



# VSE/POWER & AR/JCL Update

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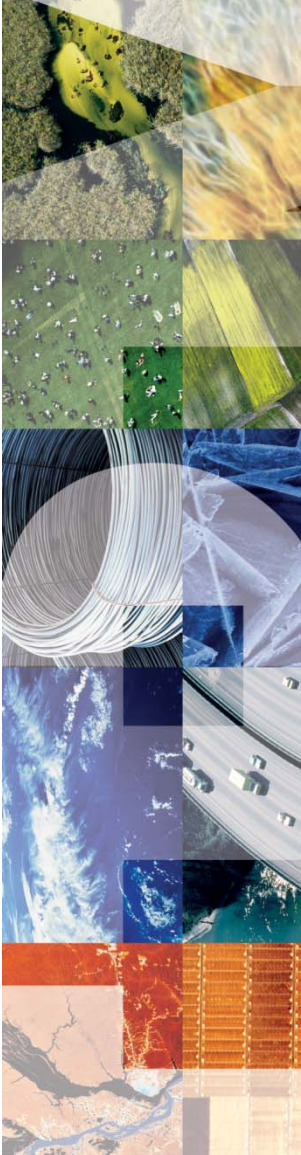
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## Agenda

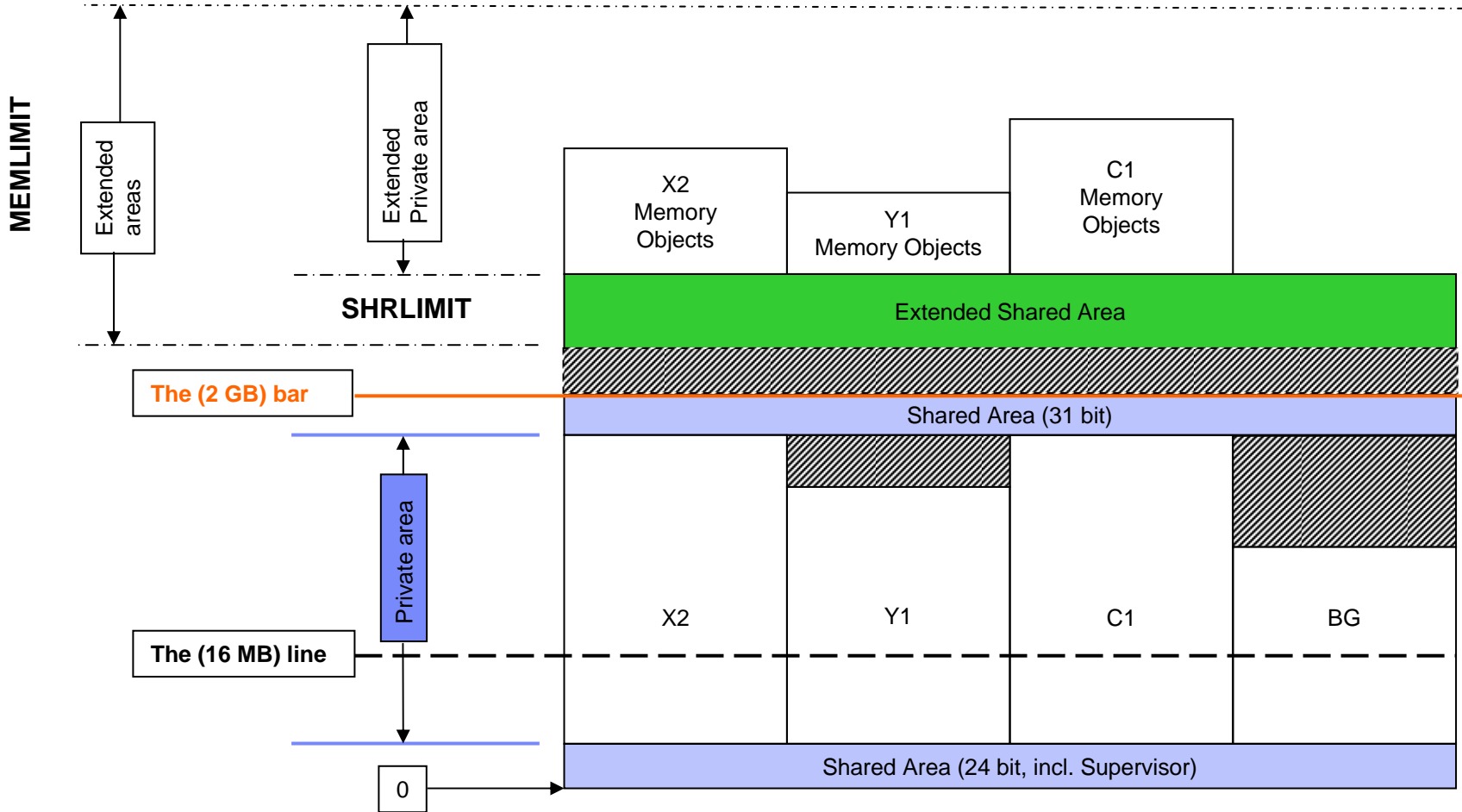


- JCL / LIBR
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  - Librarian
  
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  - OGM
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- POWER 5.1
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  - POWER 5.1.1 Announcements

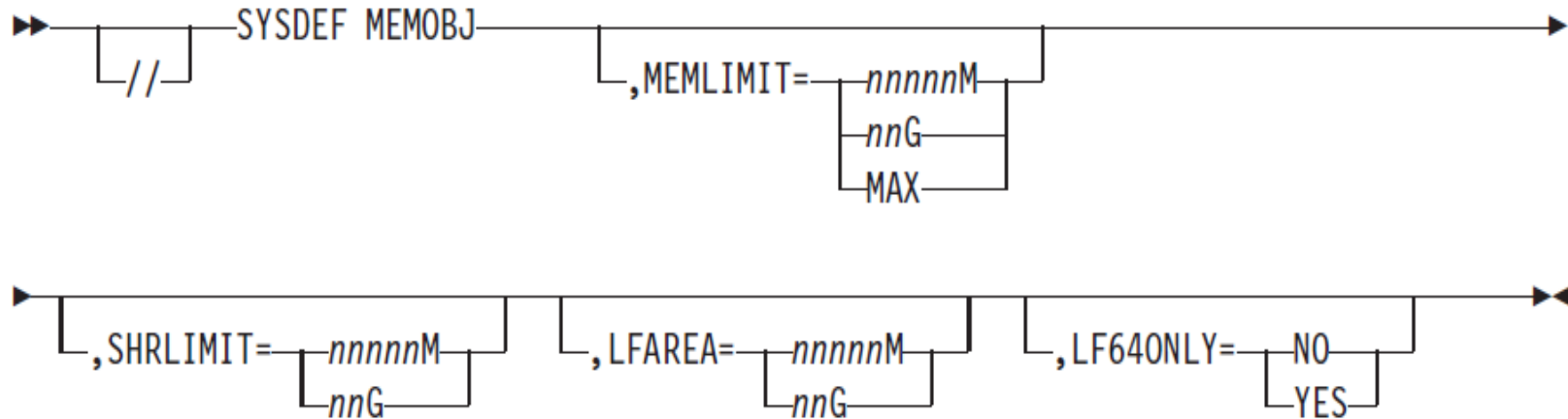
## Contents

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# 64 bit virtual - Address Space Layout



## AR/JCL SYSDEF MEMOBJ



- **SYSDEF MEMOBJ** sets system wide storage limits for MEMOBJs (Memory Objects)
  - **MEMLIMIT**      limits size of virtual storage (private and shared) for MEMOBJs
  - **SHRLIMIT**      sub limits size of shared virtual storage for shared MEMOBJs only
  - **LFAREA**        limits size of real storage available for fixing of private MEMOBJs
  - **LF64ONLY**      limits fixing of MEMOBJs to real storage above 2GB only (YES) or not (NO)

## AR/JCL QUERY MEMOBJ

- AR , JCC, JCS Format



```
query memobj
AR 0015          LIMITS   USED      HWM
AR 0015 MEMLIMIT: 15360M  7168M   8096M
AR 0015 SHRLIMIT:  4098M  2048M   4096M
AR 0015 LFAREA:    0M      0K        0K
AR 0015 LF64ONLY: NO
AR 0015 1I40I  READY
```

- QUERY MEMOBJ** shows all defined limits and actual consumption together with high water marks.
- LIMITS lists** the effective limit settings.
- USED** lists the consumption of memory objects.
- HWM** lists the high water marks accumulated for all current active programs (JOBSTEPS).
- MEMLIMIT/USED** displays the total amount of virtual storage that is allocated to memory objects within the system.
- SHRLIMIT** displays the total amount of virtual storage that is allocated to shared memory objects within the system. SHRLIMIT is included in MEMLIMIT.
- (NEW)** is displayed if a new, but not yet effective setting, exists for the line above. The new settings for MEMLIMIT, SHRLIMIT and LFAREA are effective only if no memory objects are allocated in the system.



## AR/JCL QUERY MEMOBJ,ALL

```

query memobj,all
AR 0015      AREA MEMOBJ      HWM      LFAREA
AR 0015      SYSTEM  2048M  4096M
AR 0015      S1    4096M  4096M      0K
AR 0015      R1    1024M  1024M      0K
AR 0015      TOTAL  7168M  8096M      0K
AR 0015 MEMLIMIT:15360M LFAREA:      0M
SHRLIMIT: 4098M
LF64ONLY:NO

```

- **AREA** lists the partitions having memory objects in use.
- **MEMOBJ** shows actual virtual storage consumption of the listed partitions.
- **HWM** lists the high watermarks.
- **LFAREA** column displays the total amount of real storage in use to fix private memory objects.
- **SYSTEM** displays the consumption of shared memory objects allocated in the **Extended Shared Area**.
- **S1** and **R1** are the SYSLOG IDs for partitions where private memory objects are allocated in the **Private Extended Area**.
- **Note:** Partition-specific counters are reset at “end-of-job step”, even HWM. The TOTAL HWM is only reset, if new limits have been defined.



## AR/JCL SADUMP - OPTION and STDOPT commands

- AR,JCC, JCS Format



- The **STDOPT** statement sets or resets the permanent job control options from system initialization (system defaults), which are identical to the default values of the STDOPT command.
- The **STDOPT** command can be given in any partition, but the values specified apply to all partitions. To be active for a dynamic partition, however, the options must be set before the dynamic partition is started.
- If an option is reset, its new value becomes effective in a static partition after the next /& or JOB statement is issued in that partition. (Exceptions are LINES and DATE options).
- An option specified with **STDOPT** can be temporarily overridden in one partition by the **OPTION** statement.

## AR/JCL SADUMP OPTION and STDOPT commands

- JCS Format



- A system default (STDOPT) can be temporarily overridden in one partition by the OPTION statement.
- The options specified in the OPTION statement remain effective until a contrary option is encountered or until a JOB or a /& control statement is read. In the latter case, the options are reset to the system default values (STDOPT).

## AR/JCL SADUMP - OPTION and STDOPT commands

- **SADUMP=n|([n],m)|([n],[m],o)**

- Specifies the priorities in which the partition(n), any owned data spaces(m) or **private memory objects(o)** should be included in a stand-alone dump.

These priorities, given by a STDOPT statement, apply system wide unless they are overridden temporarily by a corresponding OPTION statement for a partition.

- **'n'** controls the priority of the partitions.
- **'m'** controls the priority of owned data spaces.
- **'o'** controls the priority of **private memory objects**.

- The values for n, m and o can be 0 to 9, with **9** being the **highest** priority and **0** indicating that no dump is needed. The IBM supplied default for n, m and o is 0.
  - When a stand-alone dump is taken, the partition, data space or memory object with the highest priority (starting from 9) is dumped first. Then the one with the next lower priority, until all OPTION partitions, data spaces and memory objects with a priority other than 0 have been dumped (provided enough space is available on the dump device).
- **Note: Shared memory objects** are always included in one single dump file with lowest priority, no matter what values are specified for SADUMP.

## AR/JCL SADUMP - OPTION and STDOPT commands

- Example:
- F1 ... SADUMP=(5,3,2)
- F2 ... SADUMP=4
- F3 ... SADUMP=(,9)
- Dumps:
  1. F3-owned data space,
  2. F1 partition,
  3. F2 partition,
  4. F1 owned data space,
  5. F1 memory object.

## AR/JCL SADUMP - OPTION and STDOPT commands

- AR,JCC, JCS Format

```

▶▶ [//] QUERY STDOPT
  
```

– **STDOPT** displays the current setting of all standard options on the console.

- AR Format

```

▶▶ QUERY OPTION, [BG
                  [Fn
                  [dyn_partition]
  
```

- JCC, JCS Format

```

▶▶ [//] QUERY OPTION
  
```

– **OPTION** displays the current setting of all temporary options on the console.



## AR/JCL SADUMP - OPTION and STDOPT commands

- Examples with SADUMP=<nmo> values.

- **QUERY STDOPTS**

```

QUERY STDOPT
AR 0015      ACL=YES      DECK=NO      XREF=NO      HCTRAN=YES   JCANCEL=NO
AR 0015      LOG=YES      DUMP=PART    ALIGN=YES    SADUMP=000   SCANCEL=NO
AR 0015      RLD=NO      ERRS=YES     LINES= 56   ACANCEL=NO   SYSDUMP=YES
AR 0015      SYM=NO      LIST=YES     LISTX=NO     CHARSET=60C  SYSDUMPC=NO
AR 0015      DATE=MDY    TERM=NO     SXREF=YES    DSPDUMP=NO
AR 0015 1I40I  READY
  
```

- **QUERY OPTION,BG**

```

QUERY OPTION,BG
AR 0015 NOACANCEL  ACL      ALIGN      NODECK      NODSPDUMP  PARTDUMP
AR 0015 ERRS      NOIGNLOCK NOJCANCEL  NOLINK      LIST        NOLISTX
AR 0015 LOG        NOLOGSRC  NORLD      SADUMP=000  NOSCANCEL  NOSLISKIP
AR 0015 SUBLIB=AE NOSYM     SYSDUMP    NOSYSDUMPC NOTERM      SXREF
AR 0015 60C
AR 0015 1I40I  READY
  
```

## AR/JCL – MAP command changes

- AR,JCC Format



**Note:** MAP alone is same as MAP VIRTUAL

- **MAP** lists on SYSLOG a map of all storage areas in the system with sizes and starting addresses.
- Enhancements have been made for MAP VIRTUAL and MAP REAL.



## AR/JCL – MAP command changes

- Example for MAP VIRTUAL :

```

map
AR 0015 SPACE AREA          V-SIZE   GETVIS   V-ADDR   UNUSED  NAME
AR 0015  S   SUP           772K      0         0         $$$SUPI
AR 0015  S   SVA-24        1372K     2528K     C1000    448K
AR 0015  0   BG V          1280K     31488K    500000   1983488K
AR 0015  1   F1 V          2048K     30720K    500000   0K      POWSTART
AR 0015  2   F2 V          2048K     260096K   500000   0K      CICSICCF
AR 0015  3   F3 V           600K     14760K    500000   0K      VTAMSTRT
AR 0015  4   F4 V          2048K     30720K    500000   0K      TESTDSP1
AR 0015  5   F5 V          1024K     31744K    500000   0K
AR 0015  6   F6 V          1024K     31744K    500000   0K
AR 0015  7   F7 V          1024K     31744K    500000   0K      TCPIP00
AR 0015  8   F8 V          2048K     522240K   500000   0K
AR 0015  9   F9 V          1024K     31744K    500000   0K
AR 0015  A   FA V          1024K     31744K    500000   0K
AR 0015  B   FB V           512K      1536K     500000   0K      SECSERV
AR 0015  S   SVA-31        8596K     67180K    7B600000
AR 0015          DYN-PA     1184768K
AR 0015          DSPACE    2105056K
AR 0015          SHR-64     2097152K
AR 0015          PRV-64     5242880K
AR 0015          SYSTEM     61440K
AR 0015          AVAIL      3890336K
AR 0015          TOTAL     15728640K  <---- '
AR 0015 1I40I  READY

```

- **SHR-64**: The total amount of virtual storage used by shared memory objects.
- **PRV-64**: The respective amount of virtual storage used by private memory objects.
- **TOTAL**: This value is determined by IPL (Supervisor) parameter VSIZE.



## AR/JCL – MAP <syslogid> command changes

- Example for MAP F8 :

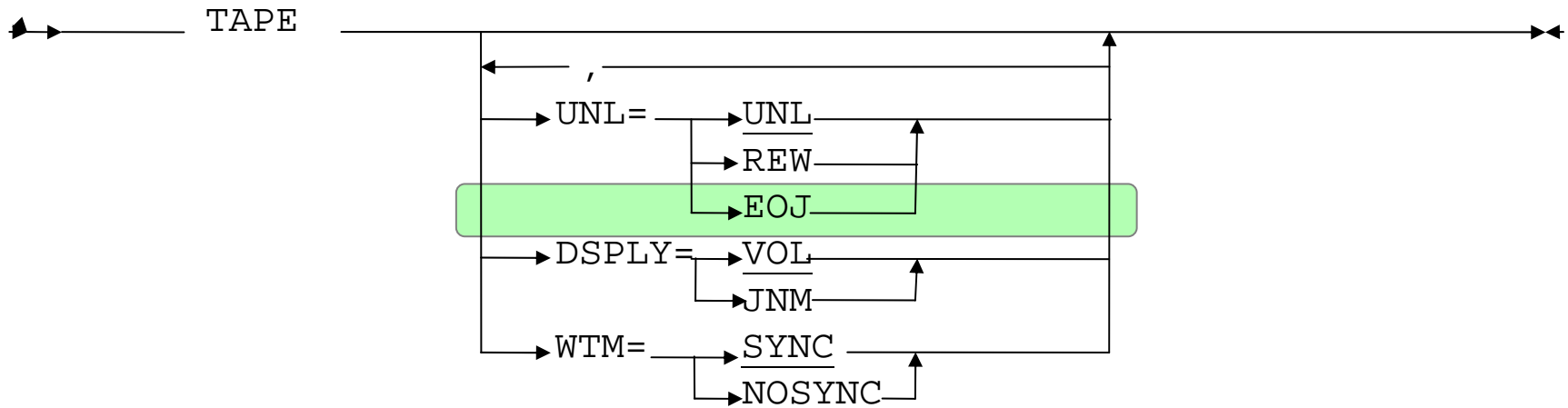
```

map f8
AR 0015 PARTITION: F8          SPACE-GETVIS.....: (N/A)
AR 0015 SPACE.....: 8          ALLOC (VIRTUAL)...: 524288K  ADDR: 500000
AR 0015 STATUS...: VIRTUAL    SIZE.....: 2048K
AR 0015 POWER-JOB: TESTPM01    EXEC-SIZE.....: 2048K
AR 0015 JOBNUMBER: 11513       GETVIS.....: 522240K
AR 0015 JOBNAME..: TESTPM01    EXEC-GETVIS....: 522240K  ADDR: 700000
AR 0015 PRV-64.....: 8096M  HWM: 8096M
AR 0015 PHASE....: GETMOPRV
AR 0015 TASKS....: ANY        PFIX (BELOW)-LIMIT : 128K
AR 0015 -ACTUAL: 0K
AR 0015 PFIX (ABOVE)-LIMIT : 65536K
AR 0015 -ACTUAL: 0K
AR 0015 PFIX (LFAREA)-ACTUAL: 0K  HWM: 0K
AR 0015 1I40I  READY

```

- **PRV-64**: The respective amount of virtual storage used by private memory objects.
- **PFIX(LFAREA) -ACTUAL**: The actual amount of real storage used to fix private memory objects.

## AR - TAPE command changes



- **Note:** The TAPE command is part of the Hint's and Tips – AR command series only. It is **NOT construed as an interface** of any kind and **may be changed without notice** anytime.
- **UNL=EOJ** - forces automatic **REW +UNL** execution for tapes at end-of-job processing. All tape units will be unloaded, which are assigned to the respective partition during '/&' execution.  
The default behavior as specified with UNL=UNL is effective additionally.
- **UNL=UNL** (default) causes a tape unit to be rewind and unloaded if an UNLOAD command is received.



## AR - TAPE command changes

- **UNL=REW** should be specified to PREVENT tape unit UNLOAD operations and have the z/VSE execute a REWIND command instead.  
This option might be of special interest in a scenario for which the operator does not want to re-mount the same tape again and again, just because the job has issued an UNLOAD request.
- **Caution:** Be aware that by specifying 'UNL=REW' your data may be overwritten when EOV(end-of-volume) condition is reached.
- Hint: In order to reset to default behavior use 'UNL=UNL'.



## AR - TAPE command changes

- **DSPLY** - controls the type of information shown on display of all tape units. This option is applicable to 3480, 3490(E) and TPA devices only.
- **DSPLY=VOL** (default) causes the VOL1 label of tape to be displayed.
- **DSPLY=JNM** directs the AVR task (Automatic Volume Recognition) to also provide the Job-name of the partition that owns the device.

The Load-Display alternates between displaying the VOL1 label and the Job-name every 2 seconds. The VOL1 label (6-alphanumeric characters) may be followed by a 'U' for cartridge unprotected or a 'P' for write-protected.

## AR - TAPE command changes

- **WTM** (Write Tape Mark) - controls how z/VSE writes Tape Marks in BUFFERED mode. It assumes that the tape controller does accept the appropriate WRITE-MARK command and is at the appropriate micro-code level.
- **WTM=SYNC** (default) causes the TAPE MARKS to be written immediately after any cached data.
- **WTM=NOSYNC** causes the Tape Marks (except those written at OPEN or CLOSE time) to be written in buffered mode (cached)
  - Improved write performance
- **\*NONE\*** - If TAPE command is used without any option then it writes the effective option settings to SYSLOG.

tape

```
AR 0015 TAPE UNL=UNL,DSPLY=JNM,WTM=SYNC
```



# Display VSE Addresses

```

QUERY IO-----
      |--,CUU-----|
                    |-----|
                    |=-----|
                    |=cuu-----|
    
```

QUERY IO,CUU=1200

| AR 0015 | PHYSICAL ADDRESS | ADDRESS USED BY Z/VSE | DEVICE CLASS |
|---------|------------------|-----------------------|--------------|
| AR 0015 | 1200             | 200                   | DASD         |

QUERY IO,CUU=FFB

| AR 0015 | VSE ADDR | PHYSICAL ADDR | DEVICE CLASS |
|---------|----------|---------------|--------------|
| AR 0015 | FFB      | 2000          | DASD         |



## LIBRarian Enhancements

### LIBRarian Enhancements for z/VSE 4.3

- New Parameter **DATE=OLD** for RENAME command
- New Parameter **INPUT=SYSLNK** for CATALOG of an OBJ
- New Parameter **CHKOPEN** for LIBRM OPEN macro



## New Parameter **DATE=OLD** for RENAME command

- The DATE=OLD parameter is already valid for RESTORE, COPY and MOVE command in current VSE releases.
- Customer requirement for the RENAME command.
- **RENAME member** with **DATE=OLD** will keep the old dates (Creation Date + Last Update).
- Default is **DATE=NEW** (Creation Date is written).
  
- For **RENAME SUBLIB** always **DATE=OLD** is used. (SUBLIB DATE parm is Unchanged)
- New message: will be issued when DATE is used for RENAME Sublibrary:

```
L122I DATE OPERAND IGNORED FOR RENAME SUBLIBRARY
```





## New Parameter **INPUT=SYSLNK** for CATALOG of an OBJ

- OBJ output of the Compiler can be directed
  - to SYSPCH (// OPTION DECK) or
  - to SYSLNK (// **OPTION LINK/CATAL**).
- **Now the OBJ can also be catalogued into a VSE sublibrary** (Requirement).
- This can be done with a LIBR jobstep after the Compile/Assemble jobstep with **OPTION LINK** or **OPTION CATAL**.

```
CATALOG xxxx.OBJ INPUT=SYSLNK
```

- **Example**

```
// OPTION LINK  
// EXEC ASMA90  
PROG1 CSECT  
      :  
      END  
  
/*  
// EXEC LIBR  
ACCESS SUBLIB=TEST.SUB  
CATALOG PROG1.OBJ INPUT=SYSLNK REPLACE=YES
```



## New Parameter **INPUT=SYSLNK** for CATALOG of an OBJ

- New message will be issued when the member type in the CATALOG statement is not OBJ.

- Example:

```
CATALOG PROG1.XYZ INPUT=SYSLNK REPLACE=YES
```

```
L156I INPUT=SYSLNK IN CATALOG ALLOWED ONLY FOR MEMBER TYPE OBJ
```

- LIBR reads from SYSLNK until EOF and switches back to Input from SYSIPT.
- Restriction: only Linkage Editor statements on SYSLNK can be processed  
Other data e.g. a LIBRarian command cannot be processed correctly.



## New Parameter **CHKOPEN** for macro LIBRM OPEN

- LIBRM OPEN Macro has a new parameter **CHKOPEN=NO|YES**
- If '**CHKOPEN=YES**' is specified a check is made if the library member is already opened (Supervisor LOCKed) **by the same VSE task**
- For such a member RC=2 is returned without performing the OPEN function.

`OPEN(INOUT,CHKOPEN=YES):Member is already open by the same VSE task.  
No LIBRM OPEN action is taken.`

- With **CHKOPEN=NO** (default) the member is opened without checking if it was already opened by the same task.



## VSE/POWER Overview & Enhancements

### **z/VSE 4.3 POWER Overview**

- Release Information, Manuals and Migration
- Functional Enhancements
  - TS7700 WORM tape
  - Restart PNET Passive TCP/IP Connection
  - Operator command improvements (CQNUM, CSYSID)
  - Display Date and Time of VSE/POWER Job Start
- Output Limitation Facility
- Punch Output redirection into VSE/AF Library Member
- OGM Support for SAS Interface (OGM = Output Generation Message)



## VSE/POWER Overview & Enhancements

### VSE/POWER 8.3 Release Information and Manuals

- Identification of VSE/POWER 8.3
  - MSHP Component identification number 5686-CF8-03-02C
  - SUBSID NOTIFY call with X'080300'
  - Character string C'02C' in each phase
  - PDISPLAY STATUS and SIR output show "VSE/POWER 8.3.0" plus APAR Level
- New Manuals
  - VSE/POWER Administration & Operation 8.3, SC33-8314-03
  - VSE/POWER Application Programming 8.3, SC34-2601-00



## VSE/POWER Overview & Functional Enhancements

1. TS7700 WORM Tapes supported by POFFLOAD and spooling to tape (**DISP=T**)

2. **PSTART TCPIP,PASSIVE**

If some sever errors occurs during initialization of the passive TCP/IP connection, , the passive TCP/IP connection is stopped and the following message is issued:

```
1RTYI TCP/IP: NEW CONNECTION REQUESTS FROM REMOTE NODES CAN NO LONGER BE  
PROCESSED
```

With **PSTART TCPIP,PASSIVE** command **no TCPIP interface restart necessary to reinitialize the passive connection**. That is, you can restart the passive connection without stopping and starting the TCP/IP interface again (and without closing and restarting all active connections).



## VSE/POWER Overview & Functional Enhancements

### Operator command improvements

- CQNUM operand supported by PDISPLAY command (formats 1 and 2)

#### CQNUM=nnnnn

- indicates that only that queue entry is to be addressed whose internal queue number matches the specified nnnnn value. (max. nnnnn = 99999)
- internal queue number can be found in QNUM=nnnnn field within output of PDISPLAY with FULL=YES

```
d rdr,full=yes
```

```
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R46I  READER QUEUE  P D C S  CARDS BU
F1 0001 1R46I  TAPESRVR 23961 3 L R          7  FROM=(SYSA)
F1 0001          D=02/13/2012 DBGP=000001
F1 0001          QNUM=00039 T=11:37:23 TKN=00000028
```

```
PDISPLAY ALL,CQNUM=00039
```

```
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R46I  READER QUEUE NOTHING TO DISPLAY
F1 0001 1R46I  LIST QUEUE  P D C S  PAGES  CC FORM BU
F1 0001 1R46I  TAPESRVR 23961 3 L R          1  FROM=(SYSA)
F1 0001 1R46I  PUNCH QUEUE NOTHING TO DISPLAY
```

## VSE/POWER Overview & Functional Enhancements

### Operator command improvements

- In earlier releases the CSYSID operand could only address queue entries belonging to a specific system.
- **CSYSID=N** in PALTER, PDELETE, PDISPLAY, PHOLD and PRELEASE commands address all queue entries with unspecified SYSID in shared spooling environment
- CSYSID=x (x=N or x=1-9)

```
d rdr,csysid=1
```

```
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R46I  READER QUEUE NOTHING TO DISPLAY
```

```
d rdr,csysid=N
```

```
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R46I  READER QUEUE    P D C S   CARDS BU
F1 0001 1R46I  INSABEND 00024 9 L 0           18  FROM=(SYSA
F1 0001 1R46I  PRTDUMPA 00037 3 L 0           7   FROM=(SYSA
```





# VSE/POWER Overview & Functional Enhancements

## How to find the SYSID

### D STATUS

```
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R46I VSE/POWER 8.x.0 STATUS FOR POWERSHR ON 03/05/2012 TIME 16/12/44
F1 0001 LAST QUEUE/DATA FILE COLD START ON 03/05/2012
F1 0001 PRESENT SESSION START (TURBO-DISP.-NP) ON 03/05/2012 TIME 16/10/47
F1 0001 APPLIED SERVICE LEVEL >> XXXXXX << OF 01/01/2012
F1 0001 1R46I NODE = POWER43S , SYSID = 1
F1 0001 1R46I QUEUE FILE IJQFILE
```

```
SYSTEM: POWER43S-1 z/VSE 4.3 TURBO (01) USER: SYS
VM USER ID:POWER431 TIME: 16:11:08
```

### D RDR

```
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R46I READER    QUEUE P D C S CARDS BU
F1 0001 1R46I PAUSEBG   00007 3 L 0          4 FROM=(SYSA)
F1 0001 1R46I PAUSEF1   00010 3 L 1          4 FROM=(SYSA)
F1 0001 1R46I CICS41S   00002 3 * 2 1        69 PART=F2 FROM=(SYSA)
F1 0001 1R46I CICSICCF 00003 3 L 2          71 FROM=(SYSA)
F1 0001 1R46I PAUSEF2   00011 3 L 2          4 FROM=(SYSA)
F1 0001 1R46I VTAM41S   00005 3 * 3 1        20 PART=F3 FROM=(SYSA)
```



## VSE/POWER Overview & Functional Enhancements

### New **TIME** operand for PDISPLAY

- Introduced with APAR DY47124
- New **TIME** operand in PDISPLAY A,PART command provides the start date and time of job(s) running in specific partitions(s)
- Is to be **specified as last** one in combination with PART, DPART, or SPART operand

#### D A, PART, TIME

```

AR 0015 1C39I  COMMAND PASSED TO VSE/POWER
F1 0001 1R48I  BG,FEC,A0I,          INACTIVE,
F1 0001 1R48I  F2,FEC,L2,    CICSICCF,00161,2    STARTED ON 02/28/2012 09:51:47
F1 0001 1R48I  F3,FEC,K3,    VTAMSTRT,00160,3    STARTED ON 02/28/2012 09:51:47
F1 0001 1R48I  F4,FEC,J4,          INACTIVE,
F1 0001 1R48I  F5,FEC,H5,          INACTIVE,
F1 0001 1R48I  F6,FEC,M6,          INACTIVE,
F1 0001 1R48I  F7,FEC,N7,    TCPIP00 ,00158,7    STARTED ON 02/28/2012 09:51:47
  
```

## VSE/POWER Output Limitation Facility

### VSE/POWER 8.3 Output Limitation Facility (WAVV200721)

New **RBF** operand (**Records Before Flush**) cancels job(s), if their output exceeds specified amount of records. Programs running as subsystem, e.g. CICS, VTAM, are not canceled.

- **SET RBF=nnnnnn**
  - System value (recommended only for test system)
  - Each job is flushed whose LST or PUN output exceeds nnnnnn records
- \* \$\$ JOB ..., **RBF=nnnnnn**
  - Overwrites SET RBF=nnnnnn for VSE/POWER Job
  - Job is flushed if any LST or PUN output exceeds nnnnnn records
- \* \$\$ LST ..., **RBF=nnnnnn** or \* \$\$ PUN ..., **RBF=nnnnnn**
  - Overwrites SET RBF=nnnnnn and \* \$\$ JOB ...,RBF=nnnnnn
  - Job is flushed if output for specified spooled device exceeds nnnnnn records
- When RBF value is exceeded, internal **PFLUSH partition,HOLD** cancels job
  - Message **1Q5QI** is displayed on console and appended to output exceeding limit
  - Additional output records can be spooled, e.g. LISTLOG messages
  - **Flushed Job is held in RDR queue** with the DISP=H or L
  - Output is created with temporary DISP=X to avoid automatic processing
- **RBF=0** means that **no limitation** is applicable to the given output

## OGM Support - Overview

**As of z/VSE 4.2, VSE/POWER can generate the following notification messages for SAS (Spool Access Support) applications**

– **Job Generation message 1Q5HI (JGM):**

Informs that the job, submitted via SAS interface, has generated another job as punch output with DISP=I

– **Job Completion message 1Q5DI (JCM):**

Informs that the job, submitted via SAS interface, has completed

**With z/VSE 4.3, a new notification message has been added:**

– **Output Generation message 1Q5RI (OGM):**

Is generated each time when the job, submitted via SAS interface, has created **LST** or **PUN** entry, and this entry became ready for processing

– Like the existing 1Q5HI and 1Q5DI messages, the new 1Q5RI message is stored into the SAS messages queue, and can be retrieved by means of the GCM (**Get Completion Message**) service later on.

## OGM Support - Benefits

### **With OGM support, a Job Scheduler application can control the job lifetime**

- Job Generation (DISP=I)
- Job Completion
- Output Generation

### **Without OGMs, its more difficult to find all outputs generated by a job**

- A job may produce various outputs
  - Multiple LST/PUN cards in the job
  - Output segmentation
- Outputs may have different names than the generating job (JNM=nnn in LST/PUN card)
- Outputs may have different numbers than the generating job
  - Segmentation overflow (more than 127 segments)
  - Multiple LST/PUN cards in the job

**OGMs now provide a way to retrieve all outputs generated by a Job, which has been submitted via SAS interface.**

## Enabling Output Generation Message

- To enable generating and queuing of the OGM, VSE/POWER offers new options in the function byte SPLGFB1.
- For example, if you want to request messages of all types (JGM, JCM and OGM) you must specify the new option SPLGF1QX:

```
PWRSPL TYPE=UPD ,SPL=OWNSPL ,REQ=PUT ,QUEUE=RDR  
MVI     SPLGFB1 ,SPLGF1QX  -> ALL
```

- If you want to queue the OGM only, you can specify the new option **SPLGF1QO** :

```
PWRSPL TYPE=UPD ,SPL=OWNSPL ,REQ=PUT ,QUEUE=RDR  
MVI     SPLGFB1 ,SPLGF1QO  -> OGM only
```

*Specify SPLGF1QP option to queue Job Completion and Output Generation messages or  
Specify SPLGF1QQ option to queue Job Completion and Job Generation messages*

- OGM has the following main features:
  - It can be **queued in the user queue(default), common queue, or both** (the same as existing fixed format messages)
  - For segmented output it is issued **for every segment**
  - If duplication is active then it is issued **for every duplicate**
  - 'OGM queuing' characteristic is **inherited for child jobs** created as punch output with the DISP=I

## Retrieving Fixed Format Message

- To retrieve fixed format messages VSE/POWER offers new options in the sub-request byte SPLGSRB of the SPL for the GCM service.
- For example, if user wants to retrieve JCM only he can specify the following SPL:

```
PWRSPL TYPE=UPD ,SPL=OWNSPL ,REQ=GCM
```

```
MVI     SPLGSRB ,SPLGSRJC    -> JCM only
```

- In general there are the following selection criteria for messages retrieving:
  - Retrieve JGM only
  - Retrieve JCM only
  - Retrieve OGM only
  - Retrieve all messages
  - Retrieve all messages produced by the job with specified name
  - Retrieve all messages produced by the job with specified name + number

## Increasing SAS message queue size

- With this new type of event message, the total number of the potentially generated messages increased.
- default size of the messages `user queue` is increased from `20` to `50`,
- maximum size is increased from `99` to `255`
  - which can be specified by the `SET JCMQ=` (VSE/POWER auto start statement).
- The size of the common message queue is taken now as size of the user queue multiplied by eight. Therefore, the
  - default value of `common queue` size is equal to `400`,
  - maximal value of `common queue` size is equal to `2040`.



## Restrictions for Output Generation Message

- The OGM is issued in the fixed format only, and can be retrieved by the GCM request of SAS interface only.
- The OGM is always queued in the message queue of the job's submitter only, and can not be sent to any another destination.
- In the selection criteria of the GCM request only one type of messages can be specified for retrieving (or all types of generated messages).
- The OGM is not issued for the punch output with DISP=I which produces the RDR entry actually. (but JGM maybe be created if selected)
- The message is not generated for output spooled on the tape.

## PUNCH output redirection into AF library

In addition of spooling punch output either into punch or reader queue, **punched output can now be catalogued as a VSE/AF library member** and later on **retrieved by an \* \$\$ SLI** statement.

New format 3 of the **\* \$\$ PUN JECL** statement provides the possibility for redirecting punch output to a VSE/AF library member

### **S=Lib.Sublib**

- Each spooled PUNCH device can be redirected independently
- The **output is not placed in PUN queue** but spooled into VSE/AF library member
- You need the appropriate access right to create or replace a member
- **In-creation** queue element **shows re-direction**
- **Segmentation** attempts are **rejected** with 1R9BI message

## PUNCH output redirection into AF library

```

* $$ JOB JNM=COMPILE,DISP=D,CLASS=A
* $$ PUN MEM=PRECOMP1.C,S=PRD2.TEST,PUN=FED,REPLACE=YES  <= redir. PUN output to lib. member
// JOB COMPILE TRANSLATE PROGRAM CSOURCE
// ON $CANCEL OR $ABEND GOTO ENDJ2
// OPTION NOLIST,NODUMP,DECK
// EXEC DFHEDP1$,SIZE=512K
* $$ SLI ICCF=(CSOURCE),LIB=(0019)
/*
// PAUSE
* $$ PUN PUN=FED                                     <= close library member & switch PUN back
// LIBDEF *,SEARCH=(PRD2.SCEEBASE,PRD2.DBASE)
// LIBDEF PHASE,CATALOG=PRD2.TEST
// OPTION ERRS,SXREF,SYM,CATAL,NODECK
    PHASE CSOURCE,*
    INCLUDE DFHELII
// EXEC EDCCOMP,SIZE=EDCCOMP,PARM='NATLANG(ENU)/LONGNAME'
* $$ SLI MEM=PRECOMP1.C,S=PRD2.TEST
/*
// EXEC EDCPRLK,SIZE=EDCPRLK,PARM='NATLANG(ENU)/UPCASE'
/*
// EXEC LNKEDT,SIZE=256K
/*
/. ENDJ2
// EXEC LIBR,PARM='A S=PRD2.TEST;DEL PRECOMP1.C;END'
/&
* $$ EOJ

```



## PUNCH output redirection into AF library

D CRE,PART,F5

AR 0015 1C39I COMMAND PASSED TO VSE/POWER

| F1 | 0001 | 1R4BI | CREATE  | QUEUE | C I | LINES | BUDBGP      | QNUM  | TASK   | OWNER       |
|----|------|-------|---------|-------|-----|-------|-------------|-------|--------|-------------|
| F1 | 0001 | 1R4BI | PUNCH02 | 00316 | A L | 11    | 000001      | 01790 | F5 FEE | JOB=PUNCH02 |
| F1 | 0001 | 1R4BI | PUNCH02 | 00316 | A P | 28    | PRD2.CONFIG |       | F5 FED | JOB=PUNCH02 |

D A

AR 0015 1C39I COMMAND PASSED TO VSE/POWER

...

|    |      |       |            |           |          |
|----|------|-------|------------|-----------|----------|
| F1 | 0001 | 1R48I | F5,FEC,H5, | PUNCH02   | ,00316,H |
| F1 | 0001 | 1R48I | F6,FEC,M6, | INACTIVE, |          |
| F1 | 0001 | 1R48I | F7,FEC,N7, | TCPIP00   | ,00304,7 |

...

|    |      |       |            |                  |      |       |                    |
|----|------|-------|------------|------------------|------|-------|--------------------|
| F1 | 0001 | 1R48I | F3,FEE,,   | VTAMSTRT,00302,A | 21   | LINES | SPOOLED,QNUM=01803 |
| F1 | 0001 | 1R48I | F2,FEE,,   | CICSICCF,00303,A | 2104 | LINES | SPOOLED,QNUM=01799 |
| F1 | 0001 | 1R48I | F7,FEE,,   | TCPIP00 ,00304,A | 1502 | LINES | SPOOLED,QNUM=01797 |
| F1 | 0001 | 1R48I | F5,FEE,,   | PUNCH02 ,00316,A | 11   | LINES | SPOOLED,QNUM=01790 |
| F1 | 0001 | 1R48I | F5,FED,,   | PUNCH02 ,00316,A | 28   | CARDS | TO PRD2.CONFIG     |
| F1 | 0001 | 1R48I | RDR,00C,A, |                  |      |       |                    |



## VSE/POWER Overview

### **VSE/POWER 9.1 Release Information, Manual and Migration**

- z/VSE 5.1 contains VSE/POWER 9.1 (part of VSE/Central Functions 9.1)
- Identification of VSE/POWER 9.1
  - MSHP Component identification number 5686-CF9-03-51C
  - SUBSID NOTIFY call with X'090100'
  - Character string C'51C' in each phase
  - PDISPLAY STATUS and SIR show "VSE/POWER 9.1.0" plus APAR Level
- New Manual
  - VSE/POWER Administration & Operation 9.1, SC34-2625-00
  - VSE/POWER Application Programmer's Guide (5.1.1) SC34-2642-00

## VSE/POWER Overview

### z/VSE 5.1 - New **TKN (Token)** attribute

- To address with operator commands all spooled job outputs as an entity
- Unchangeable TKN value defined for each VSE/POWER job
  - **Explicitly** by new \*\$\$ JOB operand **TKN=hhhhhhh** (80000000 to FFFFFFFF)
    - \* \$\$ JOB JNM=MYJOB,CLASS=C,DISP=K,TKN=94A89182
  - **Implicitly** in range 00000001 to 7FFFFFFF (incremented for each job)
  - Once defined it can not be changed
- Unique implicit define in Shared Spooling environment by Single counter in MR
- Shown in job start message 1Q47I

```
1Q47I    BG PAUSEBG 65267 FROM POWER511(SYSA),TIME=20:33:33,TKN=00000009
```

- Shown in PDISPLAY queue,....,FULL=YES

```
pdisplay rdr,full=yes
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R46I  READER QUEUE   P D C S   CARDS BU
F1 0001 1R46I  PAUSEBG    65267 3 * 0           4   PART=BG FROM=(SYSA)
F1 0001
D=07/01/2011 DBGP=000001 ORGDP=K
F1 0001
QNUM=00008 T=11:53:48 TKN=00000009
```

## VSE/POWER Overview

### z/VSE 5.1 - New **TKN** attribute and **ALL** selection

- Each output spooled by the job will inherit the TKN value

```
pdisplay cre,part,bg
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R4BI  CREATE QUEUE  C I  LINES BUDBGP  QNUM  TASK  OWNER
F1 0001 1R4BI  PAUSEBG  65267 A P      37   000001 01858  BG FED JOB=PAUSEBG
                                           TKN=00000009
F1 0001 1R4BI  PAUSEBG  65267 A L      49   000001 01859  BG FEE JOB=PAUSEBG
                                           TKN=00000009
```

- Same TKN value for output when job runs twice, e.g. CICS, VTAM, TCPIP (DISP=K | L)
- New **CTKN** operand to select spool entries with same TKN value
- New selection „**ALL,CTKN=hhhhhhhh**“ to address **all** entries in **all** queues (R|L|P|X)
  - Available for PALTER, PDELETE, PDISPLAY, PHOLD, PRELEASE
  - No further selection operands allowed to force entity

```
phold all,ctkn=00000009
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R88I  OK : 2 ENTRIES PROCESSED BY PHOLD ALL,CTKN=00000009
```

- PNET and POFFLOAD backup & restore preserve existing TKN values

## VSE/POWER Overview

### z/VSE 5.1 - New TKN attribute - Interface to JCL PWR command

- JCL PWR command submits PRELEASE and PHOLD commands to VSE/POWER
- // PWR PHOLD|PRELEASE command with **CTKN=POWERJOB** for PUN or RDR or LST
  - VSE/POWER replaces POWERJOB with TKN value of active job
  - Addresses already created queue entries only
  - Changes DISPosition for output created
- // PWR PHOLD|PRELEASE **ALL,CTKN=POWERJOB**
  - address all output **created** and **in creation**
  - Changes DISPosition for output created + **output in creation** ! (D → H & K → L)
  - Useful to prevent job output being printed / punched when job fails
  - Example with conditional JCL:

```
* $$ JOB JNM=ACNTJOB,CLASS=C,DISP=D
* $$ LST JNM=OUTPUT1,LST=00E,CLASS=W,DISP=D,UINF='USER INFORMATION'
* $$ LST JNM=ACCOUNT1,LST=FEE,CLASS=Z,DISP=D
* $$ PUN JNM=CHECKS,PUN=FED,DEST=(OTHERNOD,PUNCH01)
// JOB ACNTJOB
// ON $ABEND GOTO ERR01           for abnormal termination go to ERR01
// EXEC PGM1
// GOTO $EOJ                     skip abnormal term. handling
/. ERR01                         handle abnormal termination
// PWR PHOLD ALL,CTKN=POWERJOB   hold all output with same TKN as job
/&
* $$ EOJ
```





## VSE/POWER z/VSE 5.1 Refresh

### IPWSEGM Supports Duplicates for LST and PUN Output

- Output duplication allows multiple VSE/POWER tasks to access a single image of spooled data.
- VSE/POWER has supported creation of duplicate output since z/VSE 4.1 using \* \$\$ LSTDUP and \* \$\$ PUNDUP JECL statements, or by PCOPY operator command
- **NOW output duplication is also available via IPWSEGM (program-driven)**
- Programs that spool output can now request duplication for the next output segment using the new operand **DUP=YES** for statements \* \$\$ LST and \* \$\$ PUN supplied by IPWSEGM

### Enhanced Dynamic Access to VSE/POWER Job Attributes

- **TKN** can now be extracted from MAPPOWJB DSECT using **GETFLD FIELD=POWJOB**



# z/VSE Live Virtual Classes (LVC)

**Join in on z/VSE Online Training**

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|  |  |
|--|--|
| <p><b>Attendee List (32)</b></p> <p>▼ Hosts (3)</p> <ul style="list-style-type: none"> <li>Ingo Franzki</li> <li>Siegfried Langer</li> <li>Stev Glodowski</li> </ul> <p>▶ Presenters (0)</p> <p>▼ Participants (29)</p> <ul style="list-style-type: none"> <li>Anson Ngai</li> <li>Aubrey Hayes</li> <li>Brandon Richardson</li> <li>Colin Smith</li> </ul>  | <p><b>zVSE Monitoring - 0322</b></p> <hr/> <p>IBM System z – z/VSE – Live Virtual Class <span style="float: right;"></span></p> <h2 style="text-align: center;">Monitoring Principles &amp; z/VSE Monitoring Options</h2> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Wilhelm Mild<br/><a href="mailto:mildw@de.ibm.com">mildw@de.ibm.com</a></p> </div> <div style="text-align: center;"> <p>Ingo Franzki<br/><a href="mailto:ifranzki@de.ibm.com">ifranzki@de.ibm.com</a></p> </div> <div style="text-align: center;"> </div> </div> <p style="text-align: right; font-size: small;">© 2012 IBM Corporation</p> |
| <p><b>Chat (Everyone)</b></p> <p>----- (03/20/2012 13:08) -----<br/>                 Darla Erdmann: To download today's presentation - please click on this link:<br/> <a href="http://ibmstg.adobeconnect.com/zvsem/onitorintng0322/">http://ibmstg.adobeconnect.com/zvsem/onitorintng0322/</a></p> <p>----- (03/22/2012 15:59) -----<br/>                 Stev Glodowski: Welcome Everyone</p> <p>Stev Glodowski: we will start in about 5 minutes</p> |  |

**z/VSE LVCs**

**<http://www.ibm.com/zvse/education/#completed>**

**z/VSE & Linux LVCs**

**<http://www.vm.ibm.com/education/lvc/>**



# z/VSE Requirements

The screenshot shows the IBM website interface for z/VSE. At the top, there is a navigation bar with the IBM logo, a search bar, and links for Home, Solutions, Services, Products, Support & downloads, and My IBM. A location indicator shows 'United States [change]'. Below the navigation bar, a welcome message includes links for 'IBM Sign in' and 'Register'. The main content area is titled 'Contact z/VSE' and features a breadcrumb trail: 'IBM Systems > Mainframe servers > Operating systems > z/VSE >'. Two buttons are present: 'Send questions or comments' and 'Submit a requirement', with the latter circled in blue. A section titled 'Send us your requirement' contains a paragraph explaining the purpose of the form. Below this is a detailed instruction: 'The fields indicated with an asterisk (\*) are required to complete this transaction; other fields are optional. If you do not want to provide us with the required information, please use the "Back" button on your browser to return to the previous page, or close the window or browser session that is displaying this page.' The form includes three fields: 'Salutation: \*' with a dropdown menu showing 'Mr.', 'First name: \*' with a text input field, and 'Last name: \*' with a text input field. On the left side, a vertical menu lists various categories, with 'Contact z/VSE' circled in blue. On the right side, there are three promotional boxes: 'We're here to help' with an 'E-mail us' button, 'Stay informed' with a link to 'Get the latest news about z/VSE through Twitter', and 'Need help?' with links to 'Contact IBM' and 'IBM System z frequently asked questions'.



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Спасибо  
Russian

धन्यवाद  
Hindi

Bedankt  
Nederlands

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Thank You  
English

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شكراً  
Arabic

Merci  
French

Obrigado  
Brazilian Portuguese

Gracias!  
Spanish

多谢  
Simplified Chinese

Danke  
German

多謝  
Traditional Chinese

ありがとうございました  
Japanese

감사합니다

Thank You

# Questions



Please forward your questions or remarks to

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[stev.glodowski@de.ibm.com](mailto:stev.glodowski@de.ibm.com)

