# z/VSE Hints & Tips

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Ingolf's z/VSE Blog: https://www.ibm.com/developerworks/mydeveloperworks/blogs/vse

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# Agenda

- Some useful system commands, tools, system information, ...

- News, z/VSE status, Documentation , ...

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Some useful system commands, tools, system information, ...

* Internal Attention Routine commands/parameters and output may change dependent on system requirements.
  The output can not be considered as an interface.

# SIR – System Information Report

- Provides status information and monitoring capabilities

- Can help to identify
  - Latest service level
  - Processor configuration
  - system bottlenecks (resource shortage)
  - …

```
sir ?
AR 0015          SIR COMMAND HELP
AR 0015   SIR   (<RESET|SYS>)              RESET/DISPLAY SYSTEM INFORMATION
AR 0015   SIR   SMF((,VSE)=<ON|OFF|cuu>) SUBSYSTEM MEASUREMENT DATA
AR 0015   SIR   MON(=<<id|ON(,NOSYM)>|OFF>(option)) MONITORING DATA
AR 0015   SIR   MIH((,CUU)=<NNNNNN|ON|OFF>) DSPLY/ALTER MIH
AR 0015   SIR   VTAPEBUF(=<nnnK|nnM>)    DISPLAY/ALTER VTAPE BUF-SIZE
AR 0015   SIR   LIBR                     DISPLAY LIBRARIAN INFORMATION
AR 0015   SIR   CHPID(=chpid)            DISPLAY CHPID INFORMATION
AR 0015   SIR   VENDOR                   DISPLAY VENDOR PRODUCT INF
AR 0015   SIR   CRWMSG(=<ON|OFF>)        DSPLY/ALTER CRW MSG-REPORTING
AR 0015   SIR   VMCF(=<ON|OFF>)          DSPLY/ALTER VMCF INTERFACE
AR 0015   SIR   PMRMON(=<ON|OFF>)        PAGE MANAGER MONITORING DATA
AR 0015 1I40I   READY
```

# SIR – System Information Report

```
SYSTEM:    z/VSE              z/VSE 5.1         TURBO (01)        USER:   SYS
VM USER ID:LNXSALM1                                              TIME:   01:21:15
sir
AR 0015 CPUID  VM = 003B0B8220978000              VSE = FF3B0B8220978000
AR 0015 PROCESSOR = IBM 2097-726 51 (70B8251)  LPAR = SPB      No. = 0059
AR 0015      CPUs = 0003 (Ded.=0000 Shr.=0003) Cap. =   11%
AR 0015 VM-SYSTEM = z/VM    6.1.0   (1301)    USERID = LNXSALM1 VMCF = ON
AR 0015      CPUs = 0006                      Cap. = 100%
AR 0015 PROC-MODE = z/Arch(64-BIT)   IPL(007)     01:19:02        10/18/2013
AR 0015 SYSTEM    = z/VSE             5.1.1                       05/02/2012
AR 0015           VSE/AF              9.1.0         DY47323        04/09/2012
AR 0015           VSE/POWER           9.1.0         DY47302        04/12/2012
AR 0015 IPL-PROC  = $IPLESA           JCL-PROC  = $$JCL
AR 0015 SUPVR     = $$A$SUPI          TURBO-DISPATCHER (81) ACTIVE
AR 0015                               HARDWARE COMPRESSION ENABLED
AR 0015 SEC. MGR. = BASIC             SECURITY  = ONLINE
AR 0015 VIRTCPU   = 0000:00:02.044         CP = 0000:00:00.578
AR 0015 CPU-ADDR. = 0000(IPL)    ACTIVE
AR 0015    ACTIVE = 0000:00:01.144   WAIT = 0000:01:55.983
AR 0015    PARALLEL= 0000:00:00.289  SPIN = 0000:00:00.000
AR 0015 CPU-ADDR. = 0001            CPU INACTIVE NOT PREFIXED
AR 0015 CPU-ADDR. = 0002            CPU INACTIVE NOT PREFIXED
AR 0015 CPU-ADDR. = 0003            CPU INACTIVE NOT PREFIXED
AR 0015 CPU-ADDR. = 0004            CPU INACTIVE NOT PREFIXED
AR 0015 CPU-ADDR. = 0005            CPU INACTIVE NOT PREFIXED
AR 0015 CPU timings MEASUREMENT INTERVAL    0000:02:13.262
AR 0015 TASKS ATT.= 00015           HIGH-MARK = 00015    MAX = 00330
AR 0015 DYN.PARTS = 00000           HIGH-MARK = 00001    MAX = 00138
AR 0015
AR 0015 COPY-BLKS = 00015           HIGH-MARK = 00041    MAX = 01502
AR 0015 CHANQ USED= 00004           HIGH-MARK = 00011    MAX = 00080
AR 0015 LBL.-SEGM.= 00007           HIGH-MARK = 00007    MAX = 00717
AR 0015 LOCKS EXT.= 0000000613      LOCKS INT.= 0000005997
AR 0015      FAIL = 0000000014           FAIL = 0000000022
AR 0015 LOCK I/O  = 0000000757      LOCK WRITE= 0000000012
AR 0015 1I40I   READY


==>

1=HLP 2=CPY 3=END 4=RTN 5=DEL 6=DELS 7=RED 8=CONT 9=EXPL 10=HLD 11=PCUU 12=RTRV

ACT_MSG: HOLDRUN           PAUSE: 01   SCROLL: 1          MODE:  CONSOLE
```

# SIR Refresh Level

- z/VSE refresh level or SPLEVEL only changed after Fast Service Upgrade
  - SPLEVEL.PROC replaced

- PSB buckets (Hiper PTFs), RSL or single PTF do not change the SIR refresh level

- VSE/AF and VS/POWER component levels modified by FSU, PSB bucket, RSL or PTF,
  if component is affected
  - VSE/AF shows the Supervisor ($$A$SUPI) APAR level
  - VSE/POWER shows the APAR level of phase IPW$$DT

```
sir
AR 0015 CPUID  VM = 003B0B8220978000        VSE = FF00001820978000
AR 0015 PROCESSOR = IBM 2097-729 51 (70B8251)  LPAR = SPB      No. = 0059
AR 0015        CPUs = 0003 (Ded.=0000 Shr.=0003) Cap. =   10%
AR 0015 VM-SYSTEM = z/VM    6.1.0    (1301)    USERID = ZVSE510  VMCF = ON
AR 0015        CPUs = 0001                    Cap. =   33%
AR 0015 PROC-MODE = z/Arch(64-BIT)  IPL(230)    23:47:55 EST  08/27/2013
AR 0015 SYSTEM    = z/VSE         5.1.2                   04/19/2013      <--- Refresh Level
AR 0015           VSE/AF         9.1.0    DY47436    02/12/2013      <--- Component Level AF
AR 0015           VSE/POWER      9.1.0    DY47302    04/12/2012      <--- Component Level POWER
AR 0015 IPL-PROC  = $IPLESA       JCL-PROC  = $$JCL
AR 0015 SUPVR     = $$A$SUPI      TURBO-DISPATCHER (81) ACTIVE
AR 0015                           HARDWARE COMPRESSION ENABLED
AR 0015 SEC. MGR. = BASIC         SECURITY  = ONLINE
```

# SIR – System Information Report *

- SIR SMF

```
sir smf
AR 0015 DEVICE    I/O-CNT      QUEUED      CONNECT      DISCONN       TOTAL
AR 0015                      msec/SSCH   msec/SSCH    msec/SSCH    msec/SSCH
AR 0015
AR 0015    46D      13605       0.169       0.317        0.002        0.489
AR 0015    46E      18855       0.146       0.177        0.005        0.329
AR 0015    970      40342       0.148       0.163        0.000        0.311
AR 0015    971      26089       0.150       0.166        0.000        0.317
AR 0015    972      12318       0.150       0.173        0.000        0.325
AR 0015 1I40I    READY
```

- SIR PMRMON

```
sir pmrmon
AR 0015                        PAGE MANAGER MONITORING REPORT
AR 0015                      (BASED ON A 0000:00:21.879 INTERVAL)
AR 0015 IPFQ 31-BIT    =              0    IPFQ 64-BIT     =              0
AR 0015  PSQ 31-BIT    =         484924     PSQ 64-BIT     =        6746514
AR 0015 PF EXCH TOTAL  =          16445    PF EXCH 31->64  =          16445
AR 0015 PF EXCH 64->31 =              0    PGFLT TOTAL     =         179742
AR 0015 PGFLT PMGR     =         176790    PGFLT USER      =           2950
AR 0015 PGFLT IMM PO 31 =             2    PGFLT IMM PO 64 =          16446
AR 0015 SELCT ON PSQ 31 =         16447    SELCT ON PSQ 64 =          88394
AR 0015 SELC R=1 MAX 31 =             3    SELC R=1 MAX 64 =              6
AR 0015 RECLAIMS       =           4193    NPSQ LOW        =              0
AR 0015 PGOUT I/O TOTAL =         48444    PGIN I/O TOTAL  =              0
AR 0015 PGOUT I/O UNC.  =         13071    PGOUT I/O PRE.  =          35373
AR 0015 LRA PGM CHECK  =              0    TFIX 64-BIT FR  =              0
AR 0015 HWM MB FRM-64  =              0    HWM MB FRM-31   =              0
AR 0015 MB FRM TFIX RPL =             0    MB FRM PGO RPL  =              4
AR 0015 1I40I    READY
```

# SIR MIH

- MIH = Missing Interrupt Handler = z/VSE Supervisor routine, that get control regularly

- Verifies if I/O is not completed after a defined interval

- Apppropriate message will be writen to the console and the recorder file, if a device is in error

- SIR MIH may enable / disable the MIH process

- SIR MIH without a parameter displays the current settings

- SIR MIH may set an interval per device or for all devices

- Default is enabled, time interval is 3 minutes
  - z/VSE waits for at least 3 minutes, if an I/O does not complete, until it writes an (action) message (0E02t DEVICE cuu LOST CHAN+DEV END) to the z/VSE console.

- Time interval depends on the timing of your devices
  - Tape devices need loger intervals than disks

- Please change system parameters only, if required for your workload

# STACK – Stack Attention Routine commands *

- The STACK command can be used to
  - Abbreviate z/VSE commands
  - Suppress or change any z/VSE command
  - Prepare a sequence of commands and/or replies

```
stack MV|MAP &0|GETVIS &0|        ←
AR 0015 1I40I   READY
stack show                      ←
AR 0015 VIS|GETVIS &0,ALL
AR 0015 MV|MAP &0|GETVIS &0|
AR 0015 1I40I   READY
mv bg                      ←
AR 0015 1I40I   READY
AR 0015 MAP BG
AR 0015   PARTITION: BG         SPACE-GETVIS......:     (N/A)
AR 0015   SPACE....: 0          ALLOC (VIRTUAL)...:     6144K  ADDR: 400000
AR 0015   STATUS...: VIRTUAL      SIZE............:     1280K
AR 0015   POWER-JOB: PAUSEBG
AR 0015   JOBNUMBER: 328         GETVIS..........:     4864K  ADDR: 540000
AR 0015   JOBNAME..: PAUSEBG
AR 0015   PHASE....:
AR 0015   TASKS....: ANY        PFIX(BELOW)-LIMIT :       0K
AR 0015                                    -ACTUAL:       0K
AR 0015                         PFIX(ABOVE)-LIMIT :       0K
AR 0015                                    -ACTUAL:       0K
AR 0015 1I40I   READY
AR 0015 GETVIS BG
AR 0015 GETVIS AREA FOR BG IS NOT INITIALIZED
AR 0015 1I40I   READY
```

# LOCK display and trace *

- The Attention Routine LOCK command displays and traces LOCK/UNLOCK events
- LOCK SHOW[=pid]|[resource name] to display lock resources
  - pid = SYSLOG id
- LOCK TRACE to activate the trace
- LOCK TRACE[=pid][,resource name] to trace all, a partition and/or a specific resource

```
lock show=f2
AR 0025 LOCKTAB ENTRY
V0006F7D0  ........ 7FFA0A80 00000000 C4E3E2E5 *    "³ 0     DTSV*
V0006F7E0  C5C3E3C2 40404040 11800001 0006F7F4 *ECTB     0    74*
V0006F7F0  0006F7B4                            * 7©          *
AR 0025 OWNER ELEMENT
V7FFA0A80  00000000 01F40000 00011000 00000000 *    4         *
AR 0025 LOCKTAB ENTRY
V7FFA0FE0  0006F844 00000000 E5C4D6E2 D9C5E200 * 8à    VDOSRES *
V7FFA0FF0  00000000 04C00000 7FFA0FC0 0006F814 *    {  "³ {  8 *
AR 0025 OWNER ELEMENT
V0006F840  ........ 7FFA0EF0 00200001 00000000 *    "³ 0      *
V0006F850  00000000                            *            *
```

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# GETVIS - retrieve partition and system GETVIS information

- Use the GETVIS command e.g. to identify
  - areas of GETVIS shortage or
  - the subpool, where the GETVIS space wasn't freed

- Command described in "System Control Statements

- Example
  - GETVIS SVA shows shortage on SVA(24 bit) storage
    - If VTAM buffers are allocated in SVA(24 bit)
      - Move them into SVA(31 bit) - set the VTAM startup parameter
    - If the SVA (31 bit) is short on storage too, Increase the SVA(31 bit)

```
getvis sva,all
AR 0015 GETVIS USAGE    SVA-24      SVA-ANY                           SVA-24      SVA-ANY
AR 0015   AREA SIZE:    1,900K      34,256K                           
AR 0015   USED AREA:      796K      10,684K MAX. EVER USED:             828K      15,836K
AR 0015   FREE AREA:    1,104K      23,572K LARGEST FREE:            1,100K      17,348K
AR 0015 SUMMARY REPORT
AR 0015 SUBPOOL         REQUEST   <--SVA-24-AREA---     --SVA-ANY-AREA-->
AR 0015 Default                                 288K                       176K
AR 0015 IJBMCB                                   60K                         0K
AR 0015 ISTSVF                                   52K                       312K
AR 0015 IPWPWR                                   36K                         0K
AR 0015 IJBFF300A0     SPACE                     24K                         0K
AR 0015 IPTIB                                    20K                        52K
AR 0015 INLSLD                                   20K                         0K
AR 0015 IINIT                                    16K                        96K
AR 0015 IJBHCF                                   12K                         0K
AR 0015 IJBFF200B0     SPACE                      8K                         0K
AR 0015 ISTSVP                                    8K                       276K
```

# Problem management tools

- ABEND / system dump
  - Amount of dump data dependent on JCL OPTIONs

- DUMP command
  - Attention Routine command

- Stand-alone dump (program)
  - Create a stand-alone dump tape for the release you have in production
  - Have standalone dump tapes ready, just in case you need it
  - Always "STORE STATUS" before you take a standalone dump

- SDAID
  - To trace application programs and system events

- Interactive trace
  - // EXEC <program>,TRACE to trace applications

- DEBUG trace

- z/VM CP TRACE command

# IUI Problem handling dialogs

```
IESADMSL.IESEPROB              PROBLEM HANDLING
                                                   APPLID: DBDCCICS
   Enter the number of your selection and press the ENTER key:

        1   Online Problem Determination
        2   Inspect Message Log
        3   Storage Dump Management
        4   Inspect Dump Management Output
        5   Retrace History File
        6   Dump Program Utilities




PF1=HELP                    3=END        4=RETURN              6=ESCAPE(U)
                            9=Escape(m)

==>                                              Path: 4
```

```
IESADMSL.IESEDUMP          DUMP PROGRAM UTILITIES
                                                   APPLID: DBDCCICS
   Enter the number of your selection and press the ENTER key:

        1   Create Standalone Dump Program on Tape
        2   Create Standalone Dump Program on Disk
        3   Remove Standalone Dump Program from Disk
        4   Scan Dump Files on Tape
        5   Scan Dump Files on Disk
        6   Print IPL Diagnostics
        7   Format ICCF Dump Data
        8   Print SDAID Tape
        9   Print Standalone Dump




PF1=HELP                    3=END        4=RETURN              6=ESCAPE(U)
                            9=Escape(m)

==>                                              Path: 46
```
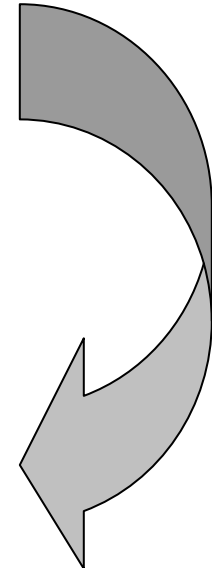
# z/VSE SDAID trace to VTAPE

- SDAID trace output (OUTDEV) may be redirected to a printer, real tape or SDAID buffer (BUFFER).

- To send SDAID output to a VTAPE
    - Define a virtual tape via the VTAPE command
    - Initialize the SDAID trace with a **wraparound** buffer as output destination
      OUTDEV BUFFER=<size, buffer size from 4K to 256K>
    - Stop SDAID (STOPSD), when you want to finish the trace
    - Dump the SDAID buffer to the virtual tape via the Attention Routine command
      DUMP BUFFER,<cuu of virtual tape>
    - You may now e.g. print the virtual tape content with DOSVSDMP or the IUI dialog

    - Verify the SDAID trace to VTAPE in a test environment before you use it for problem analysis

# z/VSE Downloads

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# How to monitor the Turbo Dispatcher

- How to gather monitored information:

  1) SIR MON=ON       - starts monitoring
  2) SYSDEF TD,RESETCNT - resets TD counters
  3) <monitor interval   - e.g. 1 hour at peak>
  4) SIR MON=OFF     - stops monitoring
  5) QUERY TD          - displays CPU counters
  6) SIR MON           - displays SVC counters
  7) To start next interval begin with 1)

- Monitored data can be retrieved from VSE Console

- SIR MON Attention Routine Command
  – Can help to analyze performance problems
  – Provides counters for
    - SVCs,  Fast (107) SVCs and function codes
    - TD Service SVCs and function codes
    - MVS SVCs
    - Program Call codes
    - Bound conditions
    - TD performance (15 counters)

# How to monitor the Turbo Dispatcher

- SIR MON Attention Routine Command …

```
sir mon
AR 0015                    MONITORING REPORT
AR 0015           (BASED ON A 0000:00:16.680 INTERVAL)
AR 0015                  SVC SUMMARY REPORT
AR 0015 EXCP     =         53  WAIT      =           38  SETIME   =         17
AR 0015 SVC-0D   =         57  SYSIO     =        37949  EXIT IT  =         34
AR 0015 SETIME   =         15  WAITM     =           18  COMREG   =         20
AR 0015 GETIME   =          1  POST      =           26  SVC-31   =         11
AR 0015 TTIMER   =          3  SVC-35    =          109  GETVIS   =         88
AR 0015 FREEVIS  =         69  CDLOAD    =            1  SECTVAL  =          5
AR 0015 FASTSVC  =        579  (UN)LOCK  =            2  SVC-75   =         65
AR 0015 PRODID   =          2  SVC-83    =          200  SVC-84   =        147
AR 0015                  SVC-X'6B' DETAIL REPORT
AR 0015     FC-02 =         25     FC-03 =           78     FC-06 =        109
AR 0015     FC-08 =         26     FC-09 =          100     FC-0A =         76
AR 0015     FC-0D =         16     FC-0E =          192     FC-4F =          1
AR 0015     FC-67 =          1     FC-73 =           60     FC-86 =         22
AR 0015     FC-90 =         62     FC-96 =            7     FC-9F =        156
AR 0015     FC-B6 =         16
AR 0015                  SVC-X'75' DETAIL REPORT
AR 0015     FC-98 =         57     FC-9C =            8
AR 0015                  MVS-SVC'S DETAIL REPORT
AR 0015 SVC-01   =         79  SVC-02    =           43  SVC-22   =          2
AR 0015 SVC-2E   =          2  SVC-2F    =           23  SVC-6B   =        141
AR 0015 SVC-77   =         57
```

# CPU Balancing

- When CPU balancing is activated,
  the z/VSE Turbo Dispatcher will only use CPUs required for the current workload

- Can be activated and deactivated via AR/JCL command
  - SYSDEF TD,INT=0 to deactivate, default
  - SYSDEF TD,INT=nn (=1..99) to activate and "nn" interval in seconds,
    after which the CPU utilization is inspected

- Threshold can be defined after which an additional CPU is activated
  - SYSDEF TD,THR=nn (10..99) in percent, default: 50

- CPU balancing via stop or quiesce process
  - SYSDEF TD,INT=nn,STOP    - the stop process to be used
    - May provide performance improvements for z/VM guests (z/VM 5.4 or higher)
  - SYSDEF TD,INT=nn,STOPQ - the quiesce process to be use, default

- QUERY TD shows current settings

- CPU balancing may reduce multiprocessing overhead

# CPU Balancing …

Retrieve CPU time values: QUERY TD

```
query td
AR 0015   CPU    STATUS    SPIN_TIME      NP_TIME TOTAL_TIME NP/TOT
AR 0015   00    ACTIVE            0        63715      96636  0.659
AR 0015   01    ACTIVE            0        13668      22614  0.604
AR 0015   02    INACTIVE        210        23692      34187  0.693
AR 0015                      ------------------------------------
AR 0015 TOTAL                    210       101075     153437  0.658
AR 0015
AR 0015                  NP/TOT: 0.658        SPIN/(SPIN+TOT): 0.001
AR 0015   OVERALL UTILIZATION:  80%        NP UTILIZATION:   53%
AR 0015
AR 0015   CPU BALANCING (STOP):  INT:   9 SECONDS     THR:  50%
AR 0015
AR 0015   ELAPSED TIME SINCE LAST RESET:       190550
AR 0015 1I40I  READY
```
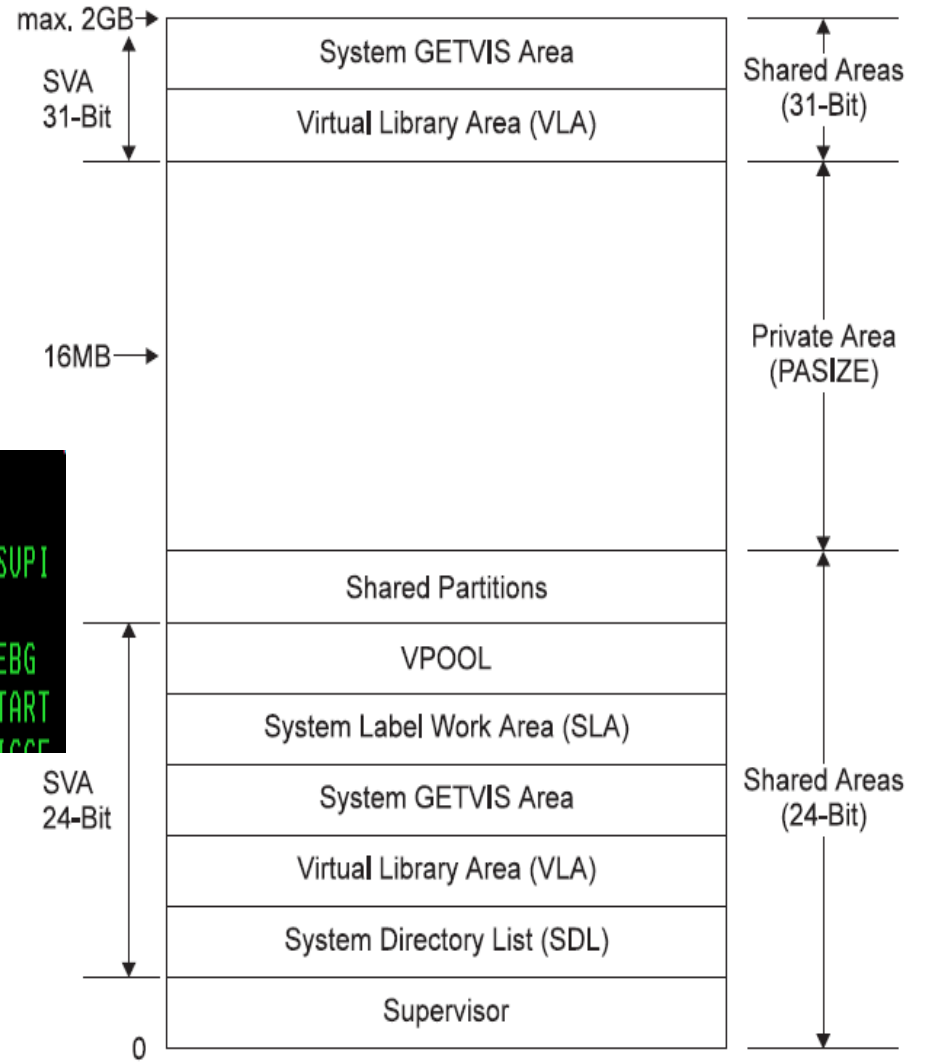
TOTAL_TIME      = CPU time used by workload
NP_TIME         = non-parallel CPU time, contained in TOTAL_TIME
SPIN_TIME       = CPU time needed to wait for a non-parallel work unit
All above values given in milliseconds.

NP/TOT          = ratio NP_TIME / TOTAL_TIME = non-parallel share
SPIN/(SPIN+TOT) = spin time ratio

# What to do with unused shared area (24-bit) space ?

- SVA (24 bit) starts after the Supervisor area

- Private area starts at MB boundary

- SVA-24 bit unused space as of MAP command, can not be alloced after IPL complete.
  Except for allocation of shared partitions (SPSIZE not zero)

- You may tune your IPL parameters to use this space – or reduce the space to get to a lower MB boundary

- Consider your vendor product requirements

- **But** only change values, if you need additional resources.

```
map
AR 0015   SPACE AREA       V-SIZE   GETVIS   V-ADDR   UNUSED NAME
AR 0015    S    SUP          764K                 0          $$A$SUPI
AR 0015    S    SVA-24      1356K    1848K    BF000    128K
AR 0015    0    BG V        1280K    8960K   400000  143360K PAUSEBG
AR 0015    1    F1 V        1500K   29220K   400000      0K POWSTART
AR 0015    2    F2 V        2048K   40150K   400000      0K CICSICCF
```

# How to get control during z/VSE system startup

- It may be necessary to get control before the first „// JOB" statement after the IPL complete message, e.g. to recreate the hardcopy or recorder file (via SET HC=CREATE or SET RF=CREATE)

- You may use the following procedure:
    1. Specify the IPL parameter LOADPARM ..P
    2. You will be prompted to enter the Supervisor or ASI parameters
    3. Enter your IPL procedure and a JCL procedure, e.g. IPL=$IPLESA,JCL=$$JCLXXX, where the procedure $$JCLXXX does not exist.
    4. You will be prompted after IPL complete with message:
       BG 0000 // EXEC PROC=$0JCLXXX STATEMENT IS GENERATED
       BG-0000 1N20D PROCEDURE NOT FOUND
    5. Now you can instruct z/VSE e.g. to recreate the hardcopy file with the command SET HC=CREATE - see book z/VSE System Control Statements for details
    6. Continue with your BG startup procedure - e.g. // EXEC PROC=$0JCL
       It is just necessary to process the first // JOB statement to open the hardcopy file.
    7. Re-IPL your system

    Please be careful when using such system commands.

# How to prevent a job from execution in case of problems

- If a VSE/POWER job cuases a system failure,

    it may be necessary to stop a job from execution after a re-IPL.

- Use the SET NORUN=YES card in the VSE/POWER startup
    - Applies to locally submitted VSE/POWER job
    - Causes a disposion of „X" for all active reader queue entries at time of failure,
        except reader queue entries submitted with „* $$ JOB JNM=...,NORUN=IGN"
    - DISP X entries may be listed via „PDISPLAY RDR,CDISP=X
    - You may change the disposion back to the original disposition: PALTER RDR,CDISP=X,DISP=*


- „Emulate" NORUN=YES by the following sequence
    - PAUSE F1 AR command after IPL complete message
    - // UPSI 1 statement in partition F1, when prompted
    - VSE/POWER startup completes
    - Dispositions of queue entries may now be changed


- Special considerations apply to shared spool environements
    - See VSE/POWER Administration and Operation book for details

# How to prevent a job from execution in case of problems ...

```
BG 0000 0I20I IPL COMPLETE FOR VSE/AF 5686CF906 52C  920 GA-LEVEL
BG 0000        SUPVR USERID IS: Z.VSE.SUPI
BG 0000 PRTY BG,FA,F9,F8,F6,F5,F4,F2,F7,FB,F3,F1
BG 0000 // JOB BGINIT
        DATE 04/08/2014, CLOCK 12/22/24
BG 0000 1I93I RECORDER FILE IS   1% FULL
BG 0000 IESI0221I PARTITIONS F3 F2 F1 WILL BE INITIALIZED IN RECOV START MODE.

BG 0000 IESI0222I REMAINING PARTITIONS WILL BE INITIALIZED IN WARM START MODE.
 IF YOU WANT TO INTERRUPT THEN ENTER MSG BG.
pause f1               <---
AR 0015 1I40I  READY
BG 0000 EXPLAIN ON
EXPLAIN ON
BG 0000 ALLOC BG=10M
```

```
BG 0000 STOP
F1 0001 // JOB POWSTART
        DATE 04/08/2014, CLOCK 12/22/33
F1-0001 1I00D  READY FOR COMMUNICATIONS.
1 // UPSI 1       <---
F1-0001
1                 <---
F1 0001 1QB7I  FULL QUEUE FILE RECOVERY IN PROGRESS
F1 0001 1QBCI  QUEUE FILE RECOVERY DETECTED NEW DISP=X JOB(S) IN READER QUEUE
```

```
d rdr,cdisp=x        <---
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F1 0001 1R46I  READER QUEUE  P D C S  CARDS BU
F1 0001 1R46I  PAUSEBG  00268 3 X 0      4   FROM=(SYSA)
F1 0001 1R46I  CICSICCF 00248 3 X 2     71   FROM=(SYSA)
F1 0001 1R46I  VTAMSTRT 00235 3 X 3     20   FROM=(SYSA)
F1 0001 1R46I  PAUSEF4  00280 3 X 4      4   FROM=(SYSA)
F1 0001 1R46I  PAUSEC   00281 3 X C      3   FROM=(SYSA)
==>
```

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# How to prevent a job from execution in case of problems ...

- **Caution**: The following example does not work for VSE/POWER share spooling environments

- Prevent jobs from execution with the „MINI" startup. „Active" partitions are in disposition „K"

```
BG 0000 0I20I IPL COMPLETE FOR VSE/AF 5686CF906 52C  920 GA-LEVEL
BG 0000       SUPVR USERID IS: Z.VSE.SUPI
BG 0000 PRTY BG,FA,F9,F8,F6,F5,F4,F2,F7,FB,F3,F1
BG 0000 // JOB BGINIT
        DATE 04/08/2014, CLOCK 13/07/41
BG 0000 1I93I RECORDER FILE IS   1% FULL
BG 0000 IESI0221I PARTITIONS F3 F2 F1 WILL BE INITIALIZED IN RECOV START MODE.

BG 0000 IESI0222I REMAINING PARTITIONS WILL BE INITIALIZED IN WARM START MODE.
 IF YOU WANT TO INTERRUPT THEN ENTER MSG BG.
msg bg                    <---
AR 0015 1I40I   READY
BG 0000 IESI0214I SELECT STARTUP MODE FOR SYSTEM : MINI   BASIC COLD.
BG 0000 IESI0215A OR, IF NO CHANGE, ENTER: END .
BG-0000
0 mini      <---
BG 0000 ALLOC F1=6M
BG 0000 SIZE F1=1500K
```

```
BG 0000 STOP
F1 0001 // JOB POWSTART
        DATE 04/08/2014, CLOCK 13/08/02
F1 0001 * ---------------------------------------------------------------
F1 0001 *   CAUTION:   MINI STARTUP JOB WILL EXECUTE IPWPOWER, WHICH IS NOT
F1 0001 *              GENERATED FOR SHARED SPOOLING.
F1 0001 *              IF OTHER SHARING SYSTEMS ARE EXECUTING THIS JOB MAY
F1 0001 *              DESTROY THE POWER QUEUE AND DATA FILE.
F1 0001 *              SHARING SYSTEMS SHOULD BE SHUT DOWN BEFORE PERFORMING
F1 0001 *              A MINI STARTUP.
F1 0001 *
F1 0001 *   1. REPLY "1 CANCEL (END/ENTER)" TO CANCEL THIS JOB
F1 0001 *   2. REPLY "1 (END/ENTER)" AT THE FOLLOWING PAUSE-STATEMENT TO
F1 0001 *      CONTINUE THIS JOB.
F1 0001 * ---------------------------------------------------------------
F1-0001 // PAUSE
1
F1 0001 * ******* MESSAGE 1Q1CI MAY BE IGNORED !!!   *******
F1 0001 1QB7I   FULL QUEUE FILE RECOVERY IN PROGRESS
F1 0001 1QB8I   QUEUE FILE RECOVERY COMPLETED
```

# Some more tips

- Improve TCP/IP performance for z/VSE guests
  - Via the z/VM Queued Direct I/O (QDIO) assist
  - z/VSE exploits QDIO assist for OSA-Express (CHPID type OSD) and HiperSockets (CHPID type IQD)
  - QDIO instructions directly passed to the hardware
  - I/O interrupt directly passed from the hardware to the z/VM guest
  - Before IPL of the z/VSE system use CP command „SET QIOASSIST ON"
  - z/VM has to run in an LPAR

- z/VSE Supervisor (copy) buffer usage
  - Copy buffers are used for I/O processing, allocate in Supervisor area (24 bit storage)
  - Allocated based on the IPL command „SYS BUFSIZE"
  - IPL message displays the actual BUFSIZE value
  - SIR command shows the copy block usage, high water mark and MAX value

```
AR 0015 COPY-BLKS = 00015          HIGH-MARK = 00041     MAX = 01502
AR 0015 CHANQ USED= 00004          HIGH-MARK = 00011     MAX = 00080
```

  - If high water mark is close to MAX, consider to increas the copy buffers
  - Copy buffer shortage may cause system hangs
  - More copy buffers may be needed
    - if you migrate from ECKD to SCSI
    - For VTAM 31 bit I/O buffers

# CICS on z/VSE

- Two different CICS products on z/VSE 4.2:

    - CICS/VSE 2.3
        - In service for about 17 years
        - End-of-Support (EOS) since October 2012
        - z/VSE 4.2: last release that includes CICS/VSE in z/VSE package
        - z/VSE 4.3: CICS/VSE access to DL/I does not work
        - z/VSE Version 5: CICS/VSE not supported (will not run on z/VSE Version 5)

    - CICS TS for VSE/ESA 1.1
        - In service since 1999
        - Migration target for CICS/VSE
        - Recommendation: If your are still running applications on CICS/VSE,
          migrate them to CICS TS prior to the migration to z/VSE 4.3 or z/VSE Version 5

News, z/VSE status, Documentation , ...

# News related to z/VSE

- April: z/VSE 5.1 additional enhancements announced

- April: z/VM 6.1 end of service

- May: New z/VSE web page layout

- June: z/VSE 5.1.2, including z/VSE additional enhacements available - now on DVD-ROM

- July: IPv6/VSE decreased monthly workload license charges

- July: z/VSE Collection Kit available

- July: zBC12 announced

- July: z/VM 6.3 GA

- September: zBC12 GA
  - z/VSE Preventive Service Planning (PSP) bucket for details
  - ibm.com/vse -> About z/VSE Status -> z/VSE server support
  - OSA/SF configuration on HMC – OSA-Express 4S / 5S only
    - For CHPID type OSE

- February 2014: New Recommended Service Level (RSL) available

- April 7: z/VSE 5.2 announcement

- April 25: z/VSE 5.2 GA

# Migration to a supported z/VSE Version 5 release

- Please migrate to a supported z/VSE release
    - to get the latest software service, hardware exploitation and functionality

- z/VSE 4.3 end of service is October 31, 2014.


- After October 31, 2014, the only supported releases are z/VSE 5.1 and z/VSE 5.2.
    - Just 6 month remain to migrate to a z/VSE Version 5 release.
    - Support z9 or higher


- With the z/VSE 5.2 GA – April 25, 2014,
    - z/VSE 5.1 can no longer be ordered after that date.


- Reasons for ordering z/VSE 5.1 instead of z/VSE 5.2
    - Your vendor software is not ready for z/VSE 5.2
    - You may want to Fast Service Upgrade (FSU) from z/VSE 4.2 to 5.1, and later to z/VSE 5.2


- Consider the single version charging requirements, if you migrate from z/VSE Version 4
    - IBM System z software pricing: http://www-03.ibm.com/systems/z/resources/swprice/reference/

# Migration to z10 or zEnterprise (z/VSE on z/VM 5.4)

- **Statement of Direction** (SOD) in z/VM 6.3 announcment letter: http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&supplier=897&letternum=ENUS213-297

  **Stabilization of z/VM V5.4 support**
  The IBM zEnterprise EC12 and IBM zEnterprise BC12 are planned to be the last System z servers supported by z/VM V5.4 and the last System z servers that will support z/VM V5.4 running as a guest (second level). z/VM V5.4 will continue to be supported until December 31, 2014, or until the IBM System z9® EC and IBM System z9 BC are withdrawn from support, whichever is later. Refer to Withdrawal Announcement 912-144, dated August 07, 2012 .

- z/VM Version 6 can only run on z10 or higher

- Please consider to migrate from a z9 server (with z/VM 5.4) with the following steps
  - Migrate your system first to z10 or zEnterprise servers
  - Uprade z/VM 5.4 to z/VM Version 6
  - Migrate your z/VSE system

All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice.

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## z/VSE status

- z/VSE status web page: http://www-03.ibm.com/systems/z/os/zvse/about/status.html
  - Supported z/VSE release
  - z/VSE adapters and crypto
  - z/VSE storage support
  - z/VSE server support

### Supported z/VSE releases

| Version.Release | Date available | Withdrawal from Marketing effective | Withdrawal from Service effective | Minimum z/VM level (1) |
|---|---|---|---|---|
| → z/VSE V5.2 | 04/25/2014 Announcement | TBD | TBD | z/VM V5.4 |
| → z/VSE V5.1 | 11/25/2011 Announcement | 04/25/2014 Announcement | TBD | z/VM V5.4 |
| → z/VSE V4.3 | 11/26/2010 Announcement | 06/25/2012 Announcement | 10/31/2014 Announcement | z/VM V5.2 |

## z/VSE status ...

– z/VSE server support

| z/VSE server support | | | |
| --- | --- | --- | --- |
| IBM System z, zSeries and S/390 Server | z/VSE V5.2 | z/VSE V5.1 | z/VSE V4.3 |
| IBM zEnterprise BC12 (1) | Yes | Yes | Yes |
| IBM zEnterprise EC12 (1) | Yes | Yes | Yes |
| IBM zEnterprise 114 | Yes | Yes | Yes |
| IBM zEnterprise 196 | Yes | Yes | Yes |
| IBM zEnterprise BladeCenter Extension (zBX) - IEDN Support | Yes (2,3) | Yes (2,3) | Yes (3) |
| IBM System z10 BC | Yes | Yes | Yes |
| IBM System z10 EC | Yes | Yes | Yes |
| IBM System z9 EC (formerly z9-109) | Yes | Yes | Yes |
| IBM System z9 BC | Yes | Yes | Yes |
| zSeries 990, 890 | No | No | Yes |
| zSeries 900, 800 | No | No | Yes |
| S/390 Parallel Enterprise Server G5/G6 | No | No | No |
| S/390 Multiprise 3000 | No | No | No |

## z/VSE status ...

- z/VSE status web page for old releases: http://www-03.ibm.com/systems/z/os/zvse/about/statusold.html

**Unsupported releases may run on these servers at user's risk** —

| IBM System z, zSeries and S/390 Server | z/VSE V4.1 and V4.2 (1) | z/VSE V3.1 (1, 5) | VSE/ESA V2.7 and V2.6 (1) | VSE/ESA V2.5 (1) | VSE/ESA V2.4 (1) | VSE/ESA V2.3 (1) |
|---|---|---|---|---|---|---|
| IBM zEnterprise BC12 (7) | Yes (6) | Yes (4) | Yes (4) | No (2) | No (2) | No (2) |
| IBM zEnterprise EC12 (7) | Yes (6) | Yes (4) | Yes (4) | No (2) | No (2) | No (2) |
| IBM zEnterprise 114 | Yes (6) | Yes (4) | Yes (4) | No (2) | No (2) | No (2) |
| IBM zEnterprise 196 | Yes (6) | Yes (4) | Yes (4) | No (2) | No (2) | No (2) |
| IBM System z10 EC | Yes | Yes (4) | Yes (4) | No (2) | No (2) | No (2) |
| IBM System z10 BC | Yes | Yes (4) | Yes (4) | No (2) | No (2) | No (2) |
| IBM System z9 EC (formerly z9-109) | Yes | Yes (4) | Yes (4) | No (2) | No (2) | No (2) |
| IBM System z9 BC | Yes | Yes (4) | Yes (4) | No (2) | No (2) | No (2) |
| zSeries 990/890 | Yes | Yes (4) | Yes (4) | Yes (4) | No (2) | No (2) |
| zSeries 900/800 | Yes | Yes | Yes | Yes | Yes | Yes |
| S/390 Parallel Enterprise Server G5/G6 (3) | No | Yes | Yes | Yes | Yes | Yes |
| S/390 Multiprise 3000 (3) | No | Yes | Yes | Yes | Yes | Yes |
| S/390 Parallel Enterprise Server G4 (3) | No | No | No | Yes | Yes | Yes |

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# z/VSE service and support

- Service and support web page on http://www-03.ibm.com/systems/z/os/zvse/support/

- Hot service news shows important updates on our service and support web pages
  - http://www-03.ibm.com/systems/z/os/zvse/support/#news

- Preventive service: information on
  - Service refreshes,
  - PSP buckets and
  - Recommended Service Levels (RSLs)
  - **New:** Security and system integrity

- Corrective service
  - Latest APARs per z/VSE component

- CICS TS for VSE/ESA 1.1.1 fix list ->
  http://www-01.ibm.com/support/docview.wss?rs=1083&uid=swg27015142

- Product Status of Independent Software Vendors (ISVs)
  http://www-03.ibm.com/systems/z/os/zvse/partners/

- IBM Software Support Handbook: https://www-304.ibm.com/support/customercare/sas/f/handbook/home.html

# z/VSE Events

- Conferences
  – Enterprise 2014 featuring the IBM System z Technical University – October 6-10, 2014

- Live Virtual Classes (LVCs)
  – See http://www-03.ibm.com/systems/z/os/zvse/education/ for details

  – Future LVCs:
    - z/VSE V5 update on May 6, 2014
    - Hardware Update
    - Cloud computing with z/VSE
    - z/VSE for beginners
    - ...

# Documentation related to z/VSE

- z/VSE documentation page - http://www-03.ibm.com/systems/z/os/zvse/documentation/

- z/VSE Collection Kit July 2013
  - Available for download in IBM Publication Center
  - Electonic only, not on physical DVD

- Documentation of z/VSE releases
  - z/VSE Internet Library on http://www.ibm.com/systems/z/os/zos/bkserv/vse.html

- IBM Redbooks
  - Redbook page with new IBM System z mainframe Redboooks
    - zEC12 / zBC12 Technical Guide, SG24-8049 / SG24-8138
    - IBM System z Connectivity Handbook, SG24-5444
  - More IBM Redbooks information on next pages

- Technical articles: http://www-03.ibm.com/systems/z/os/zvse/documentation/documents.html#articles
  - z/VSE SCSI Support and Migration Options
  - SHOWCB enhancements in z/VSE 5.1
  - z/VSE z/VM IP assist
  - Parallel Access Volume (PAV) white paper

## IBM Redbook news

- IBM Redbook blog: 5 thingsto know -
  https://www.ibm.com/developerworks/community/blogs/5things/?sortby=0&maxresults=15&lang=en

# IBM Redbook news ...

- IBM Redbook mobile app for iOS and Android:
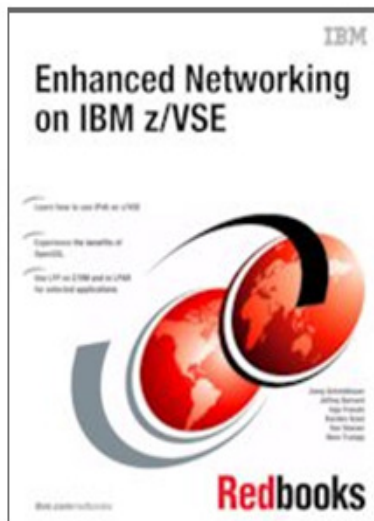  http://www.redbooks.ibm.com/redbooks.nsf/pages/mobileapp?Open

# IBM Redbook news ...

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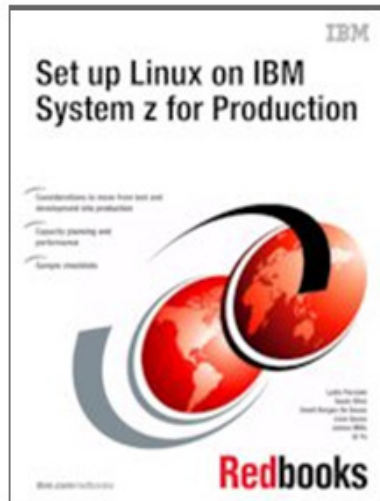◦ Karsten Graul

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- Livio Sousa
- Junius Mills

# z/VSE Requirements

- You may submit requirements at conferences (WAVV, GSE, …)


- … or via our z/VSE requirements page:
    - https://www-03.ibm.com/systems/z/os/zvse/contact/requirement.html

    - Will be replaced by the Request for Enhancements (RFE) database:
        - http://www.ibm.com/developerworks/rfe/

    - Please select the following for z/VSE requirements
        - *Brand = Servers and System Software*
        - *Product family = zSeries Software*
        - *Product = z/VSE*
        - *Component = General, z/VSE, VSE/AF, VSE/VSAM, VSE/POWER, VSE Unique Code, ...*
        - *Operating system = IBM z/VSE*
        - *Source = Share, IBM user group, IBM Conference, ..., Other*


- ... or you may enter **CICS Transaction Server** requirements via the
    - Request for Enhancement (RFE) database:
        - http://www.ibm.com/developerworks/rfe/
    - Please select the following for z/VSE-CICS requirements:
        - *Brand = WebSphere*
        - *Product family = Transaction Processing*
        - *Product = CICS Transaction Server*
        - *Component = Runtime or Explorer*
        - *Operating system = IBM z/VSE*

# z/VSE in the internet

- z/VSE Homepage: www.ibm.com/vse

- z/VSE on Twitter: www.twitter.com/IBMzVSE

- Ingolf's z/VSE blog: www.ibm.com/developerworks/mydeveloperworks/blogs/vse/
  – Use „Tags" to search for topics


- VSE-L discussion list: https://groups.google.com/forum/?fromgroups#!forum/bit.listserv.vse-l

# More Information

… on VSE home page: http://ibm.com/vse

- Ingolf's z/VSE blog: https://www.ibm.com/developerworks/mydeveloperworks/blogs/vse


- Hints and Tips for z/VSE 5.1:
  - http://www.ibm.com/systems/z/os/zvse/documentation/#hints


- 64 bit virtual information:
  - IBM z/VSE Extended Addressability,   Version 5 Release 1
  - IBM z/VSE System Macro Reference, Version 5 Release 1


- CICS Explorer: http://www.ibm.com/software/htp/cics/explorer/


- IBM Redbooks:
  - Introduction to the New Mainframe: z/VSE Basics
    http://www.redbooks.ibm.com/abstracts/sg247436.html?Open
  - Security on IBM z/VSE – updated
    http://www.redbooks.ibm.com/Redbooks.nsf/RedbookAbstracts/sg247691.html?Open
  - z/VSE Using DB2 on Linux for System z
    http://www.redbooks.ibm.com/abstracts/sg247690.html?Open
  - New: Enhanced Networking on IBM z/VSE
    http://www.redbooks.ibm.com/Redbooks.nsf/RedpieceAbstracts/sg248091.html?Open


- Please contact z/VSE: https://www-03.ibm.com/systems/z/os/zvse/contact/contact.html
  or me – Ingolf Salm – salm@de.ibm.com – for any questions

# Questions ?

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