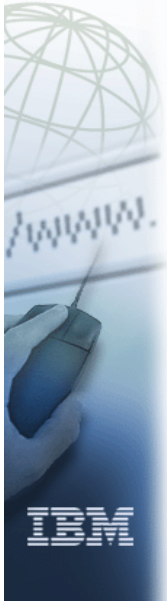


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JES2 V1R12



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ADSTAR	DFSMSshsm	IPDS	S/390 Parallel Enterprise Server
AFP	DFSMSrmm	Language Environment	SecureWay
APL2	DFSORT	Multiprise	StorWatch
APPN	Enterprise System 3090	MQSeries	Sysplex Timer
BookManger	Enterprise System 4381	MVS/ESA	System/390
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JES2 Exploitation of EAV Volumes



- ❑ JES2 exploitation of the EAV support added in z/OS V1R12 allows you to define EAS eligible data sets for use as spool extents and checkpoint data sets
 - The data sets can be placed anywhere on a EAV volume but they cannot be larger than the 1,048,575 track JES2 architectural limit in size
- ❑ Define basic and large format sequential data sets anywhere on an EAV

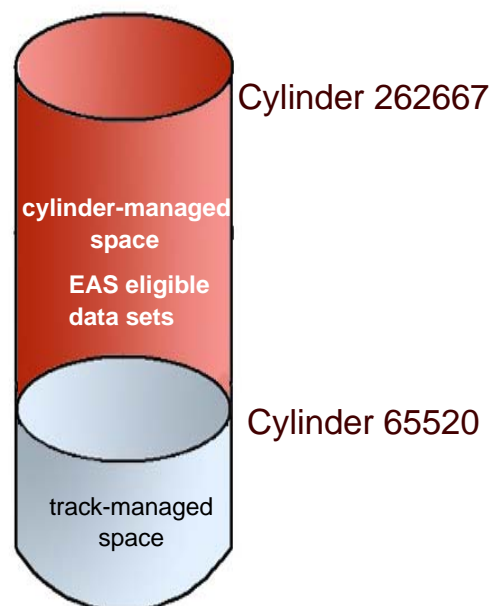


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JES2 EAV Enhancements



- ❑ JES2 supports spool and checkpoint data sets to be anywhere on an Extended Address Volume (EAV)
 - This allows exploitation of the increased z/OS addressable disk storage provided by EAVs



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4 byte MTTRs to 6 byte MQTRs



- ❑ Variable length PDDDB support
 - Preparation for future changes
 - z/OS V1R12, all PDDDBs same length
 - But assembly time length PDBLENG deleted
 - Use existing run time length PDBSIZE
- ❑ Spool CBs changed from MTTR to MQTR
 - Based on CYL_MANAGED=ALLOWED
 - Always MQTRs in memory
 - Translate on read/write to SPOOL
 - CHK, JCT, NHSB, and OCT affected
 - Old MTTR fields renamed with _Z11 suffix



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Defining Spool Volumes on an EAV



- ❑ **\$TSPPOOLDEF,CYL_MANAGED=ALLOWED I FAIL**
 - This new parameter enables spool and checkpoint data set allocation anywhere on a EAV volume
 - This capability pertains to both disposition new (\$SSPOOL(),SPACE=) and disposition old
 - The default is **FAIL**
- ❑ Pre-conditions for CYL_MANAGED=ALLOWED are:
 - All MAS members must be JES2 z/OS V1R12 or later
 - LARGEDS must not be set to FAIL



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Considerations for EAV Use



- ❑ Pre-conditions for `CYL_MANAGED=FAIL` are:
 - Current spool and checkpoint data sets must not reside in cylinder managed space
 - No pending start spool commands
- ❑ Once `CYL_MANAGED=ALLOWED` -- then no members prior to JES2
 - V1R12 members will be allowed to join the MAS
- ❑ Setting `CYL_MANAGED` back to `FAIL` will not affect this restriction
- ❑ `CYL_MANAGED=ALLOWED` enables later exploitation of MQTRs



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Allocating a Spool Data Set (EAV)



- ❑ The JCL example shows how to allocate the maximum size spool data set (1,048,575 tracks, or 69,905 cylinders)
 - Adding such large spool volumes requires sufficient amount of track groups defined to JES2
 - The number of track group can be updated using the `$T SPOOLDEF,TGSPACE=(MAX=nnnn)` command
- ❑ Use the `EATTR=OPT` JCL parameter to indicate that this data set is eligible to reside in cylinder managed space

```
//ALLOCSPL JOB ACCNT#,MSGLLEVEL=(1,1),NOTIFY=&SYSUID
//ALLOCATE EXEC PGM=IEFBR14
//SPOOLEAS DD DISP=(NEW,KEEP),DSN=SYS1.HASPACE,
// DCB=(DSORG=PSU),SPACE=(TRK,1048575,,CONTIG),
// DSNTYPE=LARGE,EATTR=OPT,UNIT=3390,VOL=SER=BH5SP2
//
```



Current Spool and Checkpoint Settings



```
$D ACTIVATE
$HASP895 $DACTIVATE
$HASP895 JES2 CHECKPOINT MODE IS CURRENTLY Z11
$HASP895 CURRENT CHECKPOINT SIZE IS 409 4K RECORDS.
$HASP895 CURRENT NUMBER OF BERTS IS 2100.
$HASP895 PERCENT BERTS UTILIZED IS 15 PERCENT.
$D SPL,UNITDATA
$HASP893 VOLUME(BH5SP1)
$HASP893 VOLUME(BH5SP1)  UNITDATA=(EXTENT=00,TRKRANGE=(0001,
$HASP893                      C2D3),BASETRAK=000000D1,RECMAX=12,
$HASP893                      TRKPERCYL=15,ATTRIBUTE=RELATIVE)
$HASP646 31.9097 PERCENT SPOOL UTILIZATION
$DSPoolDEF
$HASP844 SPOOLDEF
$HASP844 SPOOLDEF  BUFSIZE=3856,DSNAME=SYS1.HASPACE,
$HASP844          FENCE=(ACTIVE=NO,VOLUMES=1),GCRATE=NORMAL,
$HASP844          LASTSVAL=(2005.182,17:42:57),LARGEDS=ALLOWED,
$HASP844          SPOOLNUM=32,CYL_MANAGED=FAIL,TGFSIZE=60,
$HASP844          TGSPACE=(MAX=97728,DEFINED=9975,ACTIVE=9975,
$HASP844          PERCENT=31.9097,FREE=6792,WARN=80),TRKCELL=3,
$HASP844          VOLUME=BH5SP
```



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Spool Allocated in EAV Space



- Use the \$T SPOOLDEF command to enable the environment for cylinder managed spool data sets
 - All members in the MAS are at z/OS V1R12

```
$T SPOOLDEF,CYL_MANAGED=ALLOWED
$HASP844 SPOOLDEF 606
$HASP844 SPOOLDEF  BUFSIZE=3856,DSNAME=SYS1.HASPACE,
$HASP844          FENCE=(ACTIVE=NO,VOLUMES=1),GCRATE=NORMAL,
$HASP844          LASTSVAL=(2005.182,17:42:57),LARGEDS=ALLOWED,
$HASP844          SPOOLNUM=32,CYL_MANAGED=ALLOWED,TGFSIZE=60,
$HASP844          TGSPACE=(MAX=97728,DEFINED=9975,ACTIVE=9975,
$HASP844          PERCENT=32.4210,FREE=6741,WARN=80),TRKCELL=3,
$HASP844          VOLUME=BH5SP
```



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Dynamically Add Spool Volume



- ❑ Dynamically add the spool data set to the spool configuration, using the `$$ SPOOL` command

```
$$ SPOOL(BH5SP2)
$HASP893 VOLUME(BH5SP2) STATUS=INACTIVE,COMMAND=(START)
$HASP646 34.3258 PERCENT SPOOL UTILIZATION
IEF196I IEF237I DD65 ALLOCATED TO $BH5SP2
$HASP423 BH5SP2 IS BEING FORMATTED
IEF196I $HASP423 BH5SP2 IS BEING FORMATTED
...
$HASP630 VOLUME BH5SP2 ACTIVE 0 PERCENT UTILIZATION
$DSPPOOL,UNITDATA
$HASP893 VOLUME(BH5SP1) 300
$HASP893 VOLUME(BH5SP1) UNITDATA=(EXTENT=00,TRKRANGE=(0001,
$HASP893 C2D3),BASETRAK=000000D1,RECMAX=12,
$HASP893 TRKPERCYL=15,ATTRIBUTE=RELATIVE)
$HASP893 VOLUME(BH5SP2) 301
$HASP893 VOLUME(BH5SP2) UNITDATA=(EXTENT=01,TRKRANGE=(00000001,
$HASP893 000FFFFF),BASETRAK=00000176,RECMAX=12,
$HASP893 TRKPERCYL=15,ATTRIBUTE=CYL_MANAGED)
$HASP646 3.5118 PERCENT SPOOL UTILIZATION
```



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Improved HASP443 Message



- ❑ JES2 z/OS V1R11 added `SPACE=` parameter on the `$$SPOOL()` command
 - Enabled `DISP(new)` allocation of spool data sets
 - This also meant `$$SPOOL` could fail under a new set of circumstances, data set is too large for the volume
 - `HASP443` dynamic allocation failure (`rc=4`) is returned with no additional information (inadequate to diagnose reason for failure)
- ❑ Extract formatted messages from `DYNALLOC` using `IEFDB476` utility and incorporate the information into `HASP443` message
 - APARed back to release V1R11 - OA31171



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Captured UCBs for Spool Volumes



- ❑ In previous versions of JES2, recommendations were made to users not move the UCB for spool volumes above the line
 - However, if the user does move the UCB above the line (many users move all their UCBs above the line), they are exposed to an undiagnosed field problem with the captured UCB
 - Problem surfaces as an error trying to access a spool volume on one system because the UCB that the JES2 DEB points to has been unexpectedly uncaptured



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Captured UCBs for Spool Volumes



- ❑ With z/OS V1R12 DFSMS, there is a change to the DASD extension to the DEB that supports a 31 bit UCB address
- ❑ JES2 has deleted the code that captures the UCB for spool and instead build the DASD DEB extension that supports 31 bit DEB addresses
- ❑ With z/OS V1R12, JES2 no longer uses captured UCBs
 - JES2 makes use of the XTIO allocation enhancements, also introduced in z/OS V1R12 - Instead of capturing a 31-bit UCB address in 24-bit storage, in z/OS V1R12, JES2 builds a DASD DEB extension that supports 31-bit DEB addresses



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Multiple TSO Logon Update



- ❑ TSO has improved support for logging on same user ID on multiple members of the MAS
 - Limited to one logon per image
- ❑ JES2 has improved notification processing
 - Will prefer sending messages to member where job was submitted
 - If notify userid not logged on, old method is used
 - Works for job level notify messages
 - No automatic support for OUTPUT NOTIFY=
 - Notify SSI does support target member name/number

Multiple TSO/E Logons



- ❑ With z/OS V1R12, JES2 officially supports multiple TSO/E logons of the same user ID in the MAS
 - Even though it was possible to logon to TSO/E multiple times in the same MAS before this release, JES2 did not officially support it
 - Message is sent to the first instance of a user JESXCF finds
 - This allows TSO/E to support multiple logons for improved efficiency
- ❑ Users can now logon to TSO/E once per system in a sysplex if it is configured to allow this

Multiple TSO/E Logons



- ❑ In z/OS V1R4, JES2 stopped preventing duplicate TSO/E logons with the same user ID
 - As a result, duplicate instances of a given user ID can log on at the same time to different systems, even in the same JES2 MAS, depending on the scope of the SYSIKJUA enqueue
 - If the enqueue has a scope of SYSTEM, multiple TSO/E logons are allowed



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Multiple TSO/E Logons



- ❑ If you want to prevent duplicate logons within a JES2 MAS, take the following steps:
 - Merge all existing versions of SYS1.UADS into a single version of the data set
 - Modify the default RNLs by deleting the SYSDSN entry for SYS1.UADS from the SYSTEMS exclusion RNL
 - Then add SYSIKJUA as a generic qname in the SYSTEM inclusion RNL



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IBM zEnterprise 196 (z196) Platform



zEnterprise 196



zEnterprise BladeCenter Extension



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SSI Updates in z/OS V1R12



- ❑ New printer device information SSI 83 added
 - Returns information for local and RJE printers
 - Similar to \$D PRT/\$D Rx.PRx commands
 - MAS view of the data
 - From z/OS V1R11 members and up
 - APARs on z/OS V1R11 - OA31703 and OA32712
 - SSI 83, SSOB extension is IAZSSJD
- ❑ Initiator information (SSI 82) MAS wide
 - Information from z/OS V1R12 members only
- ❑ Enhanced SYSOUT ENF notifications
 - Can requests ENFs as a result of a SAPI request



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Mean Time To Restart (MTTR) Updates



- ❑ JES2 has added support to collect the new timed event records via the IEATEDS service
 - These records can be used to understand and eventually reduce restart delays
 - JES2 registers with the service using subsystem name you call your subsystem
 - If you run a secondary JES2, then that subsystem name will be the component for its records
- ❑ JES2 tracks initialization phase times
 - Similar to \$D PERFDATA(INITSTAT) delays associated with HASP709 messages
 - Key exit delays



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Migration Actions before Install V1R12



- ❑ Update the code to remove references to PDBLENG from installation exits
 - Determine whether your installation has exits that reference PDBLENG and update to use the field PDBSIZE
- ❑ Ensure calls to JES property information services SSI can support information returned for multiple members



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Migration and Coexistence



- ❑ From JES2 z/OS V1R7, V1R8, and V1R9
 - Requires an all member warm start to z/OS V1R12
 - No coexistence support
- ❑ Fall back implications
 - Some new data structures created by z/OS V1R11 JES2 may result in problems in z/OS V1R8 and prior
- ❑ From JES2 z/OS V1R10, or z/OS V1R11
 - APAR OA28532 to coexist in MAS with z/OS V1R12
- ❑ Also recommended for fall back
 - APARs OA31703 and OA32712 are required to correct functional problems with the new/updated z/OS V1R12 SSI interfaces



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Serviceability Updates



- ❑ Improved formatting of the existing SAPI JES2 \$TRACEs
- ❑ The standard JES2 \$SAVE/\$RETURN trace IDs 11, 12, 18 and 19 have been updated to include the SSOB and extension when tracing entry and exit to any SSI routine. The data is currently dumped in raw hex
- ❑ The IPCS formatter \$MODLOC (locates what JES2 module a passed address is in) has been updated to format the last APAR/PTF applied to the module
- ❑ The \$HASP473 message (\$CPOOL Build failure) has been updated to include the JOBNAME that was trying to build the \$CPOOL



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Migration and Coexistence Considerations



- ❑ Recommended migration path to z/OS V1R12 is from z/OS V1R10 or z/OS V1R11
 - APAR OA28532 must be installed for MAS coexistence with z/OS V1R12 JES2 and highly recommended on down level releases for support
- ❑ If you are migrating from z/OS V1R8 or V1R9, it is possible to do an all-member warm start to z/OS V1R12
 - However there is no coexistence support and fallback will result in problems with SYSLOG data sets printing on JES mode or RJE printers (due to changes in made in z/OS V1R11)