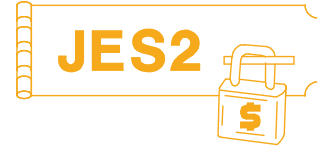


JES2 Project Opening JES2 & SDSF Latest Status



Session# 2652

SHARE 105 Technical Conference - Summer 2005 - Boston

John Hutchinson - hutchjm@us.ibm.com

IBM Washington Systems Center, Gaithersburg, Maryland

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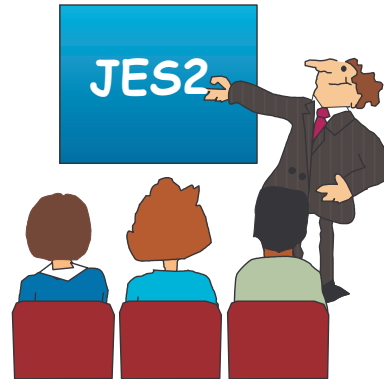
Agenda . . .



- JES2
 - ▶ Highlighted sessions at SHARE
 - ▶ Current JES2 Releases
 - ▶ Migration & Implementation Tips
 - ▶ Recent Service

- SDSF
 - ▶ Recent SDSF Enhancements
 - ▶ Tips @ DA Panel & zAAPs

- References
 - ▶ Documentation & Web Sites



JES2 & SDSF sessions . . .



Monday:

4:30pm 2652 JES2 Project Opening and Latest Status

Tuesday:

8:00am 2661 Introduction to JES2 for New Systems Programmers

11:00am 2655 JES2 z/OS 1.7 Product Update

3:00pm 2657 JES2 z/OS 1.7 - Large Spool, NJE over TCP/IP, etc.

6:00pm 2669 Meet the JES2 Team and JES2 Q&A

7:15pm 2679 JES2 Project Dinner [Meet in Sheraton Lobby]

Wednesday:

1:30pm 2656 JES2 z/OS 1.7 Migration

3:00pm 2658 JES2 & JES3 z/OS 1.7 SSI & Other Enhancements

4:30pm 2671 SDSF Changes for z/OS 1.7

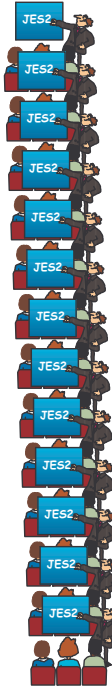
Thursday:

1:30pm 2662 JES2 Exit Review / Job Related Exits / Exit Environ's

3:00pm 2665 JES2 z/OS 1.7 Exit Migration User Experience

4:30pm 2651 JES2 Project Planning for Seattle

10:00pm 2680 JES2 Esprit de Corps



Current JES2 Releases



FMIDs, Birthdays & Obituaries

JES2 Rel.#	FMID	First Available	No Longer Available	End of Service
OS/390 R.10	HJE7703	9/00	3/02	9/04
z/OS R. 1	HJE7703	3/01	10/01	3/04
z/OS R. 2/3	HJE7705	10/01	9/02	10/04
z/OS R. 4	HJE7707	9/02	3/04	3/07
z/OS R. 5/6	HJE7708	3/04	9/05	3/07
z/OS R. 7	HJE7720	9/05		9/08

JES2/MVS Compatibility



OS/390 z/OS Release	JES2 Release:				
	Rel.10 & z/OS R.1 HJE7703	z/OS R.2 HJE7705	z/OS R.4 HJE7707	z/OS R.5 HJE7708	z/OS R.7 HJE7720
R.10	X				
z/OS R1	X				
z/OS R2	X	X			
z/OS R3	X	X			
z/OS R4	X	X	X		
z/OS R5	X	X	X	X	
z/OS R6	X	X	X	X	
→ z/OS R7		X	X	X	X

JES levels supported by a given z/OS release will be the same as the JES levels that can coexist in a MAS.

→ Support for compatibility mode (R4) withdrawn for z/OS V1.7

JES2 will no longer support compatibility with pre-z/OS V1.2 systems.

See "*z/OS and z/OS.e Planning for Installation Guide*" Ch. 4 & 5 (GA22-7504) at http://www.ibm.com/servers/eserver/zseries/zos/bkserv/find_books.html

z/OS R7 JES2 - HJE7720



■ **NJE over TCP/IP**

- ▶ Supported by VM/RSCS, VSE/POWER, AS/400 & now JES
- ▶ SDSF Support of TCP/IP NJE/RJE (Lines & Nodes)
- ▶ Reader Exit changes
- ▶ Enhanced Security, Availability, Functions (large SYSIN)

■ **Large SPOOL data sets**

- ▶ >65K tracks / volume

■ **Many miscellaneous enhancements**

- ▶ Checkpoint Recovery & Protection
- ▶ Resource Monitor display via SDSF & SSI
- ▶ SAPI & JESSPOOL (FTP) Enhancements
- ▶ Data Set level fields for extended status SSI
 - 'Verbose' status for Infoprint (& ISV) notification
- ▶ \$SCAN & Table Pair enhancements

z/OS R7 JES2 Migration/Coexistence



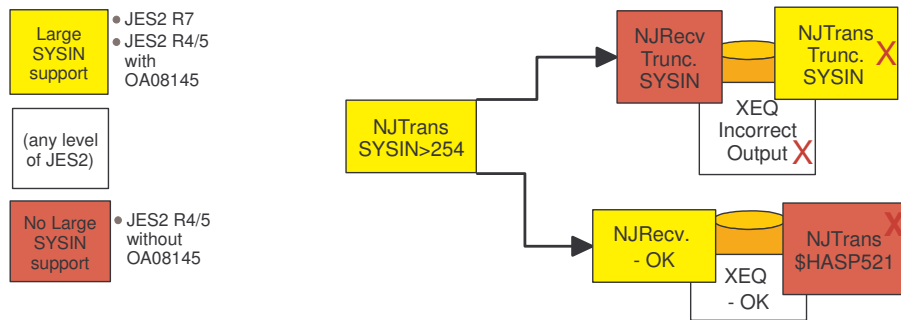
- **Can warm start z2 mode checkpoints only**
 - ▶ R4 mode is no longer supported.
 - ▶ Cold start required if running HJE7703 or earlier
 - Alternative: migrate to HJE7707, \$ACTIVATE, then migrate to HJE7720
- **Reader Exit changes for INTRDRs & TCP/IP NJE**
 - ▶ See Sessions 2656 and 2665.
- **Coexist in a MAS with HJE7707 (R4) & HJE7708 (R5)**
 - ▶ APAR **OA08145** required on down level members
 - ▶ PTF numbers:
 - HJE7707 (z/OS R.4) - UA90160
 - HJE7708 (z/OS R.5/6) - UA90161
- **APAR OA08145 adds support to z/OS R4 & R5 for Long SYSIN records for NJE & Spool Offload**
 - ▶ NJE truncates records to 254 bytes if support is not on all nodes/members in the path
 - ▶ SPOOL reload will fail without APAR for jobs with long SYSIN

Long SYSIN problems without OA08145

■ Sending SYSIN with LRECL > 254 to JES2 R4/R5 nodes without APAR OA08145 on all members of the MAS:

1. SYSIN records received on unsupported member truncated to 254 bytes.
 - ▶ Job will get incorrect output when executed.
2. \$HASP521 job INVALID DATA BLOCK error on unsupported transmitter member if long SYSIN was received on supported member.
 - ▶ \$HASP106 JOB DELETED BY JES2 OR CANCELLED BY OPERATOR BEFORE EXECUTION
3. Offloading long SYSIN on supported member & reloading on unsupported member results in long SYSIN broken into multiple record segments.

Key:



Sessions @ z/OS V1.7 JES2



z/OS JES2 V1.7

Tuesday:

- 11:00am 2655 JES2 z/OS 1.7 Product Update
- 3:00pm 2657 JES2 z/OS 1.7 - Large Spool, NJE over TCP/IP, etc.

Wednesday:

- 1:30pm 2656 JES2 z/OS 1.7 Migration
- 3:00pm 2658 JES2 & JES3 z/OS 1.7 SSI & Other Enhancements
- 4:30pm 2671 SDSF Changes for z/OS 1.7

Thursday:

- 3:00pm 2665 JES2 z/OS 1.7 Exit Migration User Experience

z/OS R5 JES2 - HJE7708



★ **Multilevel Security**

- ▶ Optional (by System)
- ▶ SECLABELs affect job selection process
- ▶ SECLABELs carried in JES2 control blocks
- ▶ Extracted for SDSF use



★ **Miscellaneous Enhancements**

- ▶ ENF 58 enhanced to show lines , etc. printed for InfoPrint
- ▶ 1 byte console ID eliminated
- ▶ SSI 54 (whoami) shows ComChar (\$ or ...)
- ▶ \$HASP607 (JES2 termination delays) enhanced
- ▶ \$DSERV macro to access checkpoint data from non-JES2 MT
- ▶ VER/REP for JES2 data spaces
- ▶ \$TRACE IPCS and multi-system Dump enhancements

★ **Migration and Coexistence** - Normal rules apply:

- ▶ APAR OW55708 required on down-level systems



\$D PERFDATA service aid commands

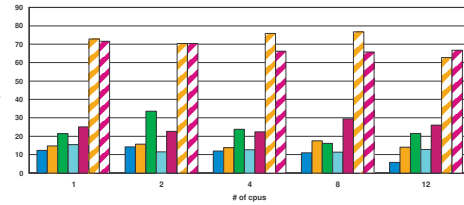
(undocumented - intended for service personnel - subject to change)

- **\$D PERFDATA(INITSTAT)** - JES2 initialization routines
- **\$D PERFDATA(QSUUSE)** - Checkpoint delays
- **\$D PERFDATA(PESTAT)** - PCE detailed statistics
- **\$D PERFDATA(CPUSTAT)** - Summary of PCE stats
- **\$D PERFDATA(SAMPDATA)** - WLM init sampling data
- **\$D PERFDATA(EVENT)** - JES2 internal errors & delays
- **\$D PERFDATA(CKPTSTAT)** - JES2 Checkpoint Performance (z/OS R.2)
- **\$D PERFDATA(SUBTSTAT)** - JES2 Subtask Performance (APAR OW55693)



```

$HASP660 $DPERFDATA(SUBTSTAT)
$HASP660 SUBTASK STATISTICS - INTERVAL=884:10:55.376013,
$HASP660 ROUTINE=$RACROUT, COUNT=105, AVG_QUEUE_TIME=0.000218,
$HASP660 AVG_RUN_TIME=0.000217, AVG_CPU_TIME=0.000199,
$HASP660 ROUTINE=FULLPATH, COUNT=16, AVG_QUEUE_TIME=0.000045,
$HASP660 AVG_RUN_TIME=0.212998, AVG_CPU_TIME=0.203200,
$HASP660 ROUTINE=JOBVALM, COUNT=330, AVG_QUEUE_TIME=0.000021,
$HASP660 AVG_RUN_TIME=0.001362, AVG_CPU_TIME=0.000263,
$HASP660 ROUTINE=PSAFSCAN, COUNT=392, AVG_QUEUE_TIME=0.000033,
$HASP660 AVG_RUN_TIME=0.000080, AVG_CPU_TIME=0.000078,
$HASP660 ROUTINE=RPDBSEC, COUNT=330, AVG_QUEUE_TIME=0.000008,
$HASP660 AVG_RUN_TIME=0.000106, AVG_CPU_TIME=0.000102,
$HASP660 ROUTINE=XINITST, COUNT=16, AVG_QUEUE_TIME=0.000151,
$HASP660 AVG_RUN_TIME=0.002650, AVG_CPU_TIME=0.001659
    
```



<http://www.ibm.com/support/techdocs/atsmastr.nsf/PubAllNum/W9744B>



\$D PERFDATA Usage Examples

- **JES2 initialization takes too long:**
 - \$D PERFDATA(INITSTAT) - See elapsed time for each routine
- **Checkpoint delays:**
 - \$D PERFDATA(CKPTSTAT) - Elap'd time for R1, R2, PW, IW, FW
 - \$D PERFDATA(QSUSE) - Callers of \$QSUSE & avg. delays
- **JES2 CPU Utilization too high:**
 - \$D PERFDATA(CPUSTAT) - Summary of PCE stats
 - \$D PERFDATA(PCESTAT) - PCE detailed statistics
 - \$D PERFDATA(SUBTSTAT) - Subtask statistics
- **WLM managed initiators not behaving:**
 - \$D PERFDATA(SAMPDATA) - WLM init sampling data
- **Misc. errors:**
 - \$D PERFDATA(EVENT) - JES2 internal errors & delays

JES2 Service Information

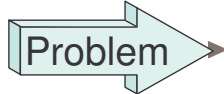
- **HiPer APARs** (Hi Impact, or Pervasive)

- ▶ See PSP buckets for an up-to-date list - ZOSV1Rx / JES2

	APAR	PTF	VOLID	COMMENTS
	OA11039			SAPI only returns last Dataset in the JOE
	OA09849	UA15648	0412	ISG219E RNL Change waiting for resources
	OA09026	UA18833	0506	ABEND0C4 using \$PIT with unvalid SJB
\$EXTP	OA10769	UA17758	0504	OUTGRP'S remain busy on RJE printers after
	OA09691	UA17089	0504	MSGHASP9202 Potential JES2 main task loop
	OA11270	UA17762	0504	JES2 CATASTROPHIC ERROR w/\$BERTTAB customized
	OA10508	UA17186	0503	NOTIFY MSGHASP165 issued via SEND doesn't flow
	OA07457	UA16837	0502	\$J05 after MSGHASP493 JES2 member restart
	OA09848	UA16840	0502	In support of OA09847
	OA10668	UA16698	0502	Batch job hangs in job Termination
	OA10208	UA16564	0502	Logical record invalid header from NJE/SpoolOff
	OA08716	UA16195	0501	Abend0c4 in routine NQSJBLOC during HotStart

<https://techsupport.services.ibm.com/server/390.psp390>
(requires IBM Registration userid)

OA08145 - Compatibility with z/OS 1.7



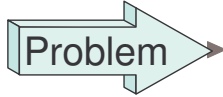
JES2 zR4/zR5 need to recognize zR7 as MAS members (\$HASP710 issued if not applied)



\$HASPEQU updated to reflect HJE7720 (z/OS 1.7) is highest release of JES2 that can coexist in a MAS

- ▶ Support added for Large SYSIN records (NJE/Offload)
- ▶ HASPRDR Exit changes
- ▶ JES2 zR4/zR5 must be at \$ACTIVATE LEVEL=R4
- ▶ JES2 Service Level updated
- ▶ z/OS R4 & R5 (F505)
 - ▶ See also OA11953 & OA12472 (fixes for long SYSIN)
- ▶ See z/OS 1.7 sessions for more details.

OA10407 - OUTPUT Groups not Selected



OUTGRP's not being selected by output devices when a job ends.

- ▶ Only non-spin output - some output groups may be processed while others are not.
- ▶ Affects NJE, RJE, etc.

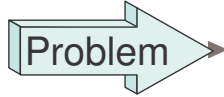
- ▶ Bypass: \$S or a \$TO of the outgrp will resolve the problem.



HASPJOS fixed to branch to include \$#POST for the job.

- ▶ z/OS R5 (F501) HiPER

OA10668 - Job hung in termination



After OA08716, if a job fails during job initiation due to error in interpretation, the next job selected by the same initiator hangs in job termination.



Field SJBHJE00 is re-initialized at proper logic point.

- ▶ z/OS R2, R4 & R5 (F502) HiPer

JES2 Performance APARs



Since PUT/RSU F406:

- ▶ **OA07705**: High CPU & IRB'S not running after OA03169 (**F407**)
- ▶ **OA05981**: CSA exhausted by WebSphere/RACF WTOs (**F412**)
- ▶ **OA09327**: FSS Printers going inactive (**F412**)
- ▶ **OA10676**: Hi CPU when \$SSPL entered after \$PSPL (**F502**)
- ▶ **OA11923**: Jobs delayed in Termination on Idle Systems (DLL)
- ▶ **OA12614**: Potential higher CPU util. when MASDEF HOLD<30 (Open)

NJE Formats & Protocols

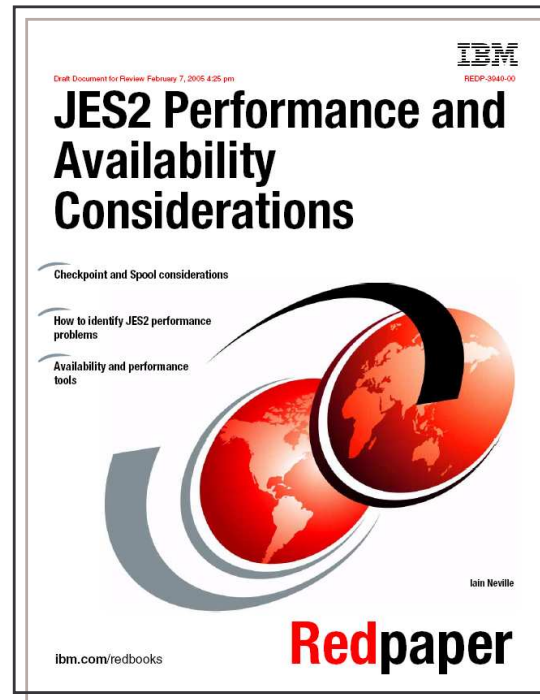


- **"Network Job Entry Formats & Protocols"**
SC23-0070 will be updated for z/OS 1.7
- In the mean-time, earlier versions of the book can be found at ibm.com/servers/s390/os390/bkserv/
 - ▶ Search on 'network job entry' or 'protocols'.

■ New JES2 RedPaper: REDP-3940



1. JES2 Performance and Availability Considerations
2. JES2 processor utilization
3. JES2 checkpoint considerations
4. JES2 Spool considerations
5. WLM managed initiators
6. Scalability
7. JES2 command processing
8. Identifying issues with JES2 performance degradation
9. Performance tools



Survey Questions



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

JES2 Rel.#	this SHARE	SHARE 104 3/2005	SHARE 103 8/2004	SHARE 102 2/2004	SHARE 101 8/2003	SHARE 100 3/2003	SHARE 99 7/2002	SHARE 98 3/2002	SHARE 97 7/2001
OS/390 R.5						1 (1)	0	4 (2)	3
OS/390 R.7						0	0	3 (2)	1
OS/390 R.8				1	1 (1)	3 (3)	6	7 (4)	8
OS/390 R10		5	4	9(9)	11 (11)	27	20 (9)	21 ()	9
z/OS R2		2	2	5(4)	5()	14 (4)	9 (4)	5 (3)	n/a
z/OS R4		28(22)	17	23(7)	8 (1)	8 (1)	n/a	n/a	n/a
z/OS R5		8	4						
z/OS R7									

SDSF Update

■ Agenda

- ▶ z/OS V1.7 SDSF Enhancements
- ▶ z/OS V1.5 SDSF Enhancements
- ▶ zAAP CPU Utilization Display

■ Other SDSF Sessions

- ▶ 2671 - "SDSF Changes for z/OS V1.7
Wed. @ 4:30

z/OS V1.7 SDSF Changes



```

Display Filter View Print Options Help
-----
HOX7720 ----- SDSF PRIMARY OPTION MENU -----
COMMAND INPUT ==>
DA   Active users          INIT  Initiators
I    Input queue           PR    Printers
O    Output queue          PUN   Punches
H    Held output queue     RDR   Readers
ST   Status of jobs        LINE  Lines
                                           NODE  Nodes
LOG   System log           SO    Spool offload
SR   System requests       SP    Spool volumes
MAS   Members in the MAS
JC   Job classes           RM    Resource monitor
SE   Scheduling environments CK    Health checker
RES   WLM resources
ENC   Enclaves             ULOG  User session log
PS    Processes
END   Exit SDSF

```

- ▶ Resource Monitor Display
- ▶ Health Checker Display
- ▶ TCP/IP parameters for NJE Nodes & Lines

z/OS V1.7 SDSF Display for Health Checker



► Provides easy access/viewing with a new CK panel:

- Display checks, attributes, and status
- Takes advantage of SDSF sort, filter, and arrange support.
- Alter check attributes (e.g., status, interval, severity, category, & WTO descriptor)
- Browse action to display check output messages.
- Print output or send it to a data set.

```

Display Filter View Print Options Help
-----
SDSF HEALTH CHECKER DISPLAY  SYSB                COLUMN TRUNCATED
COMMAND INPUT ===>
NP  NAME                                           Sta Res Sev Reason
   GRS_CONVERT_RESERVES                          EXC   4 LOW When in STAR mode, converting
   RACF_GRS_RNL                                   SUC   0 HIG None of the RACF ENQ names sho
   RACF_SENSITIVE_RESOURCES                      EXC  12 HIG Sensitive resources should be
   RSM_AFQ                                        SUC   0 HIG System may not recover in time
   USS_FILESYS_CONFIG                            SUC   0 HIG Avoid performance problems in
   USS_MAXSOCKETS_MAXFILEPROC                   SUC   0 LOW If MAXSOCKETS or MAXFILEPROC a
   VSM_CSA_CHANGE                                SUC   0 HIG Audit reductions in size of pr
S  VSM_CSA_LIMIT                                  SUC   0 LOW Audit the size of CSA

```

■ Rolled back to z/OS R4/R5 with APAR PK00561

z/OS V1.7 SDSF Display for Health Checker

■ Drill down for Detail Health Checker Display

```

SDSF OUTPUT DISPLAY VSM_CSA_LIMIT
***** TOP OF DATA *****
CHECK (IBMVSM,VSM_CSA_LIMIT)
START TIME: 07/15/2005 14:36:06.890781
CHECK DATE: 20040405 CHECK SEVERITY: LOW
CHECK PARM: CSA (512K),ECSA (512K)
. . .
VSM_CSA_LIMIT
Virtual Storage Configuration Report

Current IPL TOD:          Compare IPL TOD:
07/15/2005 14:35:00.1468  06/30/2005 15:42:42.6894
-----

DATE          07/15/2005          06/30/2005
TIME          14:35:00            15:42:42
LOADxx       Z6                  Z6
IEANUC0x     1                   1
CSA ()       Z6 (3200K,320M)       Z6 (3200K,320M)
SQA ()       Z6 (6,256)           Z6 (6,256)
FIX ()       00 00                00 00
LPA ()       Z6 (Z6)              Z6 (Z6)
MLPA ()      Z6 Z6                Z6 Z6
MLPA ()      Z6 Z6                Z6 Z6
    
```

■ See Sessions 2833 (Tue 1:30) & 2814 (Tue 3:00) for more details on the z/OS Health Checker

z/OS V1.7 SDSF JES2 Resource Monitor

■ Resource Monitor (RM) Display Panel

```

Display Filter View Print Options Help
-----
SDSF RESOURCE MONITOR DISPLAY DRV1 LINE 1-17 (17)
COMMAND INPUT ==> SCROLL ==> PAGE
NP RESOURCE SysI Status Limit InUse InUse% Warn IntAvg IntHigh IntLow OverW
BERT DRV1 40100 161 0.40 80 159 161 159 0.00
BSCB DRV1 100 0 0.00 75 0 0 0 0.00
BUFY DRV1 500 0 0.00 75 0 0 0 0.00
CKVR DRV1 17 0 0.00 80 0 1 0 0.00
CMBS DRV1 113 0 0.00 75 0 0 0 0.00
CMDS DRV1 104 0 0.00 80 0 0 0 0.00
ICES DRV1 33 0 0.00 80 0 0 0 0.00
JNUM DRV1 32767 5390 16.44 75 5389 5390 5389 0.00
JOES DRV1 20000 5528 27.64 75 5528 5528 5528 0.00
JQES DRV1 20000 5390 26.95 75 5389 5390 5389 0.00
LBUF DRV1 500 0 0.00 75 0 0 0 0.00
NHBS DRV1 44 0 0.00 80 0 0 0 0.00
SMFB DRV1 31 0 0.00 75 0 0 0 0.00
TBUF DRV1 106 0 0.00 0 0 0 0 0.00
TGS DRV1 16000 7571 47.31 80 7570 7571 7570 0.00
TTAB DRV1 10 0 0.00 75 0 0 0 0.00
VTMB DRV1 100 1 1.00 75 1 1 1 0.00
    
```

► See session 2671 "SDSF Changes for z/OS 1.7" (Wed., 4:30) for more details.

z/OS V1.5 SDSF Enhancements



- **Multilevel Security - "SECLABEL Dominance"**
 - ▶ Restrict rows on an SDSF display based on:
 - SDSF command to access a panel
 - "Seclabel Dominance" of "object"
 - Action Characters allowed
 - ▶ SECLABEL sources used for the objects on each panel:
 - DA: Address Space (JQE or SJB)
 - I, ST: Job (JQE)
 - O, H: Output (JOE)
 - JDS & OD: Dataset & output descriptor (PDDB)
 - Device: DCT or NIT
 - ENC & SR: SYSHIGH*
 - others: SYSNONE
 - ▶ Column added for SECLABEL to many panels
- **Misc:** "Y" = MVS "Stop" (P) command on DA panel

zAAP CPU Utilization on DA panel

- **SDSF DA panel does not differentiate between General Purpose CPs and zAAPs**

- ▶ Example:

- 4 GCPs are using 1%, and the zAAP is using 96%.
- SDSF reports the CPU busy as 20%.
 $(4 + 96)/5 = 20$

```
Display Filter View Print Options Help
```

```
-----
SDSF DA SYSB SYSB PAG 0 SIO 0 CPU 20/ 20 LINE 1-2
COMMAND INPUT ==> SCROLL ==> CSR
NP JOBNAME SrvClass DP C StepName Workload JobID CPU%
WALSH SYSSTC FE IKJACCNT SYSTEM TSU23659 0.04
WALSH3 OMVS F7 *OMVSEX OMVS_WKL STC23590 19.69
```

- **See RMF for CPU utilization by processor type.**

- ▶ RMF Monitor III System Information
- ▶ RMF Workload Activity Reports

New Fields for zAAP CPU on DA panel

■ **DA panel shows CPU utilization for GCPs and zAAPs**

- ▶ Available with APAR PQ93310 for z/OS R6 (shown only if a zAAP is defined)
- ▶ See also APAR PQ98969 to correct field ZACP-TIME column-name.

GCP-Time Accumulated general processor (GCP) service time, in seconds
zAAP-Time Accumulated zAAP service time (seconds)
zACP-Time Accumulated GCP service time that was eligible for a zAAP
GCP-Use% % of total GCP time used in last interval (not normalized)
zAAP-Use% % of total zAAP time used in last interval (not normalized)

DA SYSA SYSA PAG 0 SIO 391 CPU 74/ 74 LINE 1-8 (8)									
JOBNAME	CPU%	ECPU%	<u>GCP-Time</u>	<u>zAAP-Time</u>	<u>zACP-Time</u>	<u>GCP-Use%</u>	<u>zAAP-Use%</u>	Real	
T3AGNTA	0.06	0.01	45.74	47.14	44.81	0.07	0.58	44T	
T3DMGR	0.03	0.00	32.64	44.20	31.73	0.03	0.31	44T	
T3DMGRS	0.03	0.01	14.89	25.57	14.60	0.02	0.31	107T	
T3DMN	0.00	0.00	0.21	0.00	0.00	0.00	0.00	3433	
T3MQCHIN	10.87	1.51	389.65	0.00	0.00	24.86	0.00	4068	
T3MQMSTR	1.15	0.16	6.90	0.00	0.00	0.06	0.00	7789	
T3SR08A	17.55	2.43	123.15	20.28	10.61	43.33	0.23	37T	
T3SR08AS	13.66	65.64	61.34	74.70	47.83	17.32	97.02	338T	

Appendix

- ▶ z/OS JES2 Releases
- ▶ z/OS JES2 Library
- ▶ Softcopy Books
- ▶ other JES-related Books
- ▶ JES2 Education
- ▶ z/OS Web Sites

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 ...
 - ▶ \$ACTIVATE=Z2 required for new functions
- z/OS Release 4** - Health Monitor, Usability, RAS, ...
- z/OS Release 5** - Multilevel Security
- z/OS Release 7** - Large SPOOL Vols, NJE over TCP/IP

z/OS JES2 LIBRARY



- SA22-7535 JES2 Introduction *
- GA22-7538 JES2 Migration
- SA22-7532 JES2 Initialization & Tuning Guide
- SA22-7533 JES2 Initialization & Tuning Reference
- SA22-7537 JES2 Messages
- SA22-7526 JES2 Commands
- SA22-7527 JES2 Commands Summary
- SA22-7534 JES2 Installation Exits
- SA22-7536 JES2 Macros
- GA22-7531 JES2 Diagnosis
- GA22-7528 JES2 Data Areas, V.1 \$A - \$E *
- GA22-7529 JES2 Data Areas, V.2 \$F - \$O *
- GA22-7530 JES2 Data Areas, V.3 \$P - \$X *

★ SoftCopy only (CD-ROM)

z/OS Softcopy Books



- **z/OS Softcopy Collection CD-ROMs**
 - z/OS Rel. 1 CD-ROMs: SK3T-4269 (Unlicensed)
 - ◆ available on tape (optional, no-charge feature)
 - Software Products: SK3T-4270
 - z/OS & S/W Products - DVD: SK3T-4271
 - Licensed z/OS CD-ROM: LK3T-4307
- **Softcopy site:**
<http://www.ibm.com/servers/eserver/zseries/softcopy>
- **Online books at:**
<http://www.ibm.com/servers/eserver/zseries/zos/bkserv>
- **JES2 PDF (for z/OS 1.5) files at:**
<http://www.ibm.com/servers/eserver/zseries/zos/bkserv/r5pdf/jes2.html>
- **See what's new at:**
<http://www.ibm.com/servers/eserver/zseries/softcopy/whatsnew.htm>

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~~

IBM JES2 Education



- **JES2 for OS/390 Facilities & Implementation (ES710) - 4.5 days**
 - ▶ JES2 Facilities & Initialization
 - ▶ SDSF & Operations
 - ▶ Security Issues
 - ▶ Controlling JES2 Processes
 - ▶ Spool & Checkpoint Configurations
 - ▶ NJE & RJE (& SNA) Concepts & Implementation
 - ▶ JES2 Exits and Problem Determination

- **JES2 for OS/390 Operations (ES280) 2.5 days**
 - ▶ Start, Stop, Control JES2 processes and devices
 - ▶ JES2 and Workload Manager, and Sysplex
 - ▶ NJE, RJE, SNA, and OS/390 Print Server

z/OS Web Sites



z/OS Product Support - find everything from here!

- ▶ <http://techsupport.services.ibm.com/server/support>

Planning for Installation

- ▶ <http://www.ibm.com/servers/eserver/zseries/zos/installation/>

Publications (view, print, order books)

- ▶ <http://www.ibm.com/servers/eserver/zseries/zos/bkserv/>

SDSF home page

- ▶ <http://www.ibm.com/servers/eserver/zseries/zos/sdsf/>

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

- ▶ <http://www.ibm.com/support/techdocs>

Redbooks

- ▶ <http://www.redbooks.ibm.com>

