



z/OS V1.13 JES3 Latest Status and New Features

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Active Releases



Release	FMID	Available	End of Service
z/OS V1.13.0	HJS7780	September 30, 2011	
z/OS V1.12.0	HJS7770	September 29, 2010	September 2013 ¹
z/OS V1.11.0	HJS7760	September 25, 2009	September 2012 ¹
z/OS V1.10.0	HJS7750	September 26, 2008	September 30, 2011 ²

Notes:

1. Indicates projected date. Actual end of service date has not been announced yet.
2. Lifecycle Extensions exist for z/OS V1.9 and V1.10.

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

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Lifecycle Extensions are a fee-based offering that provides corrective service (a fix, bypass, or restriction to a problem) for up to two years beyond the withdrawal of service date for a z/OS release.

BCP Compatibility



	z/OS V1.11	z/OS V1.12	z/OS V1.13
z/OS V1.11 JES3 (HJS7760)			
z/OS V1.12 JES3 (HJS7770)			
z/OS V1.13 JES3 (HJS7780)			

JES3 code can be compiled and executed on the same or a higher level of the BCP, but never a lower level.

New statement of direction – z/OS V1.13 Announce Letter

“z/OS V1.13 is planned to be the last release to support a staged migration for JES2 and JES3. Future releases will require you to migrate to all elements of z/OS at the same time, including JES2, JES3, or both.”



JES3 Highlights z/OS V1.11



- Enhancements to SPOOL Data Set Browse (SDSB).
- A new way to browse the JES3 managed SYSLOG.
- Additions to SAPI SSI79 and Extended Status SSI80.
- Support for Scheduler Facilities Call SSI70.
- New JES Properties SSI82.
- Enhancements to include a dump of the JES3 global and data spaces for an SVC dump taken while an SSI request (to JES3) is active.

See Seattle 2010 SHARE Session 2350

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SDSB Enhancement

Active buffers of SYSOUT data sets can now be browsed regardless of which system the data set owner resides on.

SYSLOG Browse

The SYSLOG data sets on a system are logically concatenated into a single logical SYSLOG data set for browse requests.

Additional filtering has been added to SAPI (SSI 79) to select data sets using the job name or job ID associated with a transaction.

The SAPI job ID filter, SSS2JBIL, can now contain generic characters '?' and '*' for use with job ID and transaction job ID filtering.

Additional filtering has been added to Extended Status (SSI 80) to obtain data for terse requests using the job name, job ID, or SYSOUT owner associated with a transaction.

The Extended Status job ID filter, STATJBIL, can now contain generic characters '?' and '*' for use with job ID and transaction job ID filtering.

SSI 70 can be used to retrieve and modify SYSOUT data set characteristics.

SSI 82 provides a common interface for both JES2 and JES3 to return information about multiple JES managed structures. Instead of coding programs that traverse internal structures to retrieve this information, the SSI has packaged the information into a single call.




A user supplied program can call SSI 82 to obtain information about NJE (Network Job Entry) Nodes, SPOOL Volumes, Initiators, JESplex characteristics and Job Classes. The caller specifies a different sub-function value to choose which of the five kinds of information they want the SSI to return.

JES3 Highlights z/OS V1.12

- Enable ENF58 signaling with SAPI SSI79.
- New JES Device Information Services SSI83.
- JES3 Extended Address Volume (EAV) support.

See Anaheim 2011 SHARE Session 8689

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Enable ENF58 signaling with SAPI SSI79

Event Notification signal 58 (ENF58) is issued by JES3 for various SYSOUT data set changes. JES3 extends ENF58 support so SAPI users can request the broadcast of signals for any SYSOUT data sets.

New JES3 Device Information Services SSI83

Allow an application program to obtain information on devices managed by JES such as printers, readers, etc. JES3 support for local printers provided in V1.12.

JES3 Extended Address Volume (EAV) support

DFSMS has added basic and large format sequential data sets to the list of Extended Address Space (EAS) eligible data sets. JES3 EAV support allows SPOOL, checkpoint, and Job Control Table (JCT) data sets to be anywhere on an EAV.

FIN/SUG APARs

Why?

- Motivation for a FIN (Fixed In Next)
 - Savings in maintenance volume
 - PE reduction due to more regression testing in a release
- Used for
 - Nits
 - Error or unusual paths
 - Rarely used for large fixes - SUG is used for these
- Can be rolled back if necessary – FINREVERSAL
 - Rare: Most recent is OA30944. Previous two were done in 2007
- We work with you to make this decision.
- **Please consider them whenever possible!**

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An APAR is closed FIN or SUG with concurrence from the submitting customer. Closing with FIN means that a fix to this APAR is expected to be delivered from IBM in a release (if any) to be available within the next 24 months. For example, if a customer has a problem in z/OS V1.10 and agrees to a FIN, it does not mean that the problem is or will be fixed in z/OS V1.11 or z/OS V1.12 which are already available.

FIN/SUG APARs



- Included in z/OS V1.11

OA22741 (FIN)	ABEND0C4 in module IATSICA following a configuration change.
OA24930 (FIN)	After termination of JES3 a task fails with ABEND0C4 in module IATSICA.
OA27454 (FIN)	Inquiry issued for a DSN for a job does not complete.
OA26303 (FIN)	ABEND0C4 in module IATDMGR following an ABEND8FB RC25 which was preceded by ABEND8FB RC21.

- Included in z/OS V1.12

OA26143 (FIN)	ABEND0C4 in IATUTD2.
OA28818 (FIN)	The text intended for MSGID MSGIAT3828 is issued with MSGID MSGIAT3728 instead.
OA29654 (FIN)	After *S JSS, JES3 does not start all initiators as defined.
OA30005 (FIN)	Removal of CONSTD statement from a JES3 INISH deck has no effect.
OA30090 (FIN)	ABEND6FB RC121 after a DB2 ABEND04F (JESXCF APAR)



FIN/SUG APARs



- Included in z/OS V1.13

OA26885 (SUG)	DISABLE FCT was left waiting for two C/I FSSs
OA32601 (FIN)	ABEND0C9 in IATMFR5 while processing the 'Job queue length by JES3 function' JMF report
OA34243 (FIN)	Data overlay for a large Sysout file after a re-open
OA34382 (FIN)	Zero line and byte count for DUMPCORE data sets



Service Highlights Information APARs



APAR	Problem description	Updated
II07968	JES3 Maintenance Philosophy.	11/10/2006
II11768	JES3 Toleration APARs.	7/25/2011
II11784	Recommended JES3 SAPI and Extended Status (SSI 80) maintenance.	5/16/2011
II12051	Known causes of ATL or VTS problems in a JES3 environment.	12/20/2004
II14347	Jobs hung in GMS SELECT state when initiators are defined as JES3 managed.	12/05/2007
II14434	Recommended JES3 TCP/IP/NJE maintenance.	6/21/2011
II14572	Recommended JES3 SPOOL Browse and SYSLOG Browse maintenance.	6/21/2011



Service Highlights Extended Status & SAPI APARs



APAR	Problem description	
II11784	Recommended SAPI and Extended Status (SSI 80) maintenance.	INFO
OA33772	JES3 does not provide class values from SDSF JDS panel for an active job.	
OA33970	Extended Status SSI 80 not returning data in HJS7760 when STATJBIH contains blanks.	
OA34846	ABEND0C4 in IATGRES attempting to address OSSJDSJN.	
OA34913	ABEND0C4 in IATSIES after ABEND0C4 in IATGRES.	
OA35615	ABEND9C7 RC10 during SSI80 processing in JES3	
OA36437	After changing the job class via SDSF the system experienced MSGIAT6397 for resource FCT ENSTDRV	HIPER

APARs closed since 8/1/2010



Service Highlights NJE over TCP/IP APARs



APAR	Problem description	
II14434	Recommended JES3 TCP/IP/NJE maintenance.	INFO
OA33245	Additional diagnostics required for IAT9380 ABENDEC8 RCB.	
OA33262	Provide a means to delete orphaned JES3 NETSERV TCP jobs.	HIPER
OA33337	0 byte count spool data sets for data transmitted via NETSERV.	
OA33850	APAR OA33150 did not pre-req PE APAR OA26487.	PE
OA33916	Loop in IATGRQM.	
OA33980	ABEND0C4 in JES3 module IATINSOC.	HIPER
OA34423	ABEND0C4 in JES3 module IATNTTXR following a MSGIAT9380.	PE
OA34584	IAT3155 has conflicting usage.	
OA34656	ABEND0C4 in IATIQNJ.	
OA35519	ABENDDFB abends under Netserv ASIDs may not be properly taken.	PE
OA35893	ABEND0C4 in IATGRQM	

PE = Fixes PTF in Error

APARs closed since 8/1/2010



OA33245 / OA34423 / OA35519 Added message for diagnostics



- NJE/TCP transmission stops after MSGIAT9380 and ABENDEC8 RCB.
- Difficulty in diagnosing the problem as register values at the point of the error are not saved prior to the abend in common code.
- APAR adds message IAT9385 and an X'DFB' abend with reason codes that identify the data stream exits.
 - Will be followed by an X'EC8' abend dump when the subtask terminates.
- ALL PEs have minimal impact – desired diagnostic information was not obtained for a task which fails with ABENDEC8.
 - OA34423 – ABEND0C4 occurs after MSGIAT9380 instead of ABENDDFB.
 - OA35519 – SDUMP for ABENDDFB does not finish before ABENDEC8.
- We recommend applying OA33245 / OA34423 / OA35519 PTFs.
- Have been rolled up into the base for z/OS V1.13 JES3.

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OA33245

External symptoms: Customer encountered a transmission error, error message:

IAT9380 SEVERE ERROR OCCURRED IN SYSOUT RECEIVER, RECEIVER AREA CORRUPTED

This was followed by:

IAZ0011I JES3S001 S5F01NJE Receiver issued a Terminate and Abend command

IAZ0546I JES3S001 ABEND CODE=SEC8 RC=0000000B

Impact to customer: Netserv failure

Analysis: This problem is undiagnosable with the documentation available. The registers at the point of the error recognized in IATNTTXR are not saved prior to the common code IAZNJSTK issuing its abend. This apar is being taken to add RAS for this failure

IAT9385 SERVER server_name ABEND CODE=Sxxx RC=rsn

Explanation: An abend occurred in the Netserv address space during JES TCP/IP NJE processing. In the message text:

- server_name = The TCP/IP NJE server name.
- Sxxx = The system completion code in hexadecimal format.
- rsn = The reason code:
 - 65 The Netserv exit subtask detected data stream corruption in the inbound SYSIN record. The subtask is terminated.
 - 66 The Netserv exit subtask detected data stream corruption in the inbound SYSOUT record. The subtask is terminated.
 - 67 The Netserv exit subtask detected data stream corruption in the outbound SYSIN record. The subtask is terminated.
 - 68 The Netserv exit subtask detected data stream corruption in the outbound SYSOUT record. The subtask is terminated.

OA34423

External symptoms: Abend0c4 in JES3 module IATNTTXR following a msgIAT9380. We are attempting to access the TPRM, issuing the following OI TPRMTDFG,TPRMTDFA and abending because we don't have addressability

Users affected: All users of HJS7750, HJS7760 and HJS7770 with APAR OA33245 installed.

User impact: APAR OA33245 fixed the problem it reported but introduced a new problem, the abend0c4. Data stream corruption has already been detected, the task will abend.

OA35519

External symptoms: Customer encountered ABENDDFB from the JES3 exit code in the Netserv address space, but the dump contents are an ABENDEC8 from the common code in the Netserv address space

Users affected: All users of HJS7750, HJS7760 and HJS7770 with APAR OA33245 installed.

User impact: APAR OA33245 added diagnostics for Netserv errors, but depending on SDUMP timing the subsequent dumps may still prove to be undiagnosable.

Service Highlights

SPOOL and SYSLOG Browse APARs



APAR	Problem description	
II14572	Recommended JES3 SPOOL Browse and SYSLOG Browse maintenance.	INFO
OA33525	ABEND0C4 in module IATDMJA while processing a SYSLOG CLST.	
OA33601	ABEND878 due to subpool 229 key 9 is filled up.	HIPER,PE
OA34642	Applications using IATYDAT as programming interface do not correctly display JESJCLIN after OA33040	PE
OA35273	ISF138E POINT FAILED READING XXXX, RETURN CODE 8 RPLFDBK 080310 - JES3 SDSF	HIPER,PE
OA36258	WORERRMG= get error RC=08032C in SDSF on JES3	PE

PE = Fixes PTF in Error

APARs closed since 8/1/2010



Service Highlights

JES3 APARs (1 of 3)



APAR	Problem description	
OA32426	JES3 I/O trace needs to be documented.	DOC
OA33203	Missing documentation for FSI field FSIEGFID.	DOC
OA33279	Correct various problems in JES3 HJS7770.	
OA33416	New Function – Fallback Support, JES3 HJS7780	
OA33519	JES3 Notify User (SSI 75) receives MSGICH408I when binary zeros specified as destination.	
OA33660	IATSIAI ABEND0C4, MEMALLOCS is zero even after applying OA32603.	PE
OA33722	ABEND0C4 in IATSICA when AWA addressability attempted.	
OA33787	DYNALLOCS failure RSN484 for non-SMS managed dataset for a job	PE
OA34117	ABEND9C7 RC10 during SSI80 processing in JES3.	HIPER
OA34192	ABENDS001-04 MSGIAT6712 during checkpoint processing.	HIPER
OA34221	ABEND8FB RC24 during WLM processing along with message IAT2010 WLM subtask has failed.	HIPER
OA34234	Multivolume existing dataset DYNALLOCS fails with RC4 reason CODE0214.	
OA34254	TSO user hung after SPOOL shortage.	

APARs closed since 8/1/2010

PE = Fixes PTF in Error
DOC = Documentation

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Service Highlights

JES3 APARs (2 of 3)



APAR	Problem description	
OA34409	MSGIEA602I address space create failed.	HIPER
OA34660	Spool data returned by SSI82 results in inaccurate utilization reporting	
OA34733	ABEND0C1 issued by IATDMXM, possible JES3 high CPU utilization.	HIPER
OA34746	Repetitive ABEND0C4 in IATGRPR under IOERR FCT.	HIPER
OA34953	ABEND0C4 in IATOSFP when attempting to address OSEOTSWB for DJ'd job.	
OA35160	IATGRPT sequence numbers do not allow user DSP entries after the last IBM entry.	
OA35237	SVC DUMP taken by IATSIOR for a job restarting via FAILURE=RESTART after system IPL	PE
OA35266	Jobclass change does not update service class	DOC
OA35312	Document relationship between MAINPROC and XCF MAXSYS value	DOC
OA35481	ABEND0C1 in IATNTTXR, ABEND0C1 in IATDMXM, ABEND1FB RSNA8 in IATDMIT	HIPER
OA35599	The returned structure for a SSI82 / SSJPJXOD contained JESPLEXI instead of JPXHDR in the eyecatcher	

APARs closed since 8/1/2010

PE = Fixes PTF in Error
DOC = Documentation



Service Highlights

Additional JES3 APARs (3 of 3)



APAR	Problem description	
OA35716	Excessive page/fix page frees issued	HIPER
OA35789	ABEND0C4 in IATDMER	HIPER
OA35955	ABEND1FB RSN81 issued by IATDMFR following an error in IATDMEB recovery	
OA35962	ABEND1FB RSN81 in JES3 module IATDMEB because the DSB eyecatcher has been cleared	HIPER
OA36041	Unable to allocate temporary data set on tape when TEMPDSFORMAT=UNIQUE	
OA36079	SDSF DEST SAF profiles with JES3	
OA36146	MSGIAT3800 for CIFSS address spaces when terminating JES3 in Z/OS 1.12 HJS7770	
OA36211	Correct various problems in JES3 HJS7780	
OA36307	ABEND0C4 in IATINFS	
OA36396	JMF reports JCT data space page allocation utilization near 0%	
OA36483	Correct various problems in JES3 HJS7780	
OA36966	Correct various problems in JES3 HJS7780	

APARs closed since 8/1/2010

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OA36041 – Unable to allocate temporary data set on tape when TEMPDSFORMAT=UNIQUE



- Unable to reference temporary dataset allocated on tape when TEMPDSFORMAT(UNIQUE) specified in ALLOCxx parmlib member.
- This occurs when a temporary data set is referenced more than once. The data set is allocated, but subsequent references may fail. This will be true when the only available devices are managed by JES3.
- User's affected:
 - All HJS7770 and HJS7780

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PROBLEM SUMMARY:

On a system where the TEMPDSFORMAT(UNIQUE) parameter has been specified in the ALLOCxx parmlib member, a multistep job attempted to create a temporary data set on tape and pass it for use on a subsequent job step. In this case, the job failed with a MSGIEF462I. The same job will run successfully if TEMPDSFORMAT(INCLUDELABEL) is specified.

TEMPDSFORMAT(UNIQUE) causes a unique data set name to be generated for each reference to a temporary data set with DSN=*&label specified. These unique data set names are later changed so all references to data sets with the same *&label have the same generated data set name. Prior to this change, however, the unique data set names are passed to module IATIIPR during prescan. IATIIPR tracks references to temporary data sets in the pass/catalog table (IATYPAS) and uses this table to locate data sets created and passed in previous job steps. Because the generated data set names are unique, IATIIPR is unable to find the passed data set in the table. This eventually causes the step to fail.

PROBLEM CONCLUSION:

Since we are unable to rely on the generated data set name for temporary data sets, we will use the user specified name from the JCL (DSN=*&label) in these cases. Macro IATYPAS was changed to define a field, PASSANAM, to hold the user specified name for temporary data sets. Also, two flags, PASSGDSN and PASSINVL, were defined to indicate the data set is a temporary data set and the validity of the data set name. Macro IATYDDL was changed to define a field, DDLANAME, that points to the DD statement's user specified name (DSN=*&label) for temporary data sets. Module IATIICM was changed to set DDLANAME for temporary data sets that have a user specified name. Finally, module IATIIPR was changed to use the user specified name in addition to the data set name when looking for a data set passed from a previous step.

OA36079 SDSF DEST SAF profiles with JES3



- Security errors occur when using SDSF with JES3 if users don't have permission to JESSPOOL profiles.
- For authorized callers, such as SDSF, module IATSIAD does not save the receiver ID or log string supplied with the browse token (IAZBTOKP). Consequently, module IATSIOR can not use the receiver ID on the security check. As a result, the check fails and access is denied.
- SDSF APAR PM36443 is required to fully utilize APAR OA36079.
- User's affected:
 - All HJS7760, HJS7770, and HJS7780

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PROBLEM SUMMARY:

A customer using the System Display and Search Facility (SDSF) made the required security access facility (SAF) updates to give operators access to spool data sets for a particular destination. As part of dynamically allocating a spool data set using the Spool Data Set Browse (SDSB) facility, module IATSIAD was called with a browse token (IAZBTOKP) that included a receiver id (BTOKRCID). The receiver id was not saved and was not used on the SAF check performed by module IATSIOR during OPEN processing. As a result, access to the data set was denied.

PROBLEM CONCLUSION:

Macro IATYDSB was changed to provide a place to store the receiver id (BTOKRCID) and log string (BTOKLOGS) supplied with a Spool Data Set Browse (SDSB) browse token (IAZBTOKP).

Module IATSIAD was changed to save the receiver id and log string for authorized callers as part of JES3 allocation.

Module IATSIOR was changed to use the saved receiver id and log string on the security check made during OPEN processing.

Module IATIPDSB was changed to accommodate the changes made to the DSB (IATYDSB).

The System Display and Search Facility (SDSF) will not fully utilize APAR OA36079's changes unless SDSF APAR PM36443 is also installed.

Service Highlights JESXCF APARs



APAR	Problem description	
OA34164	TSO user hangs waiting in JESXCF after log browse.	HIPER

- Applies to JES2 users!
- A hang can be experienced on an HJE7770 member while browsing the SYSLOG of a down level member, or browsing an open data set of an executing job on a down level member.
- User's affected:
 - All HJE7770

APARs closed since 8/1/2010

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JES3 tailored SVC dump exit Adds to an SVC dump



- In R11 JES3 added an SVC dump exit.
 - Created during JES3 initialization and deleted if JES3 ends.
 - The exit was updated with APAR OA29940.
- The exit is designed to conditionally add the JES3, JES3AUX, and JESXCF address spaces to the dump.
 - Added when at least one ASID included in the SVC dump may have a hung subsystem call.
 - JES3 looks for an outstanding SSI request.

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Beginning with z/OS V1.11, JES3 establishes an SVC dump exit. The SVC dump exit is created during JES3 initialization. The dump exit is new JES3 module IATABTDX which is a dynamic LPA module. The MVS service CSVDYNEX is used to establish the dump exit when JES3 is started. If JES3 is ended, then MVS service CSVDYNEX is used to delete the dump. The delete allows for the dump exit module to be updated when JES3 is started. During initialization, if the call to the MVS service fails and the dump exit cannot be established, initialization will continue and message IAT3207 is written.

Whenever an SVC dump is taken in a user address space, either because it fails, because the operator requests a dump, or because a dump is triggered by a SLIP trap, the JES3 dump exit is called. The dump exit conditionally adds the address spaces for JES3, JES3AUX, and JESXCF to the SVC dump. This occurs if the exit determines that least one ASID, included in the SVC dump, has an outstanding SSI request. Identification of the address spaces with outstanding SSI requests is based upon the same internal activity table counters used to control the setting and resetting of the IAZJSAB activity flags.

JES3 tailored SVC dump exit May create a second dump



- For an SVC dump on the local with a hung subsystem call, the exit will also generate the JES3 *DUMP command.
 - Creates a separate dump of the JES3 global.
 - Will result in ABEND DM137 for the global.
- Due to the dump exit, operators will need to respond to more IAT3714 messages if WANTDUMP=ASK is defined.

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If the SVC dump originates on a JES3 local, then the JES3 *DUMP command is also generated and a separate dump of the JES3 global is created with ABEND DM137. ABEND DM137 currently indicates that the operator issued the *DUMP command (See JES3 Diagnosis Reference). Documentation APAR OA31807 has been created to update the documentation to include that the *DUMP command can be issued for an SVC dump.

Updated JES3 Diagnosis Reference explanation for DM137:

Either the operator issued the *DUMP command or the command was automatically issued from the JES3 tailored dump exit to supplement a user address space dump. In that case, the dump title will contain the following text: 'COMPON= JES3 DYN DUMP,COMPID=SC1BA,ISSUER=IATABTDX'.

Updated z/OS JES3 Messages description for IAT3833:

Either the operator issued the *DUMP command which caused the CONCMD FCT to be terminated with abend DM137 or the command may have been entered automatically by module IATABTDX to complement a user address space dump. In that case, the dump title will contain the following text: 'COMPON=JES3 DYN DUMP,COMPID=SC1BA,ISSUER=IATABTDX'.

Use WANTDUMP=YES IBM Recommendation



- Provides for more immediate capture of data in the event of a JES3 failure.
- Waiting for an operator to respond to message IAT3714 can result in lost data.
 - System continues processing while the JES3 address space is stopped.
 - System trace records related to the failure may be lost.
- LIMIT and INTERVAL values can be set which force WANTDUMP=ASK should a JES3 failure occur frequently.
 - IAT3714 will occur when the LIMIT is reached within the INTERVAL.
 - *DUMP, as used in the exit, counts against the LIMIT.

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Specifies that a dump should be taken immediately when a JES3 failure occurs.

WANTDUMP is a parameter of the OPTIONS initialization statement.

Default is WANTDUMP=YES,LIMIT=3,INTERVAL=10 (INTERVAL is in minutes)

Commands allow the WANTDUMP option to be changed including the LIMIT and INTERVAL specifications.

IBM suggests that you allow the WANTDUMP option on the STANDARDS initialization parameter to default to "YES" instead of setting it to "ASK". Using the default of "YES" allows the system to determine what action to take when a JES3 failure condition occurs. In today's sysplex environment setting this parameter to "ASK" can cause delays in operations because the JES3 address space essentially stops functioning until you respond to the IAT3714 message. Also, certain portions of the dump, such as the system trace, are invalid because the system continues processing until you response to message IAT3714.

Service Recommendation Use SMP/E



- Important when JES3 and the BCP are installed in different zones.
 - Often done to separate product maintenance streams.
 - Consider when using SDSF.
 - See z/OS Planning for Installation.
 - JESXCF, DFSMS, Netserv/TCPIP and allocation services are all part of the BCP!
- Can use REPORT CROSSZONE commands and manually check the information.
- Strongly recommend using SMP/E automatic cross-zone requisite checking.

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The SMP/E REPORT command helps you obtain information about SYSMODs installed on your system. REPORT CROSSZONE is used to list conditional requisites that must be installed in certain zones because of SYSMODs installed in other zones. This information can help you synchronize service for related products that are in different zones like JES3 and JESXCF. You can use separate REPORT CROSSZONE commands and closely review the output -- very manual and prone to mistakes. We strongly recommend using the SMP/E automatic cross-zone requisite checking.

Creating a cross-zone set is documented in the z/OS Program Directory:

7.3.1 Create a Cross-Zone Set

There are different methods that can be used for cross-zone processing. A zone group can be defined and added to the install jobs or the XZGROUP operand can be used. XZGROUP(value) contains a list of ZONESETs or zones that are used to establish the zone group. Each value in the list must be a valid ZONESET or zone name. XZGROUP(value) would be added to the install jobs instead of adding the XZREQCHK operand to one or more ZONESETs.

In OS/390 Release 3, SMP/E introduced the operand, XZREQ, which provides a method for a user to more easily install cross-zone requisites. SMP/E identifies the cross-zone requisites needed in the set-to zone by reading CIFREQ data in the secondary zones of the zone group in effect for the current APPLY/ACCEPT commands. Any CIFREQ data that is for FMIDs installed or being installed in the set-to zone that are not yet in the set-to zone causes the required SYSMODs to become candidates for installation. If the FORFMID operand is also used, the FMID specified on the CIFREQ must match one of the FMIDs specified on the FORFMID operand for the SYSMOD to become a candidate.

By adding the XZREQ operand, the CIFREQ SYSMODs are installed automatically into the set-to zone. However, XZREQ does not install the CIFREQs in the other cross-dependent zones. An APPLY XZREQ needs to be performed against the other zones in order to synchronize service.

Note: If SYSMODs being installed into the set-to zone have requirements against the other cross-zones, that service must be APPLY'd to those zones before installation can be completed into the set-to zone.

Service Recommendation Use MODIFY JES3,CHK



- **MODIFY JES3,CHK**
- Allows the operator to check the “health” of a JES3 address space.
- A summary report issued to the console lists any exception conditions found.
- **CHK may save you an outage!**

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MODIFY JES3,CHK is an exception analysis function. This function is invoked by an operator MVS command while JES3 is running or offline during dump analysis. The function provides a summary report of unusual conditions as defined by JES3. This function will be enhanced and fine-tuned over time as more and more checks are implemented.




The command runs asynchronously to the JES3 address space code. Therefore, it is possible that JES3 is changing the data while the command is executing. This can lead to an occasional program check or a loop while the command is executing. When a loop is detected, message "IAT6417 Command 'CHK ' exceeded 1 minute. Reply 'CANCEL' to stop" is issued and a response is required. In either case, enter the command again.

The same function can be invoked in IPCS and Dump Core (DC).

Service Recommendation

Use MODIFY JES3,CHK

- Categories of exception conditions checked are:
 - CI and MDS
 - FCTs and DSPs
 - General
 - JSS and Job queue
 - Spool



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There are various types of exception analysis, each of which is called in turn by IATABEA. Each one is contained in its own module. Over time more checks may be added based on your and our experience.

Service Recommendation Use MODIFY JES3,CHK



- Some of the more interesting exception conditions are:
 - PROCLIB update is disabled
 - LOCATE subtask has abended
 - Job queue is held
 - FAILDSP pending for an FCT
 - IATXARQ issued for JESMSG processing
 - There are unprocessed WTDs (i.e. commands) on the Work-to-do queue
 - There are WEVs on one or more WLM queue
 - Main has been flushed
 - WLM reclassification is in progress
 - One or more priorities has been held
 - Threshold percent of job numbers in use
 - Marginal/minimal spool condition
 - Minimal JSAM buffer condition

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There are too many exception conditions to list. The ones listed here are probably among the more interesting or likely to be seen by you, the customer.

Service Recommendation Use MODIFY JES3,CHK (Example 1)



- Customer problem:
 - No jobs being processed by C/I.
- Customer actions:
 - Hot start JES3 – no change
 - IPL and hot start – no change
 - Open SEV 1 call.
- F JES3,CHK showed that job priorities were held.
 - The operator had inadvertently held all job priorities often with *F Q,H.
- Solution:
 - Release job priorities and job processing resumes.

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Service Recommendation Use MODIFY JES3,CHK (Example 2)



- Customer problem:
 - Following a hardware issue, JES3 is not responding to certain commands.
- Customer actions:
 - Opens a SEV 1 call.
- F JES3,CHK shows that the SETUP FCT is stuck waiting for I/O (due to the hardware issue).
- Solution:
 - Use *FAIL for the SETUP FCT which would then recover and resume processing.



Service Recommendation Use MODIFY JES3,CHK (Example 3)



- Customer problem:
 - Auxiliary storage shortage when starting an initiator.
 - JES3 issues IAT2008 message for maximum inits but may be missed or ignored.
 - Customer later wonders why job processing has slowed or stopped.
- Customer actions:
 - Opens a call.
- F JES3,CHK would show that the start of an initiator failed hence why job processing has been impacted.
- Solution:
 - Customer can check the log for IAT2008 messages they may have missed and take the appropriate action.

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Survey questions



- What release level?
 - z/OS V1.12 = **1**
 - z/OS V1.11 = **6**
 - z/OS V1.10 = **0**
 - z/OS V1.9 = **0**
 - z/OS V1.8 = **0**
 - Attendance = **6**
- Using EAV for SPOOL? **None**
- Using SDSF for JES3? **None**

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Survey questions



- NJE users? = **2**
 - Using BSC? = **0**
 - Using SNA? = **0**
 - Using TCP/IP? = **2**
 - Using CTC = **1**
- Anyone using RJP? = **0**
 - Using BSC? = **0**
 - Using SNA? = **0**
- Anyone using BDT? = **0**
- Anyone using BDT just for file-to-file transfer? = **3**



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z/OS V1.13 JES3

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z/OS V1.13 JES3

Agenda

- Updates to Extended Status SSI80.
- Updates to JES Properties SSI82.
- Completion of JES Device Information Services SSI83.
- Spool data set token added to GETDS FSI
- SMF 57 records added
- Eliminate use of SVC 111
- Change to GET for JES3 spool files
- Automatic FLUSH of a main
- JES3 Dynamic Spool Add
- Review of SHARE requirements

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SSI80 – Extended Status

What a SOUT represents



- Each SYSOUT Terse Element (SOUT) returned represents a collection of output data sets for a job.
 - For JES2 each SOUT represents a Job Output Element (\$JOE).
 - Each \$JOE identifies the data sets that would print between header pages.
 - For JES3 each SOUT represents an Output Service Element (OSE) variable section.
 - Each identifies 1 to 16 SYSOUT data sets with the same output characteristics.
- JES3 problem is that multiple SOUTs may be returned for all the data sets in a job with the same output characteristics which may be selected by a writer.
 - Harder to get a complete list of data sets within the same output characteristics.

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SSI80 – Extended Status WSI added to OSEs



- JES3 has added the Work Selection Identifier (WSI)
 - A value assigned by JES3 to all OSE variable sections, within a job, that have the same set of output characteristics.
 - Value is maintained across JES3 restarts.
 - WSI values for one job have no relationship to WSI values for another job.
- JES3 returns the WSI value in each SOUT.
 - No change to the number of SOUTs returned.
- Optionally, JES3 can consolidate the SOUTs for a job based upon the WSI value.
 - One SOUT is returned for the collection of OSE variable sections (i.e. data sets) with the same output characteristics.



SSI80 – Extended Status WSI fields added for JES3



- SSI80 updated.
 - STS3WSI = WSI returned in JES3 portion of a SOUT.
 - STAT1WSI = Input flag to consolidate and return one SOUT per WSI.
 - STS31WSI = Output flag indicating one SOUT returned for the WSI.
 - SYSOUT token for a consolidated SOUT updated to include the WSI.
 - When used for a SYSOUT verbose request or data set list request, all data sets from all OSE variable sections with the same WSI are returned.
- SAPI SSI79 also updated.
 - SSS2WSI = WSI returned for the data set.
 - No other WSI support at this time or planned.



SSI80 – Extended Status JES3 additions



- Job ID filter list.
 - STATSJIL flag added.
 - STATJBNP/STATJBNN is a list of job IDs to return (rather than job names).
 - Supported for all STATTYPE.
 - JES3 & JES2.
- Job limit added.
 - New option STAT1LMT with STATJQLM added to limit the number of jobs returned.
 - JES3 & JES2.



SSI80 – Extended Status JES3 additions



- Return number of SYSOUT elements found.
 - STATNRSE added (similar to STATNRJQ for jobs found).
 - JES3 & JES2.
- Support for user specified wild card characters.
 - STATZOMO and STAT1CHR added by JES2 via APAR in 2009.
 - User can specify other than '*' and '?' for wild cards.
- Improve performance when wild cards are used.
 - JES2 optimized certain wild card comparisons to resolve performance issues.
 - JES3 has adopted the same optimization.

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SSI80 – Extended Status JES3 additions



- Hold reason table pointers added.
 - Hold reason tables available in CSA.
 - STATOHL and STATOHIX provide addresses of tables mapped by IAZOHL (TEXTABLE & INDXTABLE).
 - Contain the text for hold reason codes returned in STSTHRN.
 - Same text as used for messages from the display job output *INQUIRY,U command.
 - JES3 & JES2
- /*FORMAT JECL used for a data set.
 - Added flag STS31FMT to SYSOUT Element JES3 Terse Section.



SSI82 – JES Properties

JES3 supports IAZJPITD Version 2



- SSI82 was introduced in V1.11 for both JES3 and JES2 to obtain information about:
 - NJE nodes
 - SPOOL volumes
 - Initiators
 - Members in the JESPLEX
 - Job classes
- JES3 has made updates to support version 2 of the IAZJPITD parameter list and output for Initiator Information.
 - Version 1 defined with V1.11 – used by JES3 & JES2.
 - Version 2 defined with V1.12 – supported only by JES2.
 - Version 2 supported by JES3 with V1.13.

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SSI82 – JES Properties JES3 GROUP & CLASS



- GROUP initialization statement
 - Defines the characteristics of a JES3 job class group.
 - Effectively defines the initiators available and where.
 - EXRESC=(*procname*,...) specifies where.
- CLASS initialization statement
 - Defines the characteristics of JES3 job classes.
 - GROUP= assigns the job class to a job class group.
 - SYSTEM= specifies where.



SSI82 – JES Properties

JES3 returning more data for Initiators



- JES System Information area added.
 - Array of system information returned.
 - Mapped by the IAZJPLXI macro.
 - Originally defined for SSI83 in V1.12.
 - Also returned for NJE nodes request.
- An initiator group is returned for each JES3 job class group.
- Each initiator group now includes a chain of initiators with:
 - Address space ID.
 - Active/Inactive indicator.
 - System of execution.
 - Job class, job name, job ID, userid, job step name.
 - And more.

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SSI82 – JES Properties

JES3 returning more data for Initiators



- Each initiator group has an array of systems that the group is defined for.
 - Defined by the GROUP EXRES= parameter.
 - Flag added to indicate whether the group is enabled/disabled on the system.
 - Added a pointer to the system entry in the new JES System Information array.
- Each initiator group has an array of job classes assigned to the group.
 - Defined by the CLASS GROUP= parameter.
 - Added sets of bit maps to indicate which systems the class is defined for and enabled on.



SSI83 – JES Device Information Services



- SSI83 was introduced in V1.12 for both JES3 and JES2 to obtain information about devices managed by JES such as printers, readers, etc.
 - JES3 returned information for local printer devices only.
 - JES2 returned information for both local and remote printer devices with some filtering capability.
- Completed in JES3 & JES2 to return information for:
 - Local and remote printers and punches
 - Local and remote readers
 - Remote workstation consoles
 - Remote workstations
 - NETSERVs
 - Lines
 - NJE connections

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SSI83 – JES Device Information Services



- Also added:
 - More filtering capability.
 - Option to return data in 64-bit addressable virtual storage (above the bar).
- JES System Information area added – like SSI82
 - Array of system information returned.
 - Mapped by the IAZJPLXI macro.
 - Also returned for SSI82 initiator and NJE node requests.



SSI83 – JES Device Information Services

Printer/Punch device data



- Information about printers and punches are returned together.
- JES3 now includes both local and remote printer/punch data:
 - JDPHPRPU = Printer/punch device data header
 - JDCXPREF = Common prefix section
 - JDPCPRPU = Printer/punch common section
 - JDPWRKSL = Printer/punch work selection section
 - JDPFPRT = Non-impact printer section (FSS printers)
 - JDP3PRPU = Printer JES3 section (JES3 specific attributes)
 - JDPRPRT = Remote printer section
- Data for jobs that are currently active on the device:
 - JDJBINFO = Current job information section
 - JDUTINFO = Current output information section
 - JDU3INFO = Current output information JES3 section

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SSI83 – JES Device Information Services

Reader device data



- Information about local and remote readers:
 - JDRHRDR = Reader device data header
 - JDCXPREF = Common prefix section
 - JDRCRDR = Reader common section
 - JDR3RDR = Reader JES3 section (JES3 specific attributes)
- Data for jobs that are currently active on the device:
 - JDJBINFO = Current job information section



SSI83 – JES Device Information Services

Remote workstation console data



- Information about local and remote readers:
 - JDCHCONS = Remote workstation console data header
 - JDCXPREF = Common prefix section
 - JDCCCONS = Console common section
 - JDC3CONS = Console JES3 section (JES3 specific attributes)



SSI83 – JES Device Information Services

Remote workstation data (RJP)



- Information about remote (RJP) workstations:
 - JDWHRMTW = Remote workstation data header
 - JDCXPREF = Common prefix section
 - JDWCRMTW = Remote workstation common section
 - JDWBSC = Remote workstation BSC section
 - JDWSNA = Remote workstation SNA section
- Data for related remote devices can be returned and chained to the header:
 - JDCHCONS = Console devices
 - JDPHPRPU = Printer/punch devices
 - JDRHRDR = Reader devices



SSI83 – JES Device Information Services

NETSERV device data



- Information about NETSERV (NETSRV):
 - JDNHNSRV = NETSERV device data header
 - JDCXPREF = Common prefix section
 - JDNCNSRV = NETSERV common section
 - JDN3NSRV = NETSERV JES3 section (JES3 specific attributes)
 - JDSKSOCK = TCP socket section (attributes of local socket)
 - JES3 reports only the listen IP address and port in the socket section.



SSI83 – JES Device Information Services

NJE transmitters/receivers data



- Data for NJE transmitters and receivers is returned as related data for Lines and Network Connection devices.
 - JDXHJXMT = Job transmitter data header –OR–
 - JDBHJRCV = Job receiver data header –OR–
 - JDYHSXMT = SYSOUT transmitter data header –OR–
 - JDSHSRCV = SYSOUT receiver data header
 - JDCXPREF = Common prefix section
 - JDXCJXMT = Job transmitter common section –OR–
 - JDBCJRCV = Job receiver common section –OR–
 - JDYCSXMT = SYSOUT transmitter common section –OR–
 - JDSCSRCV = SYSOUT receiver common section
- Data for jobs that are currently active on the device:
 - JDJBINFO = Current job information section



SSI83 – JES Device Information Services

BSC transmitter/receiver detail



- Only returned if the line is active.
- An NJELINE has only one of each type:
 - Names returned are JT1, JR1, OT1, and OR1.
- Progress count values reported in JDJBINFO are the number of NJE transmission buffers sent/received.
- Transmitters/receivers are chained to line devices only for “line mode” SSI83 requests (SSJDFLIN bit).
- Filtering is applied to transmitter/receiver devices.
 - SSJDP2SD can be set to ignore related device filtering.

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SSI83 – JES Device Information Services

TCP transmitter/receiver detail



- Number of each type returned based upon JT=, JR=, OT=, OR= values.
 - Names returned are two character prefix and stream number.
 - Example with JT=3, names returned are JT1, JT2, JT3.
- Progress count values reported in JDJBINFO are the number of data records transmitted/received.
 - Internal progress counts are updated when work begins or ends, and for every 256 records sent or received
- Filtering is applied to transmitter/receiver devices.
 - SSJDP2SD can be set to ignore related device filtering.



SSI83 – JES Device Information Services

Line device data



- Information about NJE and RJP lines:
 - JDLHLINE = Line device data header
 - JDCXPREF = Common prefix section
 - JDLCLINE = Line common section
 - JDL3LINE = Line JES3 section (JES3 specific attributes)
- Data for related NJE devices can be returned and chained to the header:
 - JDXHJXMT = NJE job transmitter
 - JDBHJRCV = NJE job receiver
 - JDYHSXMT = NJE SYSOUT transmitter
 - JDSHSRCV = NJE SYSOUT receiver



SSI83 – JES Device Information Services

NJE connection data



- Information about NJE connections:
 - JDJHNJEC = NJE connection data header
 - JDCXPREF = Common prefix section
 - JDJCNJEC = NJE connection common section
 - JDSKSOCK = TCP socket section (attributes of a peer socket)
- Data for related NJE devices can be returned and chained to the header:
 - JDXHJXMT = NJE job transmitter
 - JDBHJRCV = NJE job receiver
 - JDYHSXMT = NJE SYSOUT transmitter
 - JDSHSRCV = NJE SYSOUT receiver
- TCP network connection = socket
- BSC network connection = NJELINE
- No SNA connections

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SSI83 – JES Device Information Services

Usage notes



- SSI83 Calls made using IEFSSREQ with SSOBFUNC = 83.
- SSOBINDV points to the parameter lists mapped by IAZSSJD.
- SSJDFREQ is set to obtain the data or release the storage.
- Returned information is returned in storage buffers chained to the parameter list.
- The storage buffers are accumulated across multiple calls and must be explicitly released via a storage release request.
- The storage buffers can be created in 64-bit addressable virtual storage (above the bar).

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Spool data set token added to GETDS FSI



- Subsystem Interfaces (SSIs) such as SSI79 – SAPI and SSI80 – Extended Status return a data set token that can be used to identify a spool data set.
- A Function Subsystem Application (FSA) obtains a JES spool data set and its characteristics for output processing by invoking the Function Subsystem Interface (FSI) GETDS.
- Before V1.13, there is no easy way to correlate the spool data set returned from a GETDS request and spool data set information from the SSIs.



Spool data set token added to GETDS FSI



- GDSDSRE has been added to the GETDS parameter list (GDSPARM) mapped in macro IAZFSIP.
 - Address of the data set token.
 - Zero returned for JESNEWS data set.
- JES3 creates the data set token in the FSS storage and returns the token address for all GETDS requests (except when JESNEWS is returned).
- The data set token can be used to correlate with the data set tokens returned by SSI79 and SSI80 requests.



SMF 57 records added



- JES3 now creates SMF 57 records for outbound TCP/IP NJE activity.
 - Reported in APAR OA36125 which was closed UR3.
- The transmitter data area in IATYNSST has been expanded.
 - FYI though not a programming interface.
 - The size is now too large for a single base register.
 - Client code addressing NSSTINST will need to be changed.



Eliminate use of SVC 111



- SVC 111 (routine IGC111) was used in IATDMDM which processes user access method requests.
 - GET, PUT, CHECK, POINT, ENDREQ, GET-UPDATE, and PUT-UPDATE
- Requirement MR0428086352 requested that IGC111 be modified to handle ACBs and RPLs above the line.
- Changed IATDMDM to replace SVC 111 with a PC.
 - Eliminates the call to DEBCHK which is expensive.
 - The content of DEBIRBB has been redefined.



Eliminate use of SVC 111

DEBIRBB redefined



- Now contains a 24-bit DSB token rather than a DSB address.
- Obtaining access to the DSB with DEBIRBB (or DEBIRBAD) must be changed.
- JES3 macro IATXDSBL must be used to convert the DSB token to a DSB address.
- DSBs are now obtained in 31-bit storage.



GET for JES3 spool files

Short buffer error handling change



- Before V1.13, when an application provided insufficient buffer size in the RPL (RPLBUFL) JES3 put a fraction of the record that fit into the provided buffer and returned with RPLRLEN set to the required size and R15=RPLINBUF. On a subsequent GET, JES3 returned the **next record**.
 - Reported in APAR OA34916 which was closed UR1.
- As of V1.13, JES3 will return no data when R15 is set to RPLINBUF. On a subsequent GET, the application is expected to provide sufficient buffer area (equal to RPLRLEN provided on the previous GET). JES3 will then return the **same, full record**.
 - This behavior is consistent with the JES2 behavior.

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What to look for:

Check applications reading from spool and how they handle R15=RPLINBUF.

What to do:

Re-issue the GET with RPLBUFL equal to or greater than RPLRLEN returned with RPLINBUF from the previous GET.

RPLINBUF - X'2C'

On a GET request, the size of the area (RPLBUFL) passed in RPLAREA was too small to contain the record being returned. The actual record size is set in RPLRLEN. Obtain a larger area and re-issue the GET request.

Automatic FLUSH of a main



- SUG APAR OA26885
- JES3 is notified when a local main leaves the JESplex.
- A z/OS JES3 V1.13 global main will now automatically perform the FLUSH operation against the local main.
 - Will not vary the main offline like the *S,main.FLUSH command.
- Eliminates the need for operator intervention.
- Allows JES3 to immediately cleanup jobs and FSSes that were active on the affected local.
 - JES3 knows more quickly that the main is not available for processing jobs, accessing spool, etc. rather than at reconnect time.
- *S,main,FLUSH may no longer be needed by customers.
 - Will vary the system offline.

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The automatic flush is related to XCF message IXC102A. When XCF partitions the system out of the Sysplex, JESXCF notifies JES3. JES3 will then perform the flush **operation**.

The flush operation is similar to the *S main,FLUSH command but the difference is that the main's online status is unchanged. That allows it to reconnect as soon as the system is re-IPLed and ready to connect again.

If you have automation that issues the flush command based on the message, you should consider removing it. If you are used to having the system be varied offline, you can replace the flush command by a *V,main,OFFLINE command.

Documented in z/OS Migration V1.13 (GA22-7499-19)

Automatic FLUSH of a main The difference...



- Before global at V1.13, after responding DOWN to IXC102A:

```
INFORMATION FOR MAINPROC SY1
  FMID=HJS7770, STATUS=(ONLINE,CONNECTED,ATTACHED,GLOBAL)
INFORMATION FOR MAINPROC SY2
  FMID=HJS7770, STATUS=(ONLINE,CONNECTED,DOWN,LOCAL)
```

- *S SY2,FLUSH would be used if SY2 not returning.

```
INFORMATION FOR MAINPROC SY1
  FMID=HJS7770, STATUS=(ONLINE,CONNECTED,ATTACHED,GLOBAL)
INFORMATION FOR MAINPROC SY2
  FMID=HJS7770, STATUS=(OFFLINE,FLUSHED,DOWN,LOCAL)
```

- Automatic FLUSH does only the flush operation.

```
INFORMATION FOR MAINPROC SY1
  FMID=HJS7780, STATUS=(ONLINE,CONNECTED,ATTACHED,GLOBAL)
INFORMATION FOR MAINPROC SY2
  FMID=HJS7770, STATUS=(ONLINE,FLUSHED,DOWN,LOCAL)
```

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After SY2 is deactivated by responding DOWN to XCF message IXC102A, JES3 knows SY2 is down, but it is still connected and active.

Doing *S SY2,FLUSH will tell JES3 that SY2 is no longer connected. The flush operation will be done but the system will also be taken offline. The operator will need to do *V SY2,ONLINE in order for the system to reconnect.

With a global at V1.13 (HJS7780) the automatic flush will do the flush operation but not vary the system offline. When JES3 is started on SY2, it will reconnect without further operator intervention.

JES3 Dynamic Spool Add



- Adding a spool extent (or removing) is disruptive to the JESplex.
 - Requires an IPL and warm start of the global main followed by an IPL and restart of all the local mains.
- Requirements have existed for a long time for JES3 to support adding and removing a spool extent without an IPL.
- z/OS JES3 V1.13 provides the capability to add a spool extent without an IPL.
 - Removing a spool extent without an IPL is being considered for a future release.



JES3 Dynamic Spool Add Customer usage



- Recommend that customers create a new initialization stream member for the JES3 Spool Access Method (JSAM) related statements.
- This will allow customers to use the same JSAM member for dynamic spool add and for subsequent JES3 starts which read the INISH deck.
- Customers can add a spool extent using the JES3 *MODIFY CONFIG command.
- Alternatively, spool extents can be added using JES3 hot start with refresh.

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JES3 Dynamic Spool Add New JSAM initialization stream member



- Segment the JSAM related statements into a new initialization stream member:
 - Start with the DYNALLOC statements...
 - ...end with the ENDJSAM statement.
 - All DYNALLOC statements must be contained within a single INCLUDE member.
 - Cannot contain additional INCLUDE statements (no nesting).



JES3 Dynamic Spool Add JSAM member example



```
DYNALLOC,DDN=IATPLBI1,DSN=SYS1.PROCLIB  
    <other statements>  
TRACK,DDNAME=SPOOL1,SPART=PART1  
    <other statements>  
SPART,NAME=PART1,DEF=YES,INIT=YES  
    <other statements>  
BUFFER,SPLIM=(3,5),PAGES=500,GRPSZ=12,BUFSIZE=4084  
    <other statements>  
OPTIONS,WANTDUMP=YES,DUMP=MVS,JOBNO=(1,32767,32767),MT=ON  
ENDJSAM
```

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JES3 Dynamic Spool Add INCLUDE new JSAM member



- Setup a new INISH deck with an INCLUDE statement to include the new JSAM member.
 - The new INISH deck cannot be used for JES3 levels earlier than V1.13.
- Example:

```
* start of INISH deck  
  
INCLUDE, MEMBER=JSAM  
  
INCLUDE, MEMBER=STANDRDS  
  
INCLUDE, MEMBER=MAINS  
  
    <additional statements>  
  
ENDINISH
```

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JES3 Dynamic Spool Add

Customer scenario to add an extent



- Update the JSAM member with the DYNALLOC and TRACK/FORMAT statements required for a new spool extent.
- Issue *MODIFY CONFIG specifying the JSAM member:
`*F CONFIG,ADD=JSAM`
- Alternatively, restart the JES3 global using hot start with refresh.



JES3 Dynamic Spool Add JES3 processing



- JES3 parses the initialization statements in the JSAM member for parameters that qualify for dynamic modification:
 - **FORMAT/TRACK:** All parameters qualify.
 - **BADTRACK:** All parameters qualify.
 - **BUFFER:** MINBUF and TRUNC parameters qualify. All other parameters are syntax checked only.
 - **SPART:** All parameters except GRPSZ qualify.
 - **OPTIONS:** DUMP, WANTDUMP, INTERVAL, MT, DUMPLINS, INTRDR, and DUPJOB parameters qualify. SDI qualifies, but will be applied at the next hot start. All other parameters are syntax checked only.



JES3 Dynamic Spool Add JES3 processing (*continued*)



- New spool extents and partitions are identified to be added.
 - Extent or partition deletions treated as an error at this time.
- Changes are committed if no inish errors are found.
 - Errors during *F CONFIG end the command with no changes committed.
 - Errors during hot start with refresh require restarting JES3 with hot start to restore the original configuration.
 - Errors can then be fixed and the spool add attempted again.



JES3 Dynamic Spool Add JES3 processing (*continued*)



- Locals at z/OS JES3 V1.13 or later levels are automatically restarted.
 - No operator intervention or IPL is required.
- Locals at earlier levels require an IPL and restart.
 - Same requirement as adding a spool extent with a warm start.
 - WTOR messages are issued for the local mains that must be reset.
 - CANCEL will abort the configuration changes.
- Added spool extents and partitions are available and used after all restarted local mains connect or have been flushed.
 - Automatic FLUSH for local mains which leave the JESplex!



OA33416**New function - Fallback support, JES3 HJS7780**

- Toleration APAR for Fallback support in the event the JES3 global is moved to a pre-V1R13 level.
- The OSE (IATYOSE) Work Selection Identifier fields OSEWSI and OSEWSIMX have been added for the WSI support.
- WSI support depends upon these fields having an initial value of zero when the JES3 global is moved from HJS7750, HJS7760, or HJS7770.
- Sets the fields used for WSi support to zero for pre-V1R13 levels.
- User's affected:
 - All HJS7750, HJS7760, and HJS7770

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**PROBLEM SUMMARY:**

In release HJS7780, the OSE (IATYOSE) Work Selection Identifier fields OSEWSI and OSEWSIMX have been added. The support added in HJS7780 depends upon these fields having an initial value of zero when the JES3 global is moved from HJS7750, HJS7760, or HJS7770.

This APAR provides the code to set the OSEWSI and OSEWSIMX fields back to zero if the JES3 global is moved from HJS7780 to HJS7750, HJS7760, or HJS7770.

PROBLEM CONCLUSION:

Module IATOSGP has been changed to zero the OSE (IATYOSE) field OSEWSI.

Module IATOSOR has been changed to zero the OSE field OSEWSIMX.

SDSF JES3 equivalence with JES2




- More existing SDSF panels now enabled for JES3:
 - O (Output) and H (Held Output).
 - PU (Punch), RD (Reader), LI (Line), INIT (initiator), and NO (Node).
 - PR (Printer) updated to support JES3 RJP printers.
 - Additional columns added to most of these panels in both JES3 and JES2 environments.
- New panels added:
 - NS (Network Server) and NC (Network Connection) panels for both JES2 and JES3.
 - J0 (Job Zero) panel for JES3.

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SDSF primary menu for JES3



Technology · Connections · Results



Display
Filter
View
Print
Options
Search
Help

HQX7780 -----
SDSF PRIMARY OPTION MENU -----

COMMAND INPUT ==>
SCROLL ==> CSR

<p>DA Active users</p> <p>I Input queue</p> <p>O Output queue</p> <p>H Held output queue</p> <p>ST Status of jobs</p> <p>J0 Job zero</p> <p>LOG System log</p> <p>SR System requests</p> <p>JP Members in the JESplex</p> <p>JC Job classes</p> <p>SE Scheduling environments</p> <p>RES WLM resources</p> <p>ENC Enclaves</p> <p>PS Processes</p> <p>END Exit SDSF</p>	<p>INIT Initiators</p> <p>PR Printers</p> <p>PUN Punches</p> <p>RDR Readers</p> <p>LINE Lines</p> <p>NODE Nodes</p> <p>SP Spool volumes</p> <p>NS Network servers</p> <p>NC Network connections</p> <p>CK Health checker</p> <p>ULOG User session log</p>
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SHARE JES3 Requirements



- SSJES300352 – Enhance the JES SSI
 - Had been missing from the IBM FITS database until this past June.
 - Enhance the JES SSI to provide information about JES and FSS controlled printers.
- **Available with SSI83 in z/OS V1.13 JES3!**
- SSJES3032645 – JES3 Dynamic Spool enhancement
- **Dynamic Spool Add available in z/OS V1.13 JES3.**
 - Requirement not marked available at this time as delete was also requested.



SHARE JES3 Requirements

Share Top Ten Summary



	SHARE / FITSMO numbers	Title
1	SSJES3032645 (MR0203033521)	JES3 Dynamic Spool enhancement • Dynamic Spool Add available z/OS V1.13 JES3.
2	SSJES397305 (MR1020084630)	JES3 OUTDISP support of OUTPUT JCL statement
3	SOJES393353 (MR1020084625)	Dataset Integrity for JES3's Datasets
4	SSJES300352 (MR0614114610)	Enhance the JES SSI • Was the missing requirement! • Available z/OS V1.13 JES3
5	SSJES399351 (MR041400724)	Provide access to SPOOL utilization data
6	SSSHARE011776 (MR1020084632)	Perform DFHSM 'RECALL' for Batch Jobs Before They Are Active
7	SSJES3032649 (MR0210035755)	Provide a Way to Know Which JES3 Jobs Use a Spool Extent
8	SSSHARE01633 (MR1020084712)	JES3 Dump Job (DJ) support for dumping jobs by spool dataset
9	SBJES383304 (MR1020084616)	JES3 Job Scheduling With HSM.
10	SBJES379323 (MR1020084614)	JES3 Inquiry for Job Reserving a Device

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SHARE Requirements

New JES2/JES3 requirement discussion



- SSSHARE01703 – MVS should expand the range of SYSOUT classes beyond 36
- Several output management products require a dedicated SYSOUT class – sometimes for each copy of the product run.
- Quickly running out of SYSOUT classes!
- Why are other criteria such as DEST= or WRITER= not an acceptable alternative to using SYSOUT classes for directing output?

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BENEFIT :

Currently, MVS provides for 36 SYSOUT classes. This allows for flexibility in output management when the environment is relatively small. We have several output management products, one of which we run 9 copies of the product each requiring a different SYSOUT class. If we had those needed by other products such as RMDS, Batch and On-line printing, punch, TSO held output, etc., the number of available classes quickly runs out. Currently, our company has an aggressive program of utilizing non-printing alternatives whenever possible. By accomplishing this with products like RMDS, we can not only offer better service to our customers, but also enable them to save money since these on-line viewing alternatives are much cheaper than printing. We are finding out, though, that all of these products require one or more dedicated SYSOUT class(es) to function in our production environments. In the coming months, we will be implementing a product to replace microfiche which will require one or more dedicated classes not to mention other products that may require them. We are rapidly approaching the limit on two of our production complexes, and have reached it on a third complex. Reaching this limit will severely hamper our ability to provide the customer with viable alternatives to printing. We would like to continue to offer our customers the flexibility and cost-effectiveness of these non-printing alternatives and expansion of the SYSOUT class range will do that.

JES3 Education SHARE Sessions




- **SDSF for New Users – Hands-on Lab**
 - Tuesday, August 9, 2011: 1:30 PM – 2:30 PM
Asia 2 (Dolphin Resort)
- **z/OS Basics: JES 201 - Differences Between JES2 and JES3**
 - Wednesday, August 10, 2011: 11:00 AM – 12:00 PM
Oceanic 2 (Dolphin Resort)
- **z/OS 1.13 SDSF Update**
 - Thursday, August 11, 2011: 4:30 PM – 5:30 PM
Oceanic 1 (Dolphin Resort)
- **Using the New JES2/JES3 SSIs in z/OS 1.13**
 - Friday, August 12, 2011: 9:30 AM – 10:30 AM
Oceanic 2 (Dolphin Resort)
- **z/OS Basics: JES3 for New Users**
Boston 2010 session 6818 – David Jones
- **JES3 Basics: Introduction to JES3 Parts 1 & 2**
Denver 2009 sessions 2351 & 2352 – Greg Thompson

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JES3 Education



- IBM Training: ITSO zSeries JES3 Workshop
 - Search from IBM home page or the Education catalog for 'ITS80'
 - http://www-03.ibm.com/services/learning/ites.wss/us/en?pageType=course_description&courseCode=ITS80
- [IBM Education Assistant](#) JES3 modules
 - [z/OS V1.8 JES3 Networking TCP/IP NJE](#)
 - [z/OS V1.10 JES3 ease of use, application enablement, spool browse](#)

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http://www-03.ibm.com/services/learning/ites.wss/us/en?pageType=course_description&courseCode=ITS80

ITS80 description:

This course covers the design, installation, and management of a JES3 system, both externally and internally. All features and functions of JES3 will be discussed. Coverage includes the functions and features of all releases currently available, including the current release z/OS JES3 V1.9.

References

Redbooks



- ABCs of z/OS System Programming – Volume 13 ([SG24-7717](#))
 - JES3 internals and externals
 - JES3 initialization statements
 - JES3 operator commands
- Using SDSF in a JES3 Environment ([REDP-4531](#))
- All ABCs of z/OS System Programming
 - www.redbooks.ibm.com/cgi-bin/searchsite.cgi?query=abcs

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ABCs Volume 13 – SG24-7717 (<http://www.redbooks.ibm.com/abstracts/sg247717.html>)

Using SDSF in a JES3 Environment – REDP-4531 (<http://www.redbooks.ibm.com/abstracts/redp4531.html>)

All ABCs (www.redbooks.ibm.com/cgi-bin/searchsite.cgi?query=abcs)

References

Internet Discussion Group



- Subscribe to JES3-L@LISTSERV.UGA.EDU
- To subscribe mail to LISTSERV@LISTSERV.UGA.EDU with no subject and the body containing the command:
 - SUBSCRIBE JES3-L *your name*
- To post, mail to JES3-L@LISTSERV.UGA.EDU

Source: www.isoftware.com/scripts/wl.exe?SL1=JES3-L&H=LISTSERV.UGA.EDU

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<http://www.isoftware.com/scripts/wl.exe?SL1=JES3-L&H=LISTSERV.UGA.EDU>

Wrap up!



Questions?

Discussion?

Thank You!

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Appendix



- SYSPROG Tools
 - Autostart for JSS
 - Display a Spool Record
 - Dynamic LPA Facility
 - JES3 Auto-Restart



SYSPROG Tools

Autostart for JSS



- Autostart can be used to make JES3 functions available after JES3 initialization without requiring the *S,JSS command.
- Add PARM=NOREQ to the start command
 - S JES3,PARM=NOREQ
- Modify the JES3 Cataloged Start Procedure
 - //IEFPROC EXEC PGM=IATINTK,DPRTY=(15,15),PARM=NOREQ
 - Can nullify on the start command: S JES3,PARM=

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PARM=NOREQ specifies that JES3 global will start JES automatically if you want JES3 functions to be available after JES3 initialization without requiring the *S,JSS command. Place this in the JES3 start procedure. This avoids having operators forget to do the *S JSS command when restarting JES3. To nullify the parameter you can specify S JES3,PARM= on the start command.

SYSPROG Tools

Display a Spool Record



- Dump core DSP can be used to display the contents of a spool record that has a spool address of *mmmm.rrrrrrrr*
 - ***S DC,SPADDR=mmmm.rrrrrrrr**
 - The *mmmm* portion of the spool address is the spool extent number (module) where the record resides.
 - The *rrrrrrrr* portion of the spool address is the spool record number within the spool extent.
 - The spool address must be coded exactly as shown; leading zeros in either part of the spool address must be specified.
- When the contents of the spool record are displayed, only the non-zero portion at the end of the record is displayed.

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The dump core DSP is used to display and modify data in main storage, to intercept program flow during execution, and to format control blocks for debugging. This facility can be used only on the global processor.

SPADDR=mmmm.rrrrrrrr

Displays the contents of the spool record that has a spool address of *mmmm.rrrrrrrr*. The *mmmm* portion of the spool address is the spool extent number (module) where the record resides. The *rrrrrrrr* portion of the spool address is the spool record number within the spool extent. The spool address must be coded exactly as shown; leading zeros in either part of the spool address must be specified.

When the contents of the spool record are displayed, only the non-zero portion at the end of the record is displayed. For example, if a particular spool record contains only zeros after the first 100 bytes of the records, only the first 100 bytes of the record will be displayed.

In order to use SPADDR, you must specify KEY=SYSTEM when calling dump core:

***CALL DC,OUT=CON,KEY=SYSTEM**

See the *z/OS JES3 Commands* document for more details on using dump core.

SYSPROG Tools

Display a Spool Record Examples



***CALL,DC,OUT=CON,KEY=SYSTEM**

IAT6306 JOB09992 IS DC, CALLED BY CN 01

IAT7921 ISSUE START/CANCEL/RESTART DC REQUEST

***S,DC,SPADDR=0003.00000384**

SPOOL RECORD: 0003.00000384

```
00000000-00030000 03840000 C3E2C240 00000000 *.....D..CSB ....*
00000010-00000000 00000000 5CA2A3A3 0012D6E4 *.....*stt..OU*
00000020-E37EC3D6 D540D2C5 E87EE2E8 E2E3C5D4 *T=CON KEY=SYSTEM*
```

***S,DC,SPADDR=0002.000012A8**

SPOOL RECORD: 0002.000012A8

```
00000000-00020000 12A80001 D6E2C540 00000000 *.....y..OSE ....*
00000010-00000000 00000000 5CA2A3A3 00600060 *.....*stt.-.*
00000020-00000000 00000000 00000000 00000000 *.....*
00000030-00000000 00000000 00000000 00000000 *.....*
00000040-00000000 00000000 00000000 00000000 *.....*
00000050-00000000 00000000 00000000 00000000 *.....*
00000060-FFFFFFFF *.....*
```

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SYSPROG Tools

Dynamic LPA Facility



- APARs with restart type DynLPA can be activated without an IPL.
- New versions of JES3 LPA modules can be dynamically added to LPA by issuing the following commands:
 - **F LLA,REFRESH**
 - **SETPROG LPA,ADD,MODNAME=modname,DSN=LNKLST**
 - Message CSV551I confirms the LPA add.
- Perform a hot start or local start of JES3 to activate the changed module.
 - No IPL required!
 - Message IAT3085 confirms the changed module.

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APARs eligible for refresh with the dynamic LPA facility will be marked in the APAR closure text.

- Type/IPL (Local,DynLPA)
- Type/IPL (Global,DynLPA)
- Type/IPL (Rolling,DynLPA)

See Info APAR II07968 – JES3 Maintenance Philosophy

The SETPROG command can be issued while JES3 is active. The change does not take effect until JES3 is restarted. This allows you to back out the change if necessary.

If the fix must be installed on more than one system, a SETPROG command must be issued for each system. Multiple modules can be added at one time using MODNAME=(*modname*,...,*modname*)

When the required modules have been added to LPA, perform a hot start or local start of JES3 (without an IPL of the system) to activate the change. During initialization, JES3 picks up the new versions of the modules and issues message IAT3085. On the JES3 global processor, the message appears in JES3OUT only. On the JES3 local processors, the message appears on the console.

Monitor CSA usage. Dynamic addition of modules to the LPA reduce the CSA space available as older versions of the module are not removed.

SYSPROG Tools Dynamic LPA Facility Example



- Build a new copy of all the library directory indexes:
`MODIFY LLA,REFRESH`
- Use SETPROG to add updated module IATSICA to the LPA:
`SETPROG LPA,ADD,MODNAME=IATSICA,DSN=LNKLST`
`CSV551I 10.16.14 LPA ADD 868`
`SUCCESSFUL: 1 UNSUCCESSFUL: 0 NOT PROCESSED: 0`

MODULE	RESULT
IATSICA	SUCCESSFUL
- CSV551I confirms the add was successful.
- Perform a hot or local start to activate the changed module.
- IAT3085 identifies the changed modules:
`IAT3085 LPA MODULES CHANGED: IATSICA ...`

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The APAR ++hold data will contain instructions. An example is:

New versions of JES3 LPA modules can be dynamically added to LPA by issuing the following commands:

```
F LLA,REFRESH          followed by:
SETPROG LPA,ADD,MODNAME=IATSICA,DSN=LNKLST
```

SYSPROG Tools

JES3 Auto-Restart



- JES3 will auto-restart if a critical DSP or FCT terminates.
 - CRITICAL=YES is added to the DSP/FCT definition.
 - DSPs/FCTs defined as critical include:
 - JSAM
 - WTDDRVR (I/O bound Inquiry/Modify)
 - MSGC (JDS access, Started Task init., Main Connect, etc.)
 - JSS
 - MAIN
 - ENSTDRV (Extended Status)
- JES3 will auto-restart for repetitive and consecutive failures.
- IAT3098 identifies the reason for the auto-restart.

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Auto-restart logic previously existed for a configuration change. Auto-restart means detaching the IATNUC task and reattaching it. It's like doing a DSI without changing the global.

The parameter CRITICAL=YES is added to the DSP or FCT definition in the DSP directory.

Refer to the z/OS JES3 Customization document:

- IATYDSD (Generate a DSP Dictionary Entry)
- IATYFCD (Generate Function Control Table)

IAT3098 text identifies if JES3 is restarting due to a CONFIGURATION CHANGE, a CRITICAL FCT ABEND, or REPETITIVE FAILURES.



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End of slides.

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