAVA**

- **More information on SDSF:**

Session 7502 – SDSF Product Update – Thursday 11:00 AM

Session 7420 – SDSF for New Users - Hands-on Lab – Wednesday 9:30 AM

JES2 z/OS 1.11 - HJE7760

- **Transaction SYSOUT selection**
  - ► APPC, BPXAS, InfoPrint output
  - ► Select based on transaction job name and job id
    - – SAPI and Extended status
  - ► $JOE extended with BERTs
    - – May impact CKPTSPACE BERTNUM value
  - ► Improves SDSF APPC ON performance
- **Expanded limits for JQEs, JOEs, BERTs, TGSPACE**
  - ► JQEs – 400,000, JOEs – 1,000,000, BERTs – 1,000,000
  - ► TGSPACE MAX – 132,649,472
- **New $ACTIVATE level to enable new limits, trans select**
  - ► $ACTIVATE LEVEL=z11
  - ► Requires LARGEDS=ALLOWED or ALWAYS

JES2 z/OS 1.11 - HJE7760

- **Application interfaces**
  - ► SYSLOG Browse
    - – Logical data set that concatenates all SYSLOG data for one system
    - – Uses SPOOL data set browse to allocate data set
    - – New POINT RBA to locate records by record number or time
      - ▪ Faster than normal POINT
    - – Can only access SYSLOG created by z/OS 1.11 JES2
      - ▪ Does not need $ACTIVATE
  - ► New JES Properties SSI
    - – Node, SPOOL, JesPlex, Job Class, and Initiator information
      - ▪ Includes WLM initiator information
- **New JOB level ENF 70**
  - ► Tracks job phase changes
- **$S SPOOL support to allocate (create) SPOOL data set**
  - ► New SPACE= keyword to indicate size
    - – SPACE=(CYL|TRK|MAX,nnnnnn)

JES2 z/OS 1.11 - HJE7760

- **BERT shortage processing (OA25562 plus)**
  - ► APAR corrected some bugs and added messaging
    - New $HASP052 message every 30 seconds
    - $HASP050 message issued on all members
    - Processing stops when BERT shortage (Updated with OA32216)
      - SYSOUT and batch jobs, then STCs and TSO logon
  - ► z/OS 1.11 added new limp mode
    - Identified by $HASP051 message (repeated with OA32636)
    - Mostly happens at startup (guarantee JES2 will start)
    - JES2 is NOT functioning normally
      - Duplicate job processing not functioning
      - WLM initiators may not work
    - Must fix BERT shortage and restart JES2

JES2 1.11 Migration/Coexistence

- **From JES2 z/OS 1.7 or 1.8**
  - ► Can all member warm start z/OS 1.11
  - ► 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 1.9 or z/OS 1.10**
  - ► APAR **OA25093** needed on z/OS 1.9 or z/OS 1.10 member to coexist in MAS with z/OS 1.11
    - – PTFs - **HJE7740 - UA46530, HJE7750 - UA46531**
  - ► APAR also highly recommended for fall back as well
    - – Some new data structures created by z/OS 1.11 JES2 may result in problems if OA25093 is not installed.

JES2 Service Information

- HiPer APARs (Hi Impact, or Pervasive)
  - See PSP buckets for an up-to-date list - ZOSV1Rx / JES2

    http://www14.software.ibm.com/webapp/set2/psp/srchBroker (DEPRICATED)

```
yy/mm/dd APAR      COMMENTS
10/08/13 OA32799   ABEND068 RC108 HASPCKVR checkpoint versions subtask terminates
10/08/13 OA32292   SPOOLs used mask not updated properly at hot start
10/08/06 OA33074   NETVIEW ASID hung waiting on $SJBLOCK in HASCJBTR
10/08/06 OA33032   SDSF prefix command does not show transaction output
10/07/30 OA33063   Higher cpu usage in SDSF starting with z/OS 1.9
10/07/23 OA33407   High CPU usage for JES2 z11 on devices or SAPI PCE
10/06/04 OA32761   HASP895 JOB/OUTPUT ERROR DETECTED  RC=82 & HASP003  RC=94
10/06/04 OA32216   JES2 hangs during initialization if BERT shortage
10/05/28 OA31813   $HASP9213 message after issuing command(s) against a large amount of jobs
10/03/26 OA31565   SDSF panel response slow due to linkage stack overhead
10/02/26 OA31557   ABEND $IV8 retroactivating to z2 mode
10/02/26 OA31121   ABEND0C4 because PITSJB points to free SJB
10/02/19 OA31671   ROUTECDE= filter always returns a not found
10/02/12 OA31674   JESNEWS data set not passed to FSS
10/02/05 OA31416   WLM jobs not selected for execution after policy change
10/01/29 OA31480   $HASP096 after held SPIN data set altered by PSO
10/01/29 OA31479   ABEND $Q03 after held SPIN data set altered by PSO
10/01/29 OA31091   ABEND0C4 or $DISTERR during warm start
09/12/25 OA29363   JES2 $Q03 during initialization after reconfiguration
09/12/18 OA29854   FSS does not recovery from $ERROR type ABENDs
09/11/27 OA30888   Loop in checkpoint version revovery
09/11/20 OA30411   ABEND0C4 or $J10 during WARM start (warm start fails)
09/11/06 OA30295   ABENDA78-10 when browsing SYSLOG using SDSF
09/10/30 OA30321   ABENDB78-18 freeing an IOT that was partially overlayed
09/10/16 OA30306   SAF failure results in loop in SAPI
09/08/31 OA29374   Jobs hang in conversion due to SYZTIOT contention
09/08/28 OA29531   POINT failure pointing to the end of SYSLOG browse data set
09/08/28 OA28856   Extened status performance improvement when using filters
09/08/21 OA29470   Various errors in z/OS 1.11 JES2
09/06/26 OA25320   SRB scheduling keeps dispatching priority high for batch job
09/06/19 OA26243   NJE over TCP/IP connection hangs after other member crashes
```

SDSF Performance APARs

Problem ➤ **Performance problems with extended status SSI**

➤ Could affect any user of SSI 80

Fixes ➤

- **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**

SDSF Performance APARs

Problem ➤ **SDSF fixes related to performance**

Fixes ➤
- PM18941 – PE fix for PM01352 (exclude list)
- PM01352 – OUTPUT panel performance
- PK87391 – DA panel performance problems
- PK86058 – STATUS filtering performance
- PK82936 – Purging jobs with lots of output
- PK81154 – HELD panel delays reading CHKs
- PK52910 – HELD panel performance with APPC on

OA33407 – SAPI/Printer Performance Problem

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)

Avoid! ➤ **Selecting on user destinations without fix**

Fix ➤ **JES2 z/OS 1.11, 1.12**

OA32636 – Improved HASP050

Problem ▸ **$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

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

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

OA23689 - Unable to Warmstart - no $BERTs

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 an 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**

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**

OA32089 – New Message for Automatic/Init Command

Problem ► **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

Change ► **Issue HASP249 message to echo command**

- ► Indicates source is "initialization" or "auto command id=*xxx*"

Fix ► **JES2 z/OS 1.9, 1.10, 1.11, 1.12**

OA31837 – SPOOL Read SSI

Problem ▸ **SPOOL read SSI call fails to fetch data**

- ► Asking for instorage buffers
- ► Request data from non-local member then local
- ► Does not release storage between requests
- ► Local request set to last non-local member

Avoid! ▸ **Mixing local and non-local SPOOL read requests without cleaning up storage**

Fix ▸ **JES2 z/OS 1.11 – F002**

OA31813 – Command Performance

Problem ▸ **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

Avoid! ▸ **Using multiple filters against large job range**

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

Fix ▸ **JES2 z/OS 1.9, 1.10, 1.11 – F005**

OA31671 – R= command filter

Problem ► **Output command filters fail to find match**

- ► ROUTECDE=/DEST= filters
  - – $CO, $DO, $O, $PO, and $TO
- ► Filter contains generics
- ► Command does not do what is requested

Avoid! ► **Commands that use generic routecde**

- ► Eg. $PO JQ,Q=T,**R=MMA250Y***,PROT

Fix ► **JES2 z/OS 1.11 – F002**

OA31557 – ABEND on retroactivate

Problem ► **ABEND $IV8 $ACTIVATE LEVEL=Z2**

- ► Highest JQE defined is in use
- ► JQE is not properly reset
  - – $ACTIVATE notices problem and ABENDs
- ► Impacts ability to fall back to z2 mode

Avoid! ► **$ACTIVATE LEVEL=z11 without fix**

Fix ► **JES2 z/OS 1.11 – F002**

OA31479/OA31480 – ABENDs after PSO request

Problem → **PSO request to alter held SPIN JOE**

- ► TSO OUTPUT command
- ► Modify user portion of DEST, writer name, forms
- ► Various ABENDs can occur
  - – Depending on $ACTIVATE level

Avoid! → **Altering SPIN JOEs with PSO (TSO OUTPUT)**

Fix → **JES2 z/OS 1.11 – F001**

OA31330 – SNA RJE ABEND 0C4

Problem → ■ **ABEND 0C4 AUTOLOG a SNA RJE**

> ► Must be last/highest RJE defined
>
> ► RJE table ends on a page boundary

Avoid! → ■ **Reducing number of RJEs defined**

> ► TPDEF RMTNUM

■ **Define extra RJEs if last RJE is AUTOLOG**

Fix → ■ **JES2 z/OS 1.9, 1.10, 1.11 – F001**

OA30164 – S&F even when DIRECT=YES

Problem ▸ **NODE(x),DIRECT=YES does not always work**

- ► In some cases NJE uses store and forward

Avoid! ▸ **Depending on DIRECT=YES**

Fix ▸ **JES2 z/OS 1.9, 1.10, 1.11 – F910**

OA29977 – ARM restarts delayed

Problem ▸ **Missing call to cleanup for new XCF group**

- ► Group added in OA20935 (PE)
  - – Compatibility APAR for z/OS 1.10
- ► Restart delayed for 2 minutes

Fix ▸ **JES2 z/OS 1.8, 1.9, 1.10, 1.11 – F909**

OA29854 – FSS recovery Incomplete

Problem ► **FSS recovery not always attempted**

- ► Results in FSS printer being ENDed
- ► Problem introduced with OY04761
- ► Also may have fixed original reason recovery entered

Fix ► **JES2 z/OS 1.9, 1.10, 1.11 – F912**

OA29803 – WLM service class incorrect in SMF 26 record

Problem ▸ **SMF 26 field SMF26WCL incorrect**

- ► Should be service class when job ended
- ► Instead is initial service class
  - – Original service class in SMF26WOC

Fix ▸ **JES2 z/OS 1.9, 1.10, 1.11 – F908**

OA28712 - 255 BYTE CSA OVERLAY

Problem ► **A random overlay of up to x'100' bytes of CSA storage may occur for a SWB modify function of SSI 70.**

  ► Error based on amount of data passed on request
  ► **CAN IMPACT ANY USER OF ECSA**

Avoid! ► **SWB modify with large amounts of data**

  ► SDSF Q panel

Fix ► **JES2 z/OS 1.9, 1.10, 1.11 – F905**

OA23615 - Red Alert - Spool data loss

Problem ➤ **Potential SPOOL data loss when IPLing z/OS 1.9 member with any spool volumes in draining status.**

- ➤ JES2 DISASTROUS ERRORS (DISTERRs) such as CBIMPL4 and CBIMPL12 DISTERRs will occur as JES2 processes jobs on the affected volumes; these jobs and their data will be lost.

Fix ➤ **Install on all 1.9 systems (one at a time)**

➤ **PTF UA39330 (PUT F802)**

Avoid. • **If you need to IPL a z/OS 1.9 member:**

★ **Make sure no Spool volumes are Draining or HALTing - issue the $DSPL command.**

★ **Issue $SSPL(volser) to make them Active <u>before</u> you IPL z/OS 1.9.**

★ **Do NOT Issue $SSPL(volser) if you have already IPLed a z/OS 1.9 member. Contact JES2 Level 2 for assistance.**

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**

Monitor for NJE/TCP updates

IBMLINK ASAP monitoring function for NJE/TCP and common JES functions.

- If you are monitoring the JES2 FMID for HiPer APARs, you may be missing notification of NJE/TCP issues, and other JES Common Functions under CompID 5752SC141 (BCP's FMID.)

- ASAP tracking is by FMID, so your ASAP profile should monitor the BCP's FMID:
  - ► z/OS 1.9 BCP: HBB7740
  - ► z/OS 1.10 BCP: HBB7750
  - ► z/OS 1.11 BCP: HBB7760
  - ► z/OS 1.12 BCP: HBB7770

Prior JES2 Latest Status Tips

- **PERFDATA**

- **Implementing JES2 NJE over IP**

- **More JES2 Address Spaces with TCP/IP**

- **NJE Performance Comparison: TCP/IP vs. SNA**

- **Large Spool Volume Performance Comparison**

- **JES2 1.8 posts other members when jobs are eligible to be run**

- **See Appendix**

Appendix

- ► SHARE JES2 Web Site
- ► Tips from Prior Latest Status Presentations
- ► z/OS JES2 Releases
- ► z/OS JES2 Library
- ► Softcopy Books
- ► other JES-related Books
- ► JES2 Education
- ► z/OS Web Sites

SHARE JES2 web site

www.share.org/Volunteers/ProgramsandProjects/MVSProgram/
JES2Project/tabid/178/Default.aspx

► Committee News

► Agenda for

current SHARE

► Proceedings

of past SHARE

sessions

► Project Officers
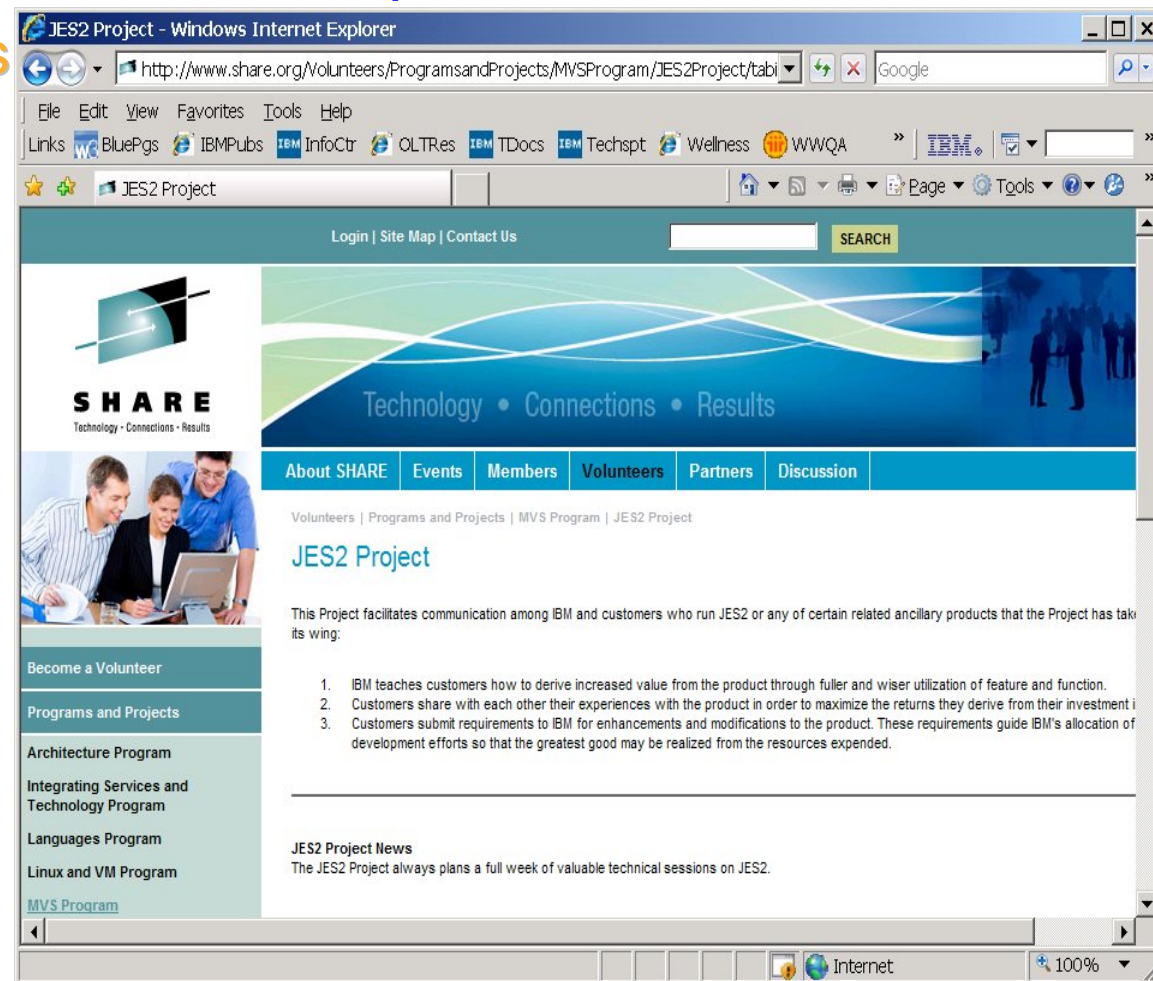
$D PERFDATA service aid commands

- www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/FLASH10008
- **$D PERFDATA(INITSTAT)** - JES2 initialization routines
- **$D PERFDATA(QSUSE)** - Checkpoint delays
- **$D PERFDATA(PCESTAT)** - PCE detailed statistics
- **$D PERFDATA(CPUSTAT)** - Summary of PCE stats
- **$D PERFDATA(SAMPDATA)** - WLM init sampling data
  - **See also JES2 $TRACE(41) -** added in z/OS R.8
- **$D PERFDATA(EVENT)** - JES2 internal errors & delays
- **$D PERFDATA(CKPTSTAT)** - JES2 Checkpoint Performance
  - **See also JES2 $TRACE(17)**
- **$D PERFDATA(SUBTSTAT)** - JES2 Subtask Performance

Implementing JES2 NJE over IP . . .

■On WSCPlex (WSC175):

```
/* --------------------------- */
/* JES2 NJE/TCP DEF's FOR WSC175
/* CONNECTING TO NODE WSC180)     */
/* --------------------------- */
LINE(1-5) UNIT=TCP
SOCKET(W175J2) NODE=175
SOCKET(W180J2) NODE=180,
               IPADDR=9.82.24.150
NETSRV1 SOCKET=W175J2
```

■On WSCZPlex (WSC180):

```
/* --------------------------- */
/* JES2 NJE/TCP DEF's FOR WSC180
/* CONNECTING TO NODE WSC175)     */
/* --------------------------- */
LINE(1-5) UNIT=TCP
SOCKET(W180J2) NODE=180
SOCKET(W175J2) NODE=175,
               IPADDR=9.82.24.69
NETSRV1 SOCKET=W180J2
```

■Using Operator Commands (same on both sides):

1 Convert one or more LINEs from SNA to TCP ($TLINE)
2 Add Socket for local system ($ADD SOCKET)
3 Add Socket for remote system ($ADD SOCKET) with IPADDR=
4 Create NETSRV A/S ($ADD NETSRV)
5 $S NETSRV1 -- this creates a new A/S named JES2Snnn
6 Add RACF STARTED profile - assign a user with an OMVS segment:
  – RADD JES2S*.* CLASS(STARTED) STDATA(USER(OMVSUSER))
7 &SN,S=WSCxxxJ2

■Pretty seamless - looks, feels and performs as any other NJE connection.

More JES2 Address Spaces with TCP/IP

- **NETSERV Address Space for JES2 NJE-TCP/IP:**
  - **$S NETSRVnnn** - ASCRE for network server address space
    - Uses IAZNJTCP command (Runs SUB=MSTR)
  - Address space name is **'jesxSnnn'** .. Example: JES2S001
    - .. jesx = subsystem name .. nnn = NETSRV number
- **You may have 5(+)Address Spaces for (each) JES**
  - JES2 - Primary Job Entry Subsystem
  - JES2AUX - Auxiliary address space to manage JES2 Data Spaces
  - JES2MON - JES2 address space (Health) monitor
  - JES2S00n - TCP/IP Network server address space for NETSRV(n) **
  - JESXCF - JES Common Coupling Services address space (only 1/LPAR)
- **Make certain you have STARTED Profiles for all**
  - STARTED profiles for ASCRE started tasks is: **<job_name>.<job_name>**
  - UserID for NETSRV A.S. must have a valid OMVS segment.
    - See OA19215 (no special UID or privileges)
  - See APAR OA19677 - NETSERV Loops on a UP if higher DP than JES2

NJE Performance Comparison: TCP/IP vs. SNA

- **Lab Measurements show Faster transfer with Less cycles!**
  - ►CPU utilization: reduced by 15% with TCP/IP.
  - ►ETR: 3x improvement with TCP/IP.
  - ►ITR: 2.8x improvement in transfer rate with TCP/IP.
  - ►ET: 2.5x improvement 4 lines vs. 1 line with TCP/IP.
   - – More than 4 lines did not show any additional benefits in their testing.

JES2 NJE SNA vs TCP/IP comparison

Legend: SNA w/CTC, TCP/IP w/OSA

Categories: System CPU%, ETR (K lines/sec), ITR
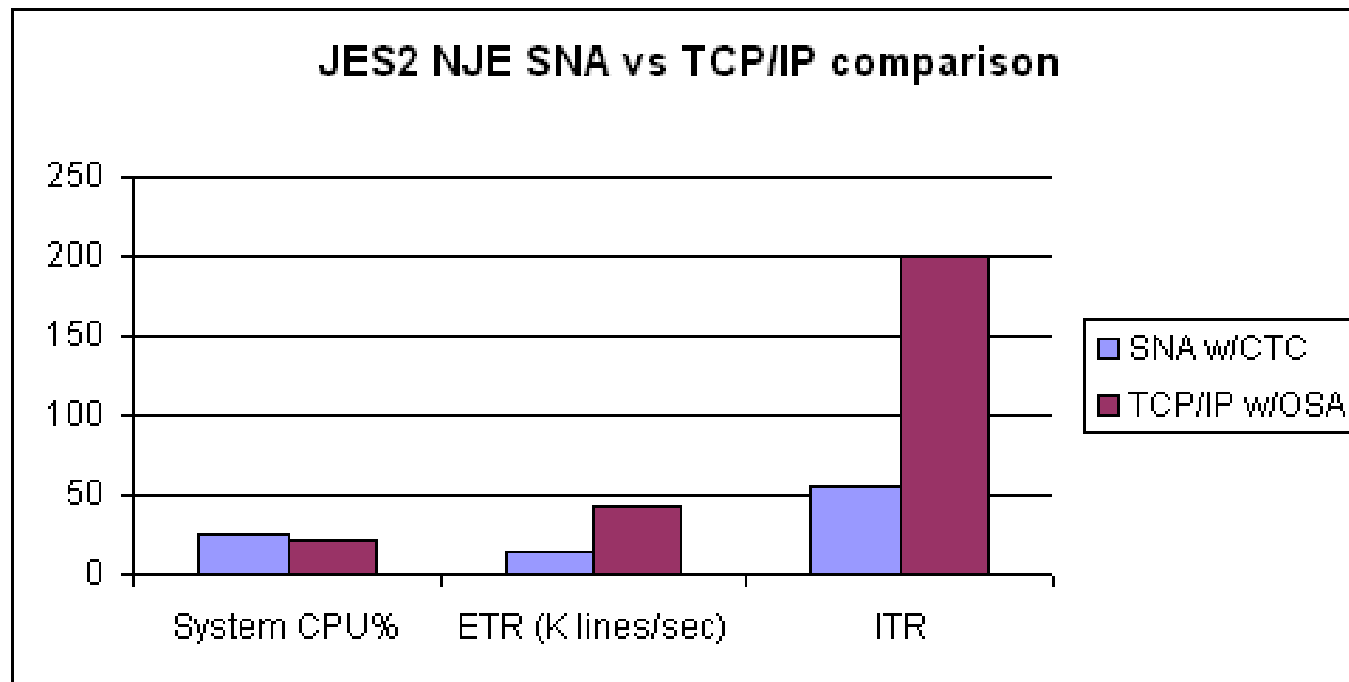
Large Spool Volume Performance Comparison:

- **Lab Measurements show ....**
  - ► Reduced number of spool volumes from 50 defined to 2 large spool volumes without any performance impact.
  - ► With only 1 spool volume there was a performance impact:
    - All spool I/Os written to one queue per spool volume (1 vol. = one queue.)
    - Only one I/O operation active on the volume per address space.
    - V1.8 JES2 increased to two I/O operations per spool volume.
      - Re-tested shows no degradation with one spool volume.
  - ► Large spool volumes allows for consolidation.
    - Watch I/O activity on spool volumes to make sure you don't consolidate too much and impact the performance.

Large spool test
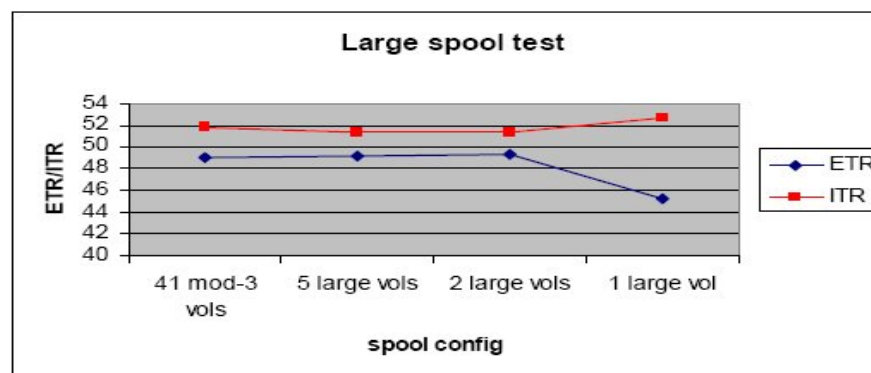
JES2 1.8 posts other members when jobs are eligible to be run.

JES2 1.8 uses JESXCF to post other members when jobs are eligible to be run.

► "Pitcher" notifies eligible members when jobs are placed on the execution queue.

► "Catcher" will access the queues if there are idle initiators, and MINDORM has expired.

► This code rolled back to JES2 1.7.

Notes

► Inactive members with idle initiators will acquire the Checkpoint closer to MINDORM, when jobs are added to the queues.

► You may be able to increase MASDEF Max. DORMANCY parameter without missing job selection opportunities.

OS/390 & z/OS JES2 Releases

- **OS/390 Release 1** - Spool Offload Enhancements
- **OS/390 Release 3** - SYSOUT API (SAPI)
- **OS/390 Release 4** - WLM Inits, SCHENV & Constraint Relief
- **OS/390 Release 5** - Open Print Server Support
- **OS/390 Release 7** - FiCon & New DASD Support
- **OS/390 Release 8** - CF Auto Rebuild for Checkpoint Structure
- **OS/390 Release 10** Spool Mgmt, Browse, ZAPJOB,...
- **z/OS Release 2** - >64K jobs, Spool, Proclib, etc. relief ...
- **z/OS Release 4** - Health Monitor, Usibility, RAS, ...
- **z/OS Release 5** - Multilevel Security
- **z/OS Release 7** - Large SPOOL Vols, NJE over TCP/IP
- **z/OS Release 8** - Batch WLM Management, Checkpoint recovery
- **z/OS Release 9** - SSI APF Mitigation ...
- **z/OS Release 10** - Dynamic Exits, NJE monitor
- **z/OS Release 11** - Transaction selection, >200K jobs, SYSLOG browse
- **z/OS Release 12** - EAS SPOOL/CKPT, Printer info SSI

z/OS JES2 LIBRARY

SA22-7535   JES2 Introduction
SA22-7532   JES2 Initialization & Tuning Guide
SA22-7533   JES2 Initialization & Tuning Reference
SA22-7537   JES2 Messages
SA22-7526   JES2 Commands
SA22-7534   JES2 Installation Exits
SA22-7536   JES2 Macros
GA22-7531   JES2 Diagnosis
SA23-2240   z/OS JES Application Programming.
SA22-7539   NJE Formats & Protocols
GA22-7499   z/OS R 1.7 Migration - JES2 in Chapter 17

N/A   JES2 Data Areas

       publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOKS/J2R10DA1
       .. or ..

       publibz.boulder.ibm.com/zoslib/pdf/j2r10mst.pdf

z/OS Softcopy Books

- z/OS Softcopy Collection CD-ROMs
    - z/OS V1R9.0 elements and features CD Collection Kit
    - (SK3T-4269-19)
- Softcopy site:

http://www.ibm.com/servers/eserver/zseries/softcopy

- Online books at:

http://www.ibm.com/servers/eserver/zseries/zos/bkserv

- JES2 PDFs (for z/OS 1.10) files at:

http://www.ibm.com/servers/eserver/zseries/zos/bkserv/r10pdf/

- JES2 Migration Documents
    - ► http://www-03.ibm.com/servers/eserver/zseries/zos/installation/...

zos17_jes2_migration.html/

Other JES2-Related Documents

- ►JES2 Performance & Availability Considerations, REDP-3940
- ►ABCs of z/OS System Programming Volume 2, SG24-6982
- ►z/OS V1 R3 & R4 Implementation, SG24-6581
- ►z/OS V1 R2 Implementation, SG24-6235
- ►OS/390 V2 R10 Implementation, SG24-5976
- ►VSE to OS/390 Migration Notebook, SG24-2043
- ►NJE with JES2 and Other Systems, GG22-9339-1 - see:
  http://www.ibm.com/servers/eserver/zseries/zos/bkserv/find_books.html

■Deleted (obsolete) - save your old copies

- ►MVS/ESA JES2 Exit Coding, GG24-4127
- ►SDSF/RACF 1.9.2 Conversion, GG24-4085
- ►JES2 MAS in Sysplex Environment, GG66-3263

z/OS Web Sites

SHARE JES2 Web Site - Presentations, Project News

► www.share.org/Volunteers/ProgramsandProjects/MVSProgram/JES2Project /tabid/178/Default.aspx

z/OS Product Support - find everything from here!

► www.ibm.com/servers/eserver/support/zseries/zos/downloading.html

Planning for Installation

► www.ibm.com/servers/eserver/zseries/zos/installation/

Publications (view, print, order books)

► www.ibm.com/servers/eserver/zseries/zos/bkserv/

SDSF home page

► www.ibm.com/servers/eserver/zseries/zos/sdsf/

Advanced Tech. Support (Flashes, White Papers, etc.)

► www.ibm.com/support/techdocs

Redbooks

► www.redbooks.ibm.com