

# Enterprise2014

## zIN25 Hints & Tips for z/VSE



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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      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 = 003B0BB220978000                VSE = FF3B0BB220978000
AR 0015 PROCESSOR = IBM 2097-726 51 (70BB251)          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 (B1) 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.= 00000000613          LOCKS INT.= 00000005997
AR 0015 FAIL      = 00000000014          FAIL      = 00000000022
AR 0015 LOCK I/O  = 00000000757          LOCK WRITE= 00000000012
AR 0015 1140I  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 YH = 003B0B8220978000      YSE = 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 YH-SYSTEM = z/YH 6.1.0 (1301) USERID = ZYSE510 YMCF = 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/YSE 5.1.2 04/19/2013 <--- Refresh Level
AR 0015 YSE/AF 9.1.0 DY47436 02/12/2013 <--- Component Level AF
AR 0015 YSE/POWER 9.1.0 DY47382 04/12/2012 <--- Component Level POWER
AR 0015 IPL-PROC = $IPLESA JCL-PROC = $$JCL
AR 0015 SUPYR = $A$SUPI TURBO-DISPATCHER (81) ACTIVE
AR 0015 SEC. MGR. = BASIC HARDWARE COMPRESSION ENABLED
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
- Appropriate message will be written 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 longer 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        PREFIX (BELOW) -LIMIT :      OK
AR 0015                                     -ACTUAL:      OK
AR 0015                                     PREFIX (ABOVE) -LIMIT :      OK
AR 0015                                     -ACTUAL:      OK
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                *                *
```

## 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)

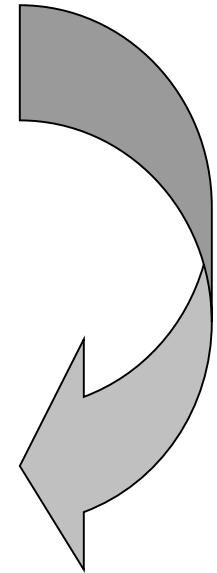
==>                                                    Path: 4
```

```
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

## 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

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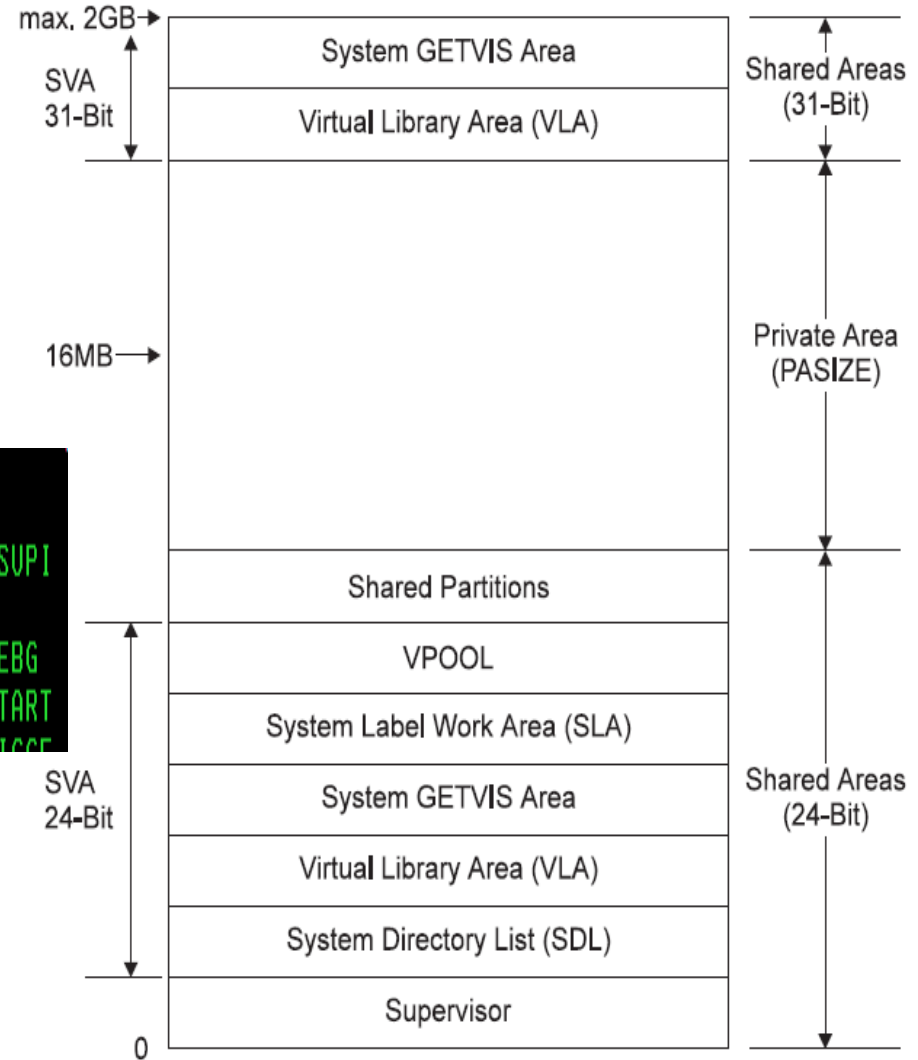
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# What to do with unused shared area (24-bit) space ?

- 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 allocated 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   40152K  400000   0K C1C1C1C1
```



## How to interrupt the IPL process

- To temporarily add new devices, modify IPL statements, IPL / JCL procedures or Supervisor names
  - LPAR: Use the IPL load parameter and enter the parameter values on the HMC load panel.
  - z/VM guest: add the load parameter value to the IPL command, e.g. IPL 200 LOADP ..P.
- The load parameter allows to add up to 8 values:
  - 1st value: I = console type,
  - 2nd S = IPL message suppression,
  - 3rd P = IPL parameter prompting,
  - 4th P = startup mode prompting,
  - 5th D = debug mode for installation disk.
  - Values 6 to 8 are reserved.
  - Add periods in positions for defaults. Combinations are possible.
- Examples:
  - to prompt for the startup mode (mini, basic, cold) – use load parameter "...P".
  - To add or change IPL commands - use the parameter "..P"
    - after message 0I03D ENTER SUPERVISOR PARAMETERS OR ASI PARAMETERS
    - enter Supervisor parameters such as the Supervisor name, VIO, NOPDS or VSIZE, VPOOL, ..., or
    - enter IPL procedure (IPL=) and JCL procedure (JCL=), e.g. IPL=\$IPLESA,JCL=\$\$JCL, or
    - Use the STOP= parameter, e.g. STOP=SYS or STOP=ADD to add or change an IPL command.  
You will be prompted before the first SYS or ADD command (in the example)
  - Please verify those changes in your test environment first.

## 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 LOADPARAM ..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 causes 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 disposition 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 disposition 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 environments
  - 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
F1 0001 1QBCI QUEUE FILE RECOVERY COMPLETED

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)
==>

```

## 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 0120I 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
BG 0000 DATE 04/08/2014, CLOCK 13/07/41
BG 0000 1193I 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 1140I 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
F1 0001 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

```

IR 0015
AR 0015 COPY-BLKS = 00015          HIGH-MARK = 00041          MAX = 01502
SR 0015 CHANO_USED= 00004          HIGH-MARK = 00011          MAX = 00080
  
```

- If high water mark is close to MAX, consider to increase 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 for more than 14 years
    - Migration target for CICS/VSE
    - Recommendation: If you 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 , ...](#)

## 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 will be October 31, 2014.
- After October 31, 2014, the only supported releases are z/VSE 5.1 and z/VSE 5.2.
  - z/VSE Version 5 supports z9 or higher
- z/VSE 5.1 had end of marketing in May 2014.
  - That is z/VSE 5.1 can no longer be ordered.
- Consider the single version charging requirements, if you migrate from z/VSE V4 to z/VSE V5.
  - IBM System z software pricing: <http://www-03.ibm.com/systems/z/resources/swprice/reference/>
- z/VSE 5.1 end of service announced: effective June 30, 2016.

## 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

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Version.Release	Date available	Withdrawal from Marketing effective (1)	Withdrawal from Service effective	Minimum z/VM level (2)
→ <a href="#">z/VSE V5.2</a>	04/25/2014 <a href="#">Announcement</a>	TBD	TBD	z/VM V5.4
→ <a href="#">z/VSE V5.1</a>	11/25/2011 <a href="#">Announcement</a>	05/23/2014 <a href="#">Announcement</a>	06/30/2016 <a href="#">Announcement</a>	z/VM V5.4
→ <a href="#">z/VSE V4.3</a>	11/26/2010 <a href="#">Announcement</a>	06/25/2012 <a href="#">Announcement</a>	10/31/2014 <a href="#">Announcement</a>	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

## 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/customer/sas/f/handbook/home.html>

## End of service announcements

August 5, 2014

- **z/VSE 5.1** withdrawn from service June 30, 2016.
  - Replacement product: z/VSE 5.2.
- **WebSphere MQ for z/VSE 3.0** withdrawn from service September 30, 2015.
  - Replacement product: none.
  - Individual service extension contracts can be requested for service beyond September 30, 2015 for a period of at least 3 years.
  - The WebSphere MQ Client for VSE will still be available.
- **Emulation Program (EP) 1.14** withdrawn from service December 31, 2015.
- **z/VM 5.4** withdrawn from service December 31, 2016 or until z9 processors are withdrawn from support, whichever is later.
  - Replacement product: z/VM V6.
  - The zEC12 and zBC12 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).

# Service Management Connect – z/VSE

<http://www.ibm.com/developerworks/servicemanagement/z/zvse/index.html>

z/VSE is a widely used mainframe operating system. z/VSE is designed to offer a stable, secure, and continuously available environment for applications running on the mainframe (IBM System z). z/VSE today is the result of nearly five decades of technological advancement. z/VSE evolved from a simple operating system that could process a single program at a time to a sophisticated operating system that can handle many programs and interactive users concurrently.

### What it does for you:

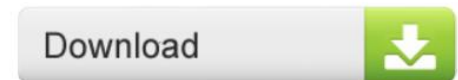
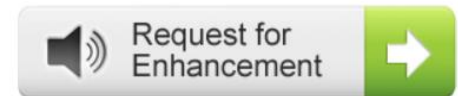
z/VSE is designed to take advantage of the z/Architecture. It supports the latest IBM System z processors (mainframe) and IBM System Storage (ECKD, SCSI disks and tape systems).

More information is on the [z/VSE home page](#)

## Beta program

For our z/VSE release in development we are looking for z/VSE users that want to run some tests with their workload. Please → [contact us](#) for details. The next beta test period may start in September 2014.

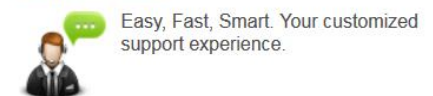
### Request for enhancement



### Collaborate



### Support Portal



### Follow z/VSE



## Price change(s) for selected IBM software products Announced: August 12, 2014

- Monthly license charges (MLC) on select middleware software programs and their features will increase on January 1, 2015
  
- 4% price increase depending on the features selected
  - DB2 Server for VSE&VM V7
  - IBM C FOR VSE/ESA VERSION 1
  - IBM C/370 Compiler Version 2
  - IBM COBOL VSE/ESA
  - IBM PL/I VSE/ESA
  - Rational COBOL RT for zVSE
  - IBM HIGH LVL ASSEMBLER MVS,VM,VSE V1
  - MQ SERIES FOR VSE/ESA V2R1
  - WEBSHERE MQ FOR Z/VSE V3
  - IBM Compiler for REXX/370
  - IBM Library for REXX/370
  
- approximate 7% price increase on all software billing metrics
  - CICS TS for VSE/ESA 1.1.1

## 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 5, 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/>
  - New books are uploaded: z/VSE 5.2 TCP/IP Support, z/VSE 5.2 Diagnosis Tools, z/VSE 5.2 Guide for Solving Problems, z/VSE 5.2 Supervisor Diagnosis Reference, z/VSE Hints & Tips
  
- z/VSE Collection Kit - April 2014
  - Available for download in IBM Publication Center
  - Electronic 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>
  
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  - Redbook page with new IBM System z mainframe Redbooks
    - 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

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



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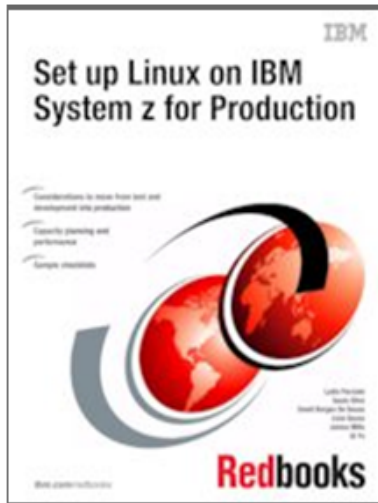
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## z/VSE Requirements

- You may submit requirements at conferences (GSE, zUniversity, ...)
  
- **z/VSE** requirements via 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*
  
- **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](http://www.ibm.com/vse)
- z/VSE on Twitter: [www.twitter.com/IBMzVSE](http://www.twitter.com/IBMzVSE)
- Ingolf's z/VSE blog: [www.ibm.com/developerworks/mydeveloperworks/blogs/vse/](http://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>
  
- **New:** Hints and Tips for z/VSE 5.2:
  - <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](mailto:salm@de.ibm.com) – for any questions

## Questions ?



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