

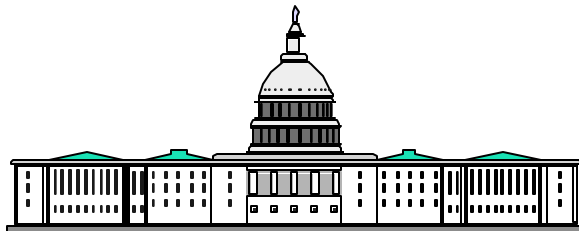
JES2 Project Opening & JES2 Latest Status



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



Session# **2652** - SHARE 93 Technical Conference - Summer 1999
John Hutchinson - hutchjm@us.ibm.com
IBM Washington Systems Center, Gaithersburg, Maryland



JES2 Sessions at SHARE 93

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

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

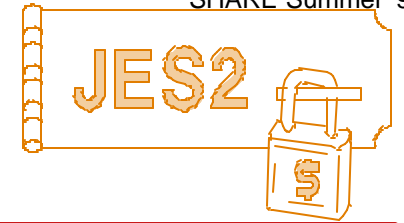


MVS BCP	JES2 MVS/SP 5.1.0	JES2 MVS/SP 5.2.0	JES2 OS/390 Rel.1	JES2 OS/390 Rel.3	JES2 OS/390 V.2 R.4	JES2 OS/390 V.2 R.5	JES2 OS/390 V.2 R.7	JES2 OS/390 V.2 R.8
MVS/SP 5.1.0	X							
MVS/SP 5.2.0	X	X						
OS/390 Rel.1	X	X	X					
OS/390 Rel.2	X	X	X					
OS/390 Rel.3	X	X	X	X				
OS/390 V.2 R.4	X	X	X	X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

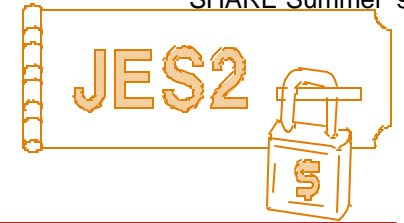
JES2 Performance APARs



Since PUT/RSU 9801:

- OW30595 - RAMAC Spool Perf. @ Purge (9804)
- OW30825 - Hi CPU w/WLM Inits, dup.jobnames (9803)
- OW32534 - Hi CPU \$POJQ, \$TOJQ,... \$PQ,\$OQ (9804)
- OW34503 - Hi CPU by NET.JT transmitters (9810)
- 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)
- 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

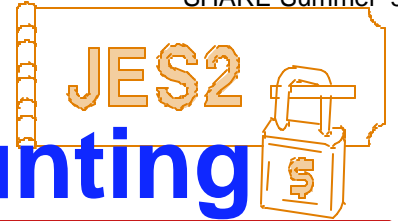


PSP 1998	APAR #	Description	Applicable Releases
7/14	OW31480	\$Q14 Error after \$R or \$GR during Warmstart	R4, R5
7/14	OW32920	Mechanism to Undo \$ACTIVATE	R4, R5
7/24	OW34229	HASX05C incorrect Command trans after OW29813	R4, R5
7/24	OW33985	ABEND0C4 in HASPSERV processing SAPID	R3 - R5
7/29	OW34004	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

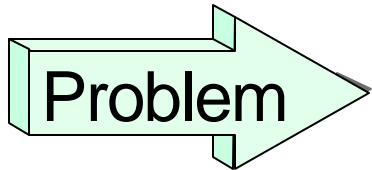
1999 HiPer APARs



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 BUFEX	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

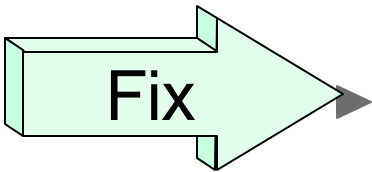


OW35565 - Consistent Page Counting



Page counts, etc. from NJE not filled in correctly

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



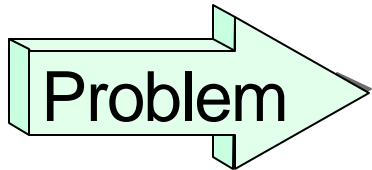
JES2 counts Pages, Records, Bytes in NJE
SYSOUT Receiver

- Does not rely on NJE DSHeader fields

▶ OS/390 R4 - R8 Open

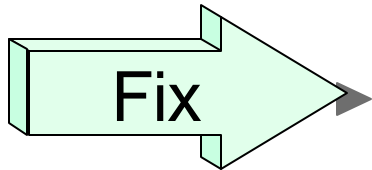


OW36795 - Purge Output by Size



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

- Filters on \$SCANTABs omitted



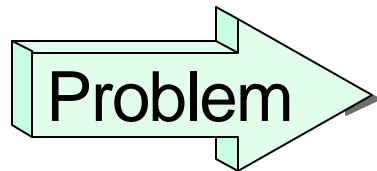
\$PO, \$CO, \$O commands now allow filter on

- RECORDS
- PAGES
- HOLD
- HOLDRC

▶ **SHARE requirement: SSJES2-93.253**

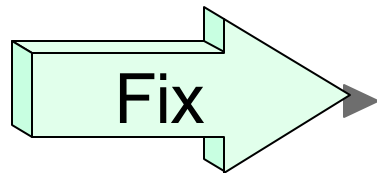
▶ **OS/390 R4/5/6 - PUT/RSU 9902**

OW29813 - Access to \$JQEs



\$DOGJQE confusion - when to use it?

- ▶ JQE - what kind is it?
 - Real JQE
 - Read-Mode JQA
 - Update-Mode JQA

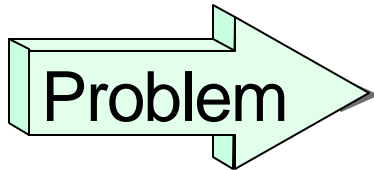


- ▶ \$DOGJQE allows all 3 flavors JQE/JQA
- ▶ \$DOGJQE Macro usage documented
- ▶ Re-code access to JQEs with \$DOGJQE
- ▶ Read APAR doc'n & OS/390 Rel.5 books
- ▶ See also OW30432 - Adding user fields to \$JQE

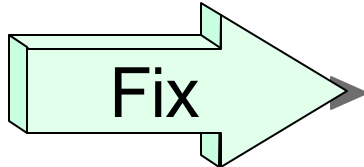
- ▶ **OS/390 R4/5 on PUT/RSU 9807**



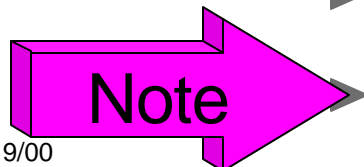
OW32920 - Un-\$ACTIVATE



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

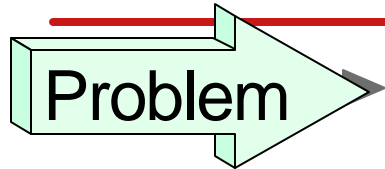
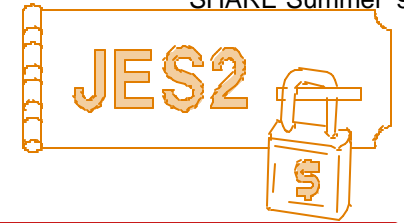


- 'UNACTivate' allows return to pre-Rel.4 mode**
 - Cold-start
 - All-member Warm-start
 - All-member Hot-start
- ▶ **NEW MSGS:**
 - \$HASP445 Unactivate Failed ...
 - \$HASP895 \$ACTIVATE will FAIL/SUCCEED...
- ▶ **OS/390 R4/5 - PUT/RSU 9807**



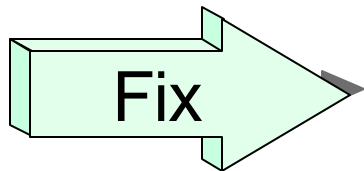
- Must be \$ACTIVATED after OS/390 R. 9 (9/00)**

OW38962 - WLM Job Control Enhancements



Scheduling Environments & WLM Managed Initiators missing function:

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



More control over SCHENV & \$SJ:

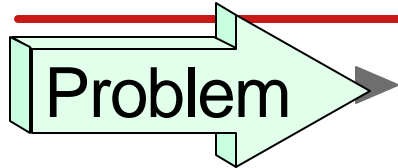
- \$TJob, SCHENV=nnnn (SCHENV =, to nullify)
- JOBCLASS(x) SCHENV=nnnn
- \$SJob eligible on local system even if \$PXEQ

✓ **JES2 R4-R8 - PUT 9907**

+ Apply fix OW40440 for 0C4 in \$DOGWSC

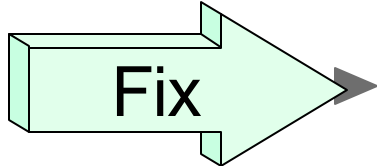


OW39179 - RJE Work Selection



Delays & Overhead with RJE Printing

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

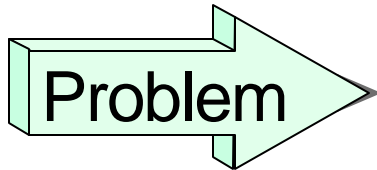


GTSCREEN - WSSETUP updated

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

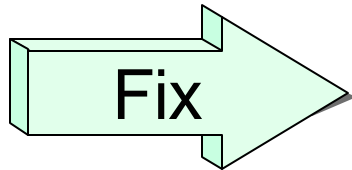
► ~~Open (In Cert.)~~ **Closed R4-8 (DLL)**

OW39672 - \$QGET Performance



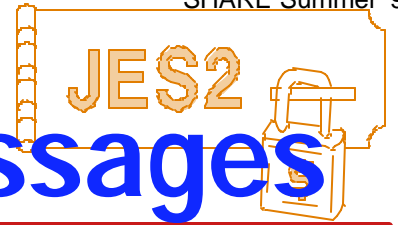
Delays & High overhead with \$QGET

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



\$DOGJQE 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

■ Problem:

- ▶ Customers don't differentiate between, and over-react to these messages and re-IPL 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?

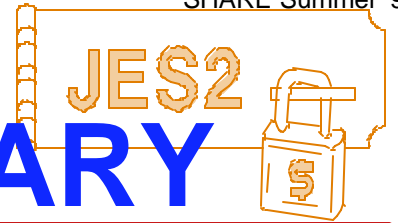
JES2 Rel.#	Count	End of Service	Y2K Ready	Share w/R.8+
MVS/SP 4.2		6/99	No	No
MVS/SP 4.3		6/99	No	No
MVS/SP 5.1			Yes	No
MVS/SP 5.2			Yes	No
OS/390 R.1			Yes	No
OS/390 R.3			Yes	No
OS/390 R.4			Yes	Yes
OS/390 R.5			Yes	Yes
OS/390 R.7			Yes	Yes

Appendix

JES2 Documentation

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

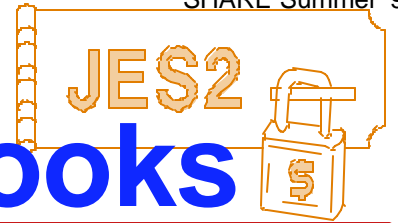
OS/390 V2R5 JES2 LIBRARY



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



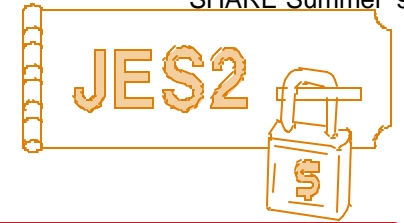
- **OS/390 Online Collection**
 - ◆ CD-ROMs: SK2T-6700 (Unlicensed only)
 - ◆ Available on Tape (Optional, No-Charge)
 - **Licensed OS/390 Books**
 - ◆ OS/390 V.1 CD-ROM: LK2T-6702
 - ◆ OS/390 V.2 CD-ROM: LK2T-2499
 - ◆ <http://www.s390.ibm.com/products/softcopy>
 - **S/390 Rainbow Books Collection**
 - ◆ 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

- ▶ 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



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>