

# JES2 Project Opening & JES2 Latest Status



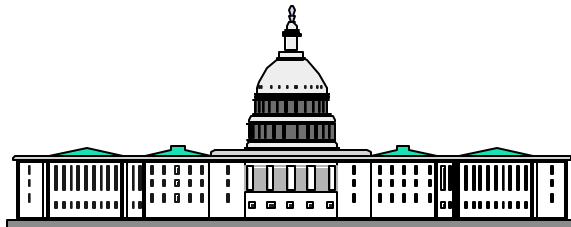
- ▶ Current JES2 Releases
- ▶ Migration & Implementation Tips
- ▶ Recent Service, Publications, etc.



Session# **2652** - SHARE 94 Technical Conference - Winter 2000

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# JES2 Sessions at SHARE 93 x94

Mon	9:30	2652	JES2 Project Opening & Latest Status
	1:30	2655	JES2 Product Update
	3:00	2670	SDSF Product Update
	4:30	2672	Managing SDSF Security w/ ISFManager
Tues	8:00	2681	EDM Product Update and Migration for RMDS
	6:00	2654	GUIDE JES2 Requirements Review
Wed	11:00	2660	JES2 Short Subjects
	1:30	2661	JES2/WLM Scheduling Environments & Batch Inits
	3:00	2662	Abstract Res. Mgmt w/ Sched. Env. - User Exper
	6:00	2673	SDSF Strategic Requirements Review/Rewrite
Thur	11:00	2658	JES2 Configuration & Tuning Tips
	1:30	2657	JES2 Performance Topics
	3:00	2659	JES2 Q & A
	4:30	2653	JES2/SDSF/RMDS Requirements Working



# Current JES2 Releases

## Birthdays & Obituaries

JES2 Rel.#	FMID	First Available	No Longer Available	End of Service	Y2K Ready
MVS/SP 4.2	HJE4420	3/91	3/93	6/1999	No
MVS/SP 4.3	HJE4430	3/93	6/97	6/1999	No
MVS/SP 5.1	HJE5510	6/94	6/95	1/2001	Yes
MVS/SP 5.2	HJE5520	6/95		1/2001	Yes
OS/390 R.1	HJE6601	3/96	3/97	1/2001	Yes
OS/390 R.3	HJE6603	3/97	9/97	1/2001	Yes
OS/390 R.4	HJE6604	9/97	3/98	1/2001	Yes
OS/390 R.5	HJE6605	3/98	3/99	3/2001	Yes
OS/390 R.7	HJE6607	3/99	9/99	3/2002	Yes
OS/390 R.8	HJE6608	9/99		9/2002	Yes



# OS/390 JES2 Releases

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## OS/390 Release 1

- ▶ Spool Offload Enhancements

## OS/390 Release 3

- ▶ SYSOUT Application Programming Interface (SAPI)

## OS/390 Release 4

- ▶ WLM Support for Batch Initiators & Resource Affinity Scheduling
- ▶ Command Enhancements & Constraint Relief: Nodes, RMTs, Lines, PRTs, Unnnnn, +64K Jobs (OW20844)

## OS/390 Release 5

- ▶ Open Print Server Support

## OS/390 Release 7

- ▶ FiCon (Fibre Connection) & New DASD Support

## OS/390 Release 8

- ▶ CF Auto Rebuild for Checkpoint Structure

**See 2655 "JES2 Product Update", Mon @ 1:30**

# JES2/MVS Compatibility



MVS BCP	JES2 MVS/SP 5.1.0	JES2 MVS/SP 5.2.0	JES2 OS/390 Rel.1	JES2 OS/390 Rel.3	JES2 OS/390 V.2 R.4	JES2 OS/390 V.2 R.5	JES2 OS/390 V.2 R.7	JES2 OS/390 V.2 R.8
MVS/SP 5.1.0	X							
MVS/SP 5.2.0	X	X						
OS/390 Rel.1	X	X	X					
OS/390 Rel.2	X	X	X					
OS/390 Rel.3	X	X	X	X				
OS/390 V.2 R.4	X	X	X	X	X			
OS/390 V2. R.5	X	X	X	X	X	X		
OS/390 V.2 R.7	X	X	X	X	X	X	X	
OS/390 V.2 R.8	X	X	X	X	X	X	X	X

**Note: OS/390 JES2 Rel. 1 & 3 may not coexist with Rel. 8.**

**(Otherwise, all releases of JES2 can share spool with any other)**

# JES2 Migration APARs



## Minimum APAR levels for these releases of JES2...

to share spool with these levels of JES2

	MVS/SP 5.1	MVS/SP 5.2	OS/390 Rel.1	OS/390 Rel.3	OS/390 Rel.4	OS/390 Rel.5	OS/390 Rel.7
MVS/SP 5.2	OW09285						
OS/390 Rel.1	OW20011	OW20011					
OS/390 Rel.3	OW20491	OW20491	OW20491				
OS/390 Rel.4	OW26100	OW26100	OW26100	OW26100			
OS/390 Rel.5	OW29209	OW29209	OW29209	OW29209	OW29209		
OS/390 Rel.7	OW34853	OW34853	OW34853	OW34853	OW34853	OW34853	
OS/390 Rel.8	OW37454	OW37454	N/A	N/A	OW37454	OW37454	OW37454

**Warning:** These APARs are for short-term migration, not long-term coexistence.



# Y2K JES2 Migration



## JES2 releases available next year:

- ▶ OS/390 Release 8, 9, or 10

## What level of JES2 are you freezing for Y2K?

- ▶ OS/390 Rel. 4 or later? - Will share spool w/ Rel.8
- ▶ OS/390 Rel. 1 or 3? - May not share spool w/ Rel. 8

## JES2 MAS Compatibility:

- ▶ n-3 levels of OS/390 **JES2** releases  
(Special exception for OS/390 Release 1 & Rel. 7 \*\*)

## Examples:

	<u>5.1/5.2</u>	<u>Rel. 1</u>	<u>Rel. 3</u>	<u>Rel. 4</u>	<u>Rel. 5</u>	<u>Rel. 7</u>	<u>Rel. 8+</u>
R.5=N:	(OK)	N-3	N-2	N-1	N		
R.7=N:	(OK)	N-4**	N-3	N-2	N-1	N	
R.8=N:	(OK)			N-3	N-2	N-1	N



# JES2 V2R4 Migration Highlights?

## JES2 V2R4 Installation

- ▶ OS/390 V2R4 BCP, Sysplex, HLASM 1.2
- ▶ Install PSP Maintenance - **RSU 9811** or later!
- ▶ Warm Start, Share Spool w/ JES2 V.5 & up

## Storage & CPU Requirements

- ▶ Maximum Virtual Storage for Checkpoint
- ▶ Allow for Checkpoint Data Set Expansion (DASD, CF)
- ▶ More CPU cycles if from MVS/SP V.4 JES2

**External changes** - Job List Commands

**Internal changes** - Job Queue Services

**\$ACTIVATE** for new functions

- ▶ Must be \$ACTIVATED after OS/390 Release 9



# JES2 Service Information

- Performance APARs
- HiPer APARs (Hi Impact, or Pervasive) listed below are out of date - see PSP buckets
- JES2 APARs of Interest since last year's SHARE

# JES2 Performance APARs

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## Since PUT/RSU 9901:

- OW35585** - Purge processing hung or very slow (9903)
- OW37405** - WLM Initiator delay in starting work (9902 - WLM)
- OW37977** - \$DJ1-65534 locks up Comm PCE (9905)
- OW37547** - \$OQ,ALL appears to hang JES2 (9906)
- OW38768** - High CPU Utilz. w/ \$DM or formatted Cmds (9906)
- OW39201** - High CPU Utilz. w/ NJE Job Receiver (9907)
- OW39449** - \$DJQ,SPOOL displays excessive spool % (9906)
- OW39179** - RJE output selection w/large Queues (**DLL**) \*
- OW39672** - \$QGET excessive overhead & slow (**DLL**) \*
- OW40371** - System delays when Purge Queue cmds (9906)

# 2ndH-98 HiPer APARs



PSP 1998	APAR #	Description	Applicable Releases
7/14	OW31480	\$Q14 Error after \$R or \$GR during Warmstart	R4, R5
7/14	OW32920	Mechanism to Undo \$ACTIVATE	R4, R5
7/24	OW34229	HASX05C incorrect Command trans after OW29813	R4, R5
7/24	OW33985	ABEND0C4 in HASPSERV processing SAPID	R3 - R5
7/29	OW34004	ABEND0C4 RC04 in HASPXEQ, after \$HASP483	R4, R5
7/31	OW24472	ABEND0C4 in HASPSNA during RJE termination	5.2 - R4
8/05	OW34417	ABENDDC5 after UW50181, JES2 does not initialize	R3
8/05	OW34502	\$HASP095 CODE=\$BR3 after \$TCKPTSPACE,BURTNUM=nn	R4, R5
8/06	OW33634	JES2 Lock-out Checkpoint holds hardware reserve	5.2 - R5
8/06	OW33545	ABEND200 RC114 in \$EXCP in HASPRTAM	5.2 - R5
8/31	OW34227	ABENDA78 RC18 in HASPCKPT during ckpt dialog	R3 - R5
9/21	OW34473	ABEND0C4 in HASPCFQU	5.1 - R5
9/21	OW33935	ABEND0C9 in IRATXSTP @ X'D0'	R4, R5
9/23	OW34298	ABEND\$GW2 RCC RC12 after Queue rebuild	5.2 - R5
9/25	OW34634	Copy Count Compatibility for NJE	4.2 - R5
9/28	OW34830	\$HASP095 RC \$Q12 after init abend	R4, R5
10/09	OW32320	Sysplex IPL caused by console operator inaction	5.1 - R5
10/14	OW34946	\$HASP095 \$19 after \$TOJOBQ'SYSLOG',ALL,D=LOCAL	R4, R5
10/21	OW34503	High CPU Usage by NET.JT	5.1 - R5
11/12	OW31452	BERTNUM Shortage problems (wait in Init'n)	R4, R5
11/20	OW35266	\$HASP361 - JNT overlaid - Cold Start to recover	R3 - R7
12/04	OW35796	SYSOUT not selected on SAPI restart	R3 - R7
12/29	OW36200	\$Q12 after JES2 hot start under XEQ PCE	R4 - R7

# 1999 HiPer APARs

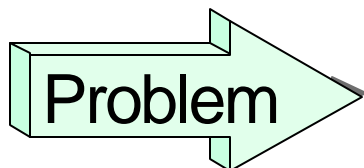


Date-1999/	APAR #	Description	Applicable Releases
2/04	OW36311	\$Q20 in HASPJQS \$DOGJQE issued from \$FREJLOC	R4 - R7
2/12	OW36905	JES2 Private Storage fills up with JQAs after \$LJ command	R4 - R7
2/26	OW36026	HJE3307 Recovery Routines percolation errors	R7
3/22	OW37264	Loop in PRPU at PFCBSCAN hangs JES2	R3 - R7
3/31	OW34249	JES2 code in Consoles Addr. Space never Releases Storage (SP231)	ALL
4/08	OW38287	\$HASP050 Resource shortage of BUFX	R7
4/09	OW37928	\$HASP268 Interrupted read after cancelling Ckpt Reconfig. Dialog	ALL
4/09	OW35953	Various errors including control block overlays	ALL
4/26	OW38396	\$HASP094 I/O error on SNA remote SNS 08210000 after OW36655	5.2 - R.1
4/26	OW38301	Looping in HASPTERM after multiple ABENDs in JES2 Addr. Space	R4 - R7
4/28	OW32964	\$Q01 Catastrophic Error after \$TJ to change Job Class	R4 - R7
5/13	OW38764	\$HASP119 Job Fails submitting Multiple Jobs to INTRDR	ALL
5/14	OW38926	NJE Path Manager loses connections	R7 - R8
5/20	OW37977	\$DJ1-65000 & \$HJ1-65000 hangs JES2	R4 - R8
5/27	OW38199	HASX05C \$OQ Cancels too many Output Groups	R4 - R8
6/15	OW38783	FSS ABEND 024 or FSS Simulator Loop	R7 - R8
6/30	OW37547	JES2 appears Hung when \$OQ,ALL issued	R4 - R8
7/30	OW39283	ABEND0F7 RCB0 from HASCSRJB during rebuild	All
7/30	OW39201	Loop in HASPRDR when NJE line restarted & JR active	All

Check IBMLink, or IBM Service for the latest information

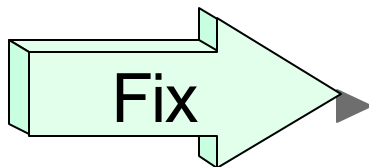


# **OW35565 - Consistent Page Counting**



Page counts, etc. from NJE not filled in correctly

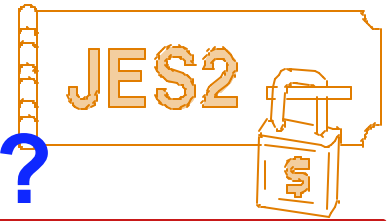
- PSF skip-to-0
- SYSOUT from VM nodes



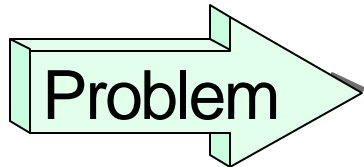
JES2 counts Pages, Records, Bytes in NJE  
SYSOUT Receiver

- Does not rely on NJE DSHeader fields

▶ OS/390 R4 - R8 Open?

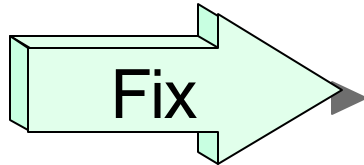


# **OW36795 - Purge Output by Size?**



**\$PO and \$CO can't select by Records or Pages**

- Filters on \$SCANTABs omitted



**\$PO, \$CO, \$O commands now allow filter on**

- RECORDS
- PAGES
- HOLD
- HOLDRC

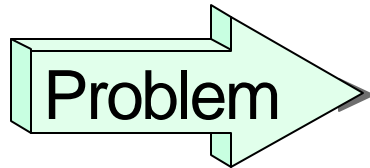
▶ **SHARE requirement: SSJES2-93.253**

▶ **OS/390 R4/5/6 - PUT/RSU 9902**

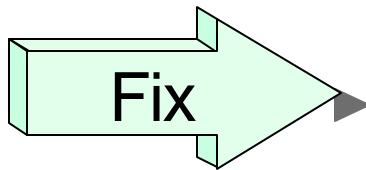


# OW29813 - Access to \$JQEs??

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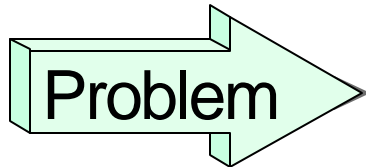
- \$DOGJQE** confusion - when to use it?
- ▶ JQE - what kind is it?
    - Real JQE
    - Read-Mode JQA
    - Update-Mode JQA



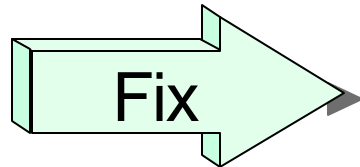
- ▶ \$DOGJQE allows all 3 flavors JQE/JQA
- ▶ \$DOGJQE Macro usage documented
- ▶ Re-code access to JQEs with \$DOGJQE
- ▶ Read APAR doc'n & OS/390 Rel.5 books
- ▶ See also OW30432 - Adding user fields to \$JQE
  
- ▶ **OS/390 R4/5 on PUT/RSU 9807**



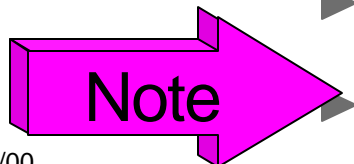
# OW32920 - Un-\$ACTIVATE?



- \$ACTIVATE could not be reversed**
- Cold start with a prior release required



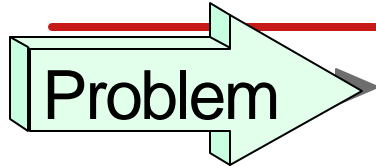
- 'UNACTivate' allows return to pre-Rel.4 mode**
- Cold-start
  - All-member Warm-start
  - All-member Hot-start
- ▶ **NEW MSGS:**
- \$HASP445 Unactivate Failed ...
  - \$HASP895 \$ACTIVATE will FAIL/SUCCEED...
- ▶ **OS/390 R4/5 - PUT/RSU 9807**



- Must be \$ACTIVATED after OS/390 R. 9 (9/00)**

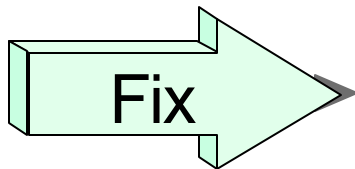


# OW38962 - WLM Job Control Enhancements



## Scheduling Environments & WLM Managed Initiators missing function:

- Can't change SchEnv after job submission
- No Default SchEnv by JOBCCLASS
- Cannot run 'special jobs' when \$PXEQ



## More control over SCHENV & \$SJ:

- \$TJob, SCHENV=nnnn (SCHENV =, to nullify)
- JOBCCLASS(x) SCHENV=nnnn
- \$SJob eligible on local system even if \$PXEQ

✓ JES2 R4-R8 - PUT 9907

+ Apply fix OW40440 for 0C4 in \$DOGWSC



# OW39179 - RJE Work Selection

## Problem

### Delays & Overhead with RJE Printing

- Large output queues
- Many Remote Printers
- Unnecessary Calls to services when output doesn't match

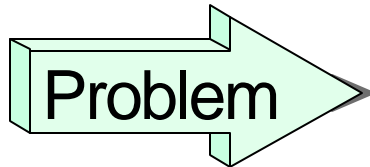
## Fix

### GTSCREEN - WSSETUP updated

- Skip inelligable JOEs (route cde)
- Skip \$#POST if no eligible devices
- More efficient linkage
- New \$TRACE(30) added to trace \$#POST performance

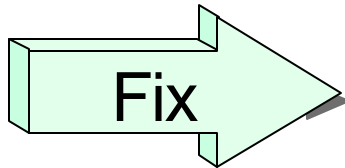
▶ ~~Open (In Cert.)~~ Closed R4-8 (DLL)

# OW39672 - \$QGET Performance



## Delays & High overhead with \$QGET

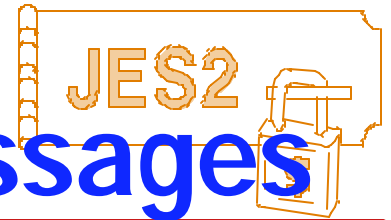
- Many Inits (7300) & Large Job Queues
- Unnecessary \$DOGGJQE calls for busy JQEs



## \$DOGGJQE call deferred

- until "real" JQE attributes examined
- New \$TRACE(31) added to trace \$QGET performance

▶ ~~Open (In Cert.)~~ Closed R4-8 (DLL)



# HASP095 & HASP096 messages

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## ■ Problem:

- ▶ Customers don't differentiate between, and over-react to these messages and re-I PL for what amounts to a minor problem...
- ▶ \$HASP095 JES2 CATASTROPHIC ERROR/ABEND
- ▶ \$HASP096 DISASTROUS ERROR AT SYMBOL....

## ■ Proposals:

- ▶ HASP096 OOPS AT SYMBOL(rejected by NLS folks)
- ▶ HASP095 JES2 OH SH\*T ERROR/ABEND (same)
- ▶ Add more granularity to the messages
- ▶ Create categories of errors



# What is your JES2 Release?

JES2 Rel.#	Count	End of Service	Y2K Ready	Share w/R.8+
MVS/SP 4.2		6/99	No	No
MVS/SP 4.3		6/99	No	No
MVS/SP 5.1			Yes	No
MVS/SP 5.2			Yes	No
OS/390 R.1			Yes	No
OS/390 R.3			Yes	No
OS/390 R.4			Yes	Yes
OS/390 R.5			Yes	Yes
OS/390 R.7			Yes	Yes

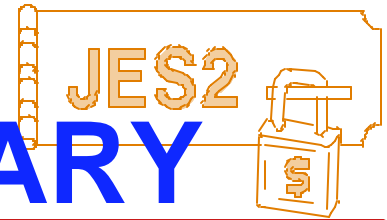
# Appendix

## JES2 Documentation

- ▶ [OS/390 JES2 Library](#)
- ▶ [Softcopy Books \(BookManager\)](#)
- ▶ [OS/390 Web Sites](#)
- ▶ [JES-related Books](#)

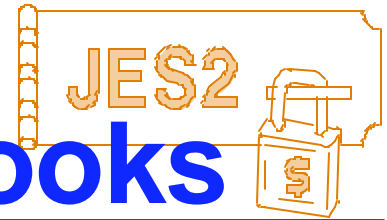
# OS/390 V2R5 JES2 LIBRARY

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GC28-1794	JES2 Introduction *
GC28-1797	JES2 Migration Notebook
SC28-1791	JES2 Initialization & Tuning Guide
SC28-1792	JES2 Initialization & Tuning Reference
GC28-1796	JES2 Messages
GC28-1790	JES2 Commands
GX22-0041	JES2 Commands Summary
SC28-1793	JES2 Installation Exits
SC28-1795	JES2 Macros
LY28-1086	JES2 Diagnosis
LY28-1096	JES2 Data Areas, V.1 \$A - \$E *
LY28-1097	JES2 Data Areas, V.2 \$F - \$O *
LY28-1098	JES2 Data Areas, V.3 \$P - \$X *

- ★ SoftCopy only (CD-ROM)
- ▶ All JES2 books are unlicensed
- ▶ JES2 Command Syntax in RR-track format



# OS/390 JES2 Softcopy Books

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- **OS/390 Online Collection**
    - ◆ CD-ROMs: SK2T-6700 (Unlicensed only)
    - ◆ Available on Tape (Optional, No-Charge)
  - **Licensed OS/390 Books**
    - ◆ OS/390 V.1 CD-ROM: LK2T-6702
    - ◆ OS/390 V.2 CD-ROM: LK2T-2499
    - ◆ <http://www.s390.ibm.com/products/softcopy>
  - **S/390 Rainbow Books Collection**
    - ◆ CD-ROM: SK2T-2177
    - ◆ 370+ Systems Center Technical Bulletins in BookManager and PDF formats
    - ◆ RedBooks (ITSC), Orange (WSC), Yellow (NS)
- ▶ All Updated Quarterly





## Other JES2-Related Documents

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- ▶ NJE Formats & Protocols, SC23-0070-3 \*
- ▶ VSE to OS/390 Migration Notebook, SG24-2043 \*
- ▶ OS/390 R.4 Implementation, SG24-2089 \*
- ▶ OS/390 R.5 Implementation, SG24-5151 \*
- ▶ JES2 MAS in Sysplex Environment, GG66-3263
- ▶ MVS Parallel Sysplex Config. Cookbk, SG24-4706
- ▶ MVS/ESA JES2 V.5 Implementation, GG24-4583
- ▶ DFW & Dual Copy - JES2 Spool & Ckpt, GG66-3230
- ▶ NJE with JES2 and Other Systems, GG22-9339-1
- ▶ SDSF/RACF 1.9.2 Conversion, GG24-4085
- ▶ MVS/ESA JES2 Exit Coding, GG24-4127

# OS/390 Web Sites

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## OS/390 Coexistence, Migration, & Year 2000 info

- ▶ <http://www.s390.ibm.com/stories/year2000/coexist.html>

## OS/390 Planning for Installation

- ▶ <http://www.s390.ibm.com/s390/os390/installation>

## OS/390 Publications

- ▶ <http://www.s390.ibm.com/s390/os390/bkserv>
  - View, Print, or Order OS/390 books

## Advanced Tech. Support (Washington System Center)

- ▶ <http://www.ibm.com/support/techdocs> (Flashes, etc.)

## Redbooks

- ▶ <http://www.redbooks.ibm.com>