

IS04 – The new version z/VSE 6.1

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My blog: https://www.ibm.com/developerworks/mydeveloperworks/blogs/vse/?lang=en



2015

9th European GSE / IBM TU for z/VSE, z/VM and Linux on z Systems

October 19-21 | Boeblingen / Stuttgart, Germany



z/VSE Roadmap

Quality

Connectivity

z/OS Affinity

Capacity

z/VSE 6.1 Ann 10/05/2015, GA 11/27/2015

CICS TS for z/VSE 2.1: CICS Explorer update, Channels & Containers; TCP/IP for z/VSE 2.1, IPv6/VSE 1.2, **z10 or higher**; z Systems exploitation

z/VSE 5.2 Ann: 04/07/2014, GA 04/25/2014

zEnterprise exploitation, device support Tapeless installation, networking / security enhancements

z/VSE 5.1 11/2011, end of service 06/30/2016

64 bit virtual, zEnterprise exploitation, z9 or higher

z/VSE 5.1.1 06/2012: CICS Explorer, LFP in LPAR, database connector

z/VSE 5.1.2 06/2013: TS1140, 64 bit I/O, openSSL, db connector enhancements

z/VSE 4.3 11/2010, end of service 10/31/2014 Virtual storage constraint relief, 4 digit cuus, z/VSE 4.3.1 08/2011

z/VSE 4.2 October 2008, end of service 10/31/2012

More tasks, more memory, EF for z/VSE 1.1, CPU balancing, SCRT on z/VSE z/VSE 4.2.1 07/2009 - PAV, EF for z/VSE 1.2, z/VSE 4.2.2 04/2010 - IPv6/VSE 05/2010 CICS/VSE end of service 10/31/2012

z/VSE 4.1 March 2007, end of service 04/30/2011

z/Architecture only, 64 bit real addressing, MWLC - full and sub-capacity pricing





z/VSE Statement of Direction (SOD) - in z/VSE 5.2 Announcement

April 2014

IBM intends to provide

new capability in a future release of IBM CICS Transaction Server for z/VSE, to provide:

- (i) Updates to CICS resources for CICS Explorer, and
- (ii) Channels and Containers to enable the transfer of large amounts of data between CICS applications.
- IBM intends to rename

the product z/VSE Central Functions to z/VSE in a new z/VSE version.

- z/VSE V5.2 will be the last release that supports IBM System z9.
 Future releases of z/VSE will support IBM System z10 and higher.
- Stabilization of support and discontinued functions:
 - CICS DDM: Support for CICS Distributed Data Management (DDM) is stabilized in CICS TS for VSE/ESA
 V1.1.1. In a future release of CICS TS for z/VSE, IBM intends to discontinue support for CICS DDM.

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





z/VSE 6.1 GA Announcement

- Preview: May 11, 2015, GA ann.: 10/05/2015, planned for GA 11/27/2015
- Hardware support
 - Architectural Level Set to IBM System z10 or later
 - IBM z13 support
 - Configurable Crypto Express5S
 - More than 16 cypto domain support
 - FICON Express16S for ECKD, channel to channel or FCP-attached SCSI
 - IBM System Storage options
 - IBM System Storage TS7700 Virtualization Engine Release 3.3
 - IBM System Storage DS8870 Release 7.5 (ECKD and FCP-attached SCSI disks)
 - IBM FlashSystem V9000 for use with FCP-attached SCSI disks.





z/VSE 6.1 GA Announcement ...

- New CICS version: CICS TS for z/VSE 2.1 fullfills Statement of Direction (SOD)
- Networking enhacements
 - IPv6/VSE 1.2 new release
 - TCP/IP for z/VSE 2.1 new version
- Connectors
 - MQ Client Trigger Monitor
- z/VSE 6.1 requires an initial installation,
 Fast Service Upgrade (FSU) from z/VSE V5 not supported
- z/VSE 6.1 will be delivered in English only
- Statement of direction:
 IBM plans to deliver future upgrades of z/VSE on DVD or electronically only.

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CICS TS for z/VSE 2.1

- A new CICS TS version for z/VSE The first major CICS TS update since 1999
 - GA Announcement 10/05/2015, GA 11/27/2015
 - Based on CICS TS for VSE/ESA 1.1.1
 - A complete new build of CICS TS
 - Fully compatible with CICS TS for VSE/ESA 1.1.1
 - No recompile or re-link of CICS applications required
 - New APIs described in CICS Enhancements Guide
 - Migration considerations described in migration white paper available at z/VSE 6.1 GA
- Only available for z/VSE 6.1 and later, replaces CICS TS for VSE/ESA 1.1.1
 - CICS TS for VSF/FSA 1.1.1 still delivered with z/VSF Version 5





CICS TS for z/VSE 2.1 - Enhancements

- CICS Explorer update capability
- Channel & Container support Lifts the 32K Commarea limitation
- CICS requirements
 - More current cypher suites (AES128/256) to CICS Web Support
 - Support for EXEC CICS INQUIRE SYSTEM OSLEVEL
 - Millisecond support in EXEC CICS ASKTIME
 - Millisecond option to EXEC CICS FORMATTIME
- CICS DDM (CICS Distributed Data Management) not supported





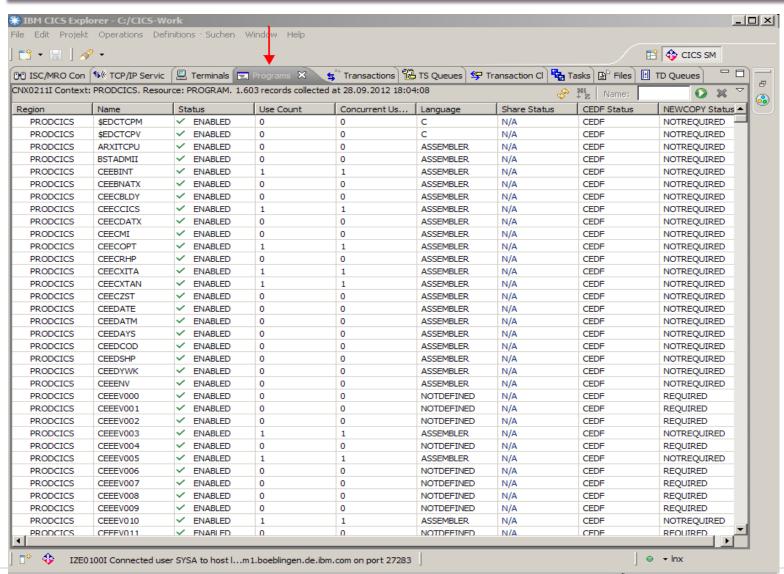
CICS Explorer

- Announced 04/03/2012, GA 06/15/2012, new enhancements in CICS TS for z/VSE 2.1
- CICS Explorer monitoring in z/VSE Version 5
 - System management framework for CICS TS
 - Consists of CICS Explorer client and a CICS TS server extension
 - CICS Explorer client
 - Read-only capabilities; Eclipse-based user interface on workstation
 - Connects to CICS TS via TCP/IP Communication via HTTP requests
 - One CICS Explorer client for z/VSE and z/OS
 - CICS Explorer server extension
 - Delivered as PTF for CICS TS for VSE/ESA 1.1.1
- Integrated into CICS TS for z/VSE 2.1 (z/VSE 6.1)
 - CICS Explorer server extension integrated into CICS TS for z/VSE 2.1
 - Provides updates to CICS resources
 - Update and control CICS resources as you would do with transactions on your CICS terminal
 - Enable / disable CICS resources, change selected CICS definitions, ...





CICS Explorer ...





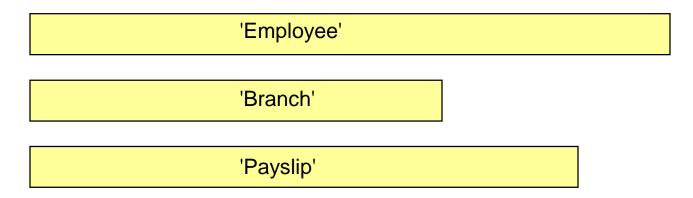


Channels and Containers

- z/VSE ported channel and container APIs from CICS TS for z/OS 3.1
- Channels and containers lift the 32K Commarea limitation
 - Applicable for both LINK and XCTL, Distributed Program Link (DPL)
 - Affects the exchange of data between CICS tasks
 - Local and transcation routing
 - START with data
- Language support is provided for C, COBOL, HLASM, and PL/I.
- Channels and Containers limitations
 - In 31 bit virtual storage only
 - No support for
 - External CICS Interface (EXCI), External Call Interface (ECI), CICS Web Support (CWS)
 - Business Transaction Services (BTS)



Containers

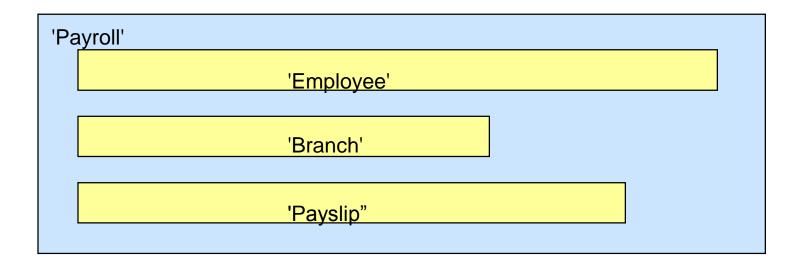


- To solve the 32K Commarea problem a new construct will be provided
- Named block of data designed for passing information between programs
 - Like named COMMAREAs
- CONTAINER API
 - Created using (EXEC CICS) PUT CONTAINER, defines the size of the container
 - Read using (EXEC CICS) GET CONTAINER
 - Delete using (EXEC CICS) DELETE CONTAINER, to free storage, if no longer required
- No CICS enforced size limitation
 - Containers are stored within the CICS EDSA (31 bit partition virtual storage)





Channels



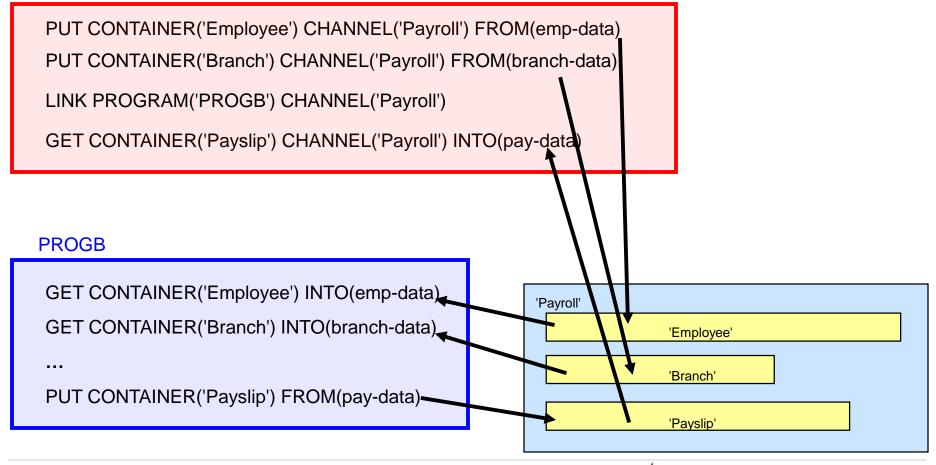
- A group of Containers
 - No limit on the number of Containers in a Channel
- A Channel is a sort of program interface
 - Passed on LINK, XCTL, pseudoconversational RETURN, and START commands
- Non-persistent
 - Non-recoverable resource similar to commareas





A Simple Example

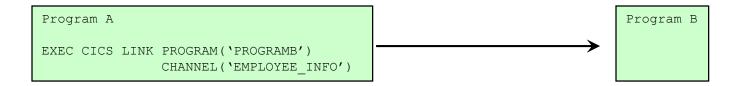
PROGA





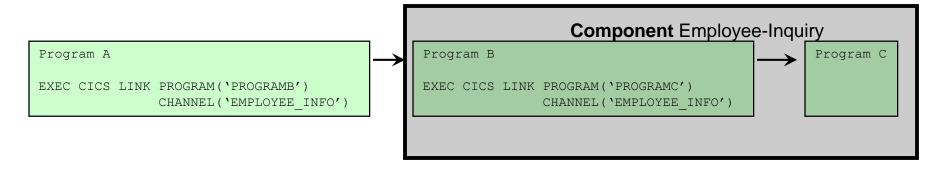
Basic Scenarios for using Channels

One Channel / One Program



- One Channel / Multiple Programs
 - The Channel is the interface to a Component

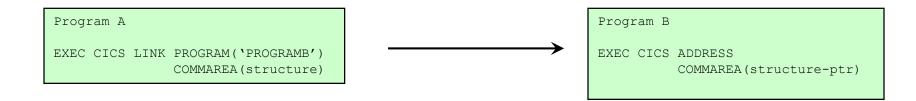
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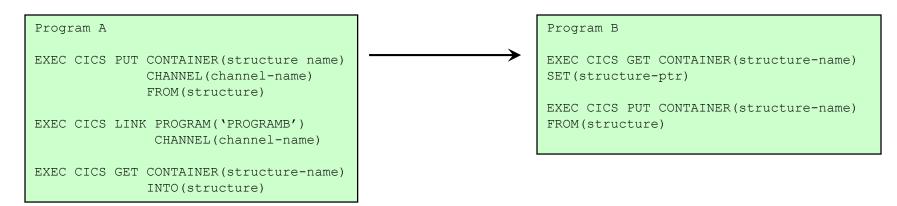


Migration of Programs Using LINK

Existing application with COMMAREA



Changed application using Channels



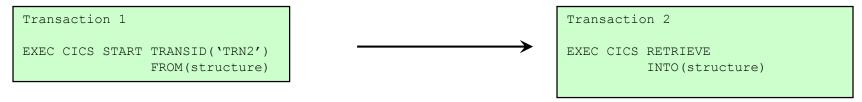
Note that, if Program B changes the Container data, it must PUT the Container back before returning, or the changes will not be visible to the caller.



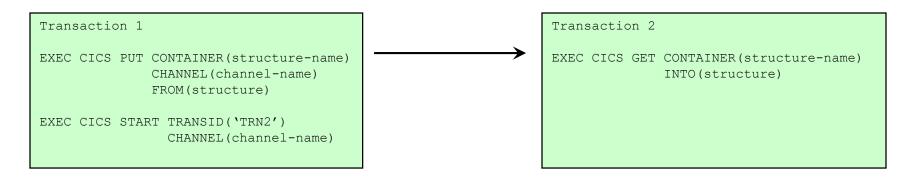


Migration of Programs Using START

Existing application with START data



Changed application using Channels





TCP/IP Connectivity for z/VSE

- TCP/IP stacks are provided by ISVs
- TCP/IP connectivity for IPv4 communication
 - IBM TCP/IP for VSE licensed from CSI International
 - IBM IPv6/VSE licensed from Barnard Software, Inc. (BSI)
 - Linux fast path (LFP)
- TCP/IP connectivity for IPv6 communication
 - IBM IPv6/VSE
 - Linux Fast Path
- All TCP/IP stacks can run concurrently within one z/VSE system
- IBM TCP/IP for VSE/ESA 1.5F and IBM IPv6/VSE 1.1 not supported on z/VSE 6.1
- Enhancements for for both TCP/IP stacks in z/VSE 6.1
 - IBM TCP/IP for z/VSE 2.1
 - IBM IPv6/VSE 1.2
 - Both are only supported on z/VSE 6.1

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z/VSE 6.1 - IBM TCP/IP for z/VSE 2.1

- A new version of CSI's TCP/IP stack only supported on z/VSE 6.1
 - Levelset based on TCP/IP for VSE 1.5F / 1.5G
 - Replaces IBM TCP/IP for VSE/ESA 1.5F on z/VSE 6.1
- New white-list firewall
 - Access denied unless
 an IP address is specifically allowed to communicate with the VSE system.
 - Firewall shield loaded during TCP/IP startup (in fail or warn mode for logging only)
 - Configuration phase contains a list of IP addresses
 - Firewall configuration phase can be reloaded
 - To each IP address range you may specify VSE ports (TCP or UDP) and if ICMP (Ping) is allowed
 - Example: FIREWALL ALLOW,IPV4BEG=039.101.062.131,IPV4END=039.101.062.131, TCPPORTS=PORTGRPA,UDPPORTS=NONE,ICMP=YES
 - FIREWALL commands for administration
 - ON, OFF, LOAD PHASE=<phase name>
 - WARN, FAIL, DEBUGON | DEBUGOFF, MSGON | MSGOFF, REPORT





z/VSE 6.1 – IBM TCP/IP for z/VSE 2.1 ...

- Cross memory services for external partition socket requests
 - Socket requests allocated in partition GETVIS instead of system GETVIS
 - TCP/IP partition uses cross memory services (XPCC) to process socket request
 - New program (\$BSOCKET) loaded into partition to process external socket request
- New utilities for automation and TN3270 services
 - TN3270 improved recovery
 - External TN3270 server, outside the TCP/IP partition (SERV3270 utility)
 - Multiple TN3270 servers can run at the same time
- Enhanced TLS/SSL cryptography
 - RSA-SHA256 signatures supported
 - RFC5746 implemented to allow usage of TLS extensions to prevent the handshake renegotiation security exposure
- Internal processing improvements





z/VSE 6.1 – IBM IPv6/VSE 1.2

- A new release of BSI's TCP/IP stack IBM IPv6/VSE 1.2 only supported on z/VSE 6.1
- New (basic) firewall
 - Examines IPv4 packets and IPv6 Ethernet frames
 - Enabled by default
 - VSE Librarian member contains the firewall rules table
 - To disable the firewall, just delete / rename the VSE Librarian member
 - Source IP address, packet protocol, TCP or UDP port, ICMP can be accepted / denied
 - Example: IN IP ALLOW IP 192.168.1.0 255.255.255.0
 - If a packet is denied, it is dropped. A message will be written to SYSLST
 - Default firewall rules allow all packets to be processed by the stack
 - Only Inbound (IN) rules are processed
 - Firewall commands via MSG <syslog id>
 - MSG <syslog id>,D=FIREWALL,RELOAD
 - MSG <syslog id>,D=FIREWALL,LIST
 - MSG <syslog id>,D=FIREWALL,LOGLEVEL n (0=no logging, 4=message to SYSLST)





z/VSE 6.1 – IPv6/VSE 1.2 ...

- Automated OSA Express failover using hot swap devices for high availability
 - Automatically recover from OSA Express device failures by using a backup device
- Improved SSL support including TLS 1.2
 and Diffie Hellman (DH) / Elyptic Curve Cryptography (ECC) sockets
 - Update to the latest openSSL implementation
 - Support to establish up to 16 SSL sockets concurrently, can improve performance for applications that establish multiple connections to z/VSE including TN3270(E), CICS, and web services applications
- Virtual IP address support using virtual network devices
 - Multiple IP addresses can be defined for a single network interface
 - Virtual network interfaces share a single OSA Express device
- Improved stack CPU optimization





z/VSE 6.1 – Network enhancements

- Configurable output buffers for HiperSockets and OSA Express devices
 - May improve TCP/IP performance, if z/VSE sends faster than OSA card can transfer
 - Up to 64 QDIO (Queued Direct I/O) output buffers
 - To be configured in configuration file (IJBOCONF.PHASE)
 - Requires PFIXed partition 31 bit GETVIS space
 - For OSA-Express (CHPID OSD, OSX), HiperSockets (CHPID IQD)
- Configurable intput buffers for HiperSockets and OSA Express devices (since z/VSE 5.1)
 - May improve TCP/IP performance
 - Up to 64 QDIO input buffers
 - To be configured in configuration file (IJBOCONF.PHASE)
 - Requires PFIXed partition 31 bit GETVIS space
 - The limit for PFIX storage has to be defined with the JCL SETPFIX command





z/VSE 6.1 – Connector enhancements

- MQ trigger monitor
 - Extends the IBM WebSphere MQ Client for VSE functionality
 - It monitors an IBM WebSphere MQ server running on any platform.
 - If a message arrives on a WebSphere MQ server queue, the trigger monitor may start a CICS program.

- IBM WebSphere MQ for z/VSE V3.0 withdrawn from service by September 30, 2015
 - Service extensions possible
 - The WebSphere MQ Client for VSE togther with the MQ trigger monitor can be used as an alternative.





Migration to a supported z/VSE release

- Please migrate to a supported z/VSE release to get the latest software service, hardware exploitation and functionality
- The only supported releases by 11/27/2015 are z/VSE 5.1, 5.2, 6.1
 - z/VSE 5.1, 5.2 require z9 or higher
 - z/VSE 5.1 end of service effective June 30, 2016.
 - z/VSE 5.2 can still be ordered after z/VSE 6.1 GA, end of marketing not announced yet
 - Fast Service Upgrade (FSU) to z/VSE 5.1, 5.2 supported
 - z/VSE 6.1 requires an initial installation
 - Consider the Single Version Charging (SVC) requirements ... and for z/VSE 6.1 Migration Price Option (MPO – see next page).
 - IBM System z software pricing: http://www-03.ibm.com/systems/z/resources/swprice/reference/
 - Migration white paper will be provided at z/VSE 6.1 GA





Migration Price Option (MPO)

- The Migration Price Option is available (see z/VSE 6.1 announcement letter for more details)::
 - While z/VSE V5 (and/or z/VSE prior versions) and z/VSE V6 are running on the same machine and Licensed under the same IBM customer number.
 - During migration to z/VSE V6 and not to exceed 18 months from the date of licensing z/VSE V6.
- When z/VSE V5 (and/or z/VSE prior versions) and z/VSE V6 are eligible for Sub-Capacity pricing, z/VSE V6 is charged at the combined concurrent peak MSUs for both versions, reported as z/VSE (ALL) on the customer's Sub-Capacity Report. The calculated MSUs apply for a period not to exceed 18 months from the date of licensing of z/VSE V6.
- When full capacity charges apply, charges for z/VSE V5 (and/or z/VSE prior versions) and z/VSE V6 are based on the MSU value at Full-Machine Capacity and billed at the z/VSE V6 price for a period not to exceed 18 months from the date of licensing z/VSE V6.
- The usage of a set of Programs, subject to the waiver, would be limited by terms of an IBM agreement such that the qualifying customers will be allowed to run only one SW application (either "from" or "to" Program) in a single production LPAR.
- The Migration Price Option should be requested when ordering z/VSE V6 when that will be replacing z/VSE V5 (and/or z/VSE prior versions) on the same Machine.





End of marketing announcements

- IBM Advanced Communication Function/Network Control Program (**ACF/NC**P) 7.8.1 5648-063 withdrawn from marketing September 8, 2014
- IBM Advanced Communication Function/System Support Program (ACF/SSP) for VSE/ESA 4.8.1, withdrawn from marketing September 7, 2015.
 - Replacement product: none.
- IBM Overlay Generation Language/370 (OGL/370) 1.0.0 withdrawn from marketing September 2, 2015.
 - Replacement product: none.
- IBM 3592 Tape Controller Model C07 and select features will be withdrawn from marketing effective on November 13, 2015.



End of service announcements

- 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 continues to 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.
 - z/VM V5.4 not supported on z13; Replacement product: z/VM V6.
- IBM Advanced Communication Function/System Support Program (ACF/SSP) for VSE/ESA 4.x.x 5686-064
 - to be withdrawn from service on September 30, 2016
- IBM TCP/IP for VSE/ESA 1.5.0 5686-A04 Feature S001G2C NFS for IBM TCP/IP for VSE/ESA to be withdrawn from service on September 30, 2016





z Systems / z/VM support

- z/VSE V5 and V6 support IBM z Systems servers:
 - IBM 713
 - IBM zEnterprise EC12 (zEC12)
 - IBM zEnterprise BC12 (zBC12)
 - IBM zEnterprise 196 (z196)
 - IBM zEnterprise 114 (z114)
 - IBM System z10 (z10 EC, z10 BC)
- z/VSE V5 supports IBM z Systems servers:
 - IBM System z9 (z9 EC, z9 BC)
 - ... and z/VSE V5 and V6 can run in an LPAR or as a z/VM guest on all supported z/VM releases
 - ... in uni- or multiprocessor mode

z/VM V5.4 support:

- 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 (August 5, 2014 announcement).
- z/VM 5.4 not supported on z13.

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z Systems support

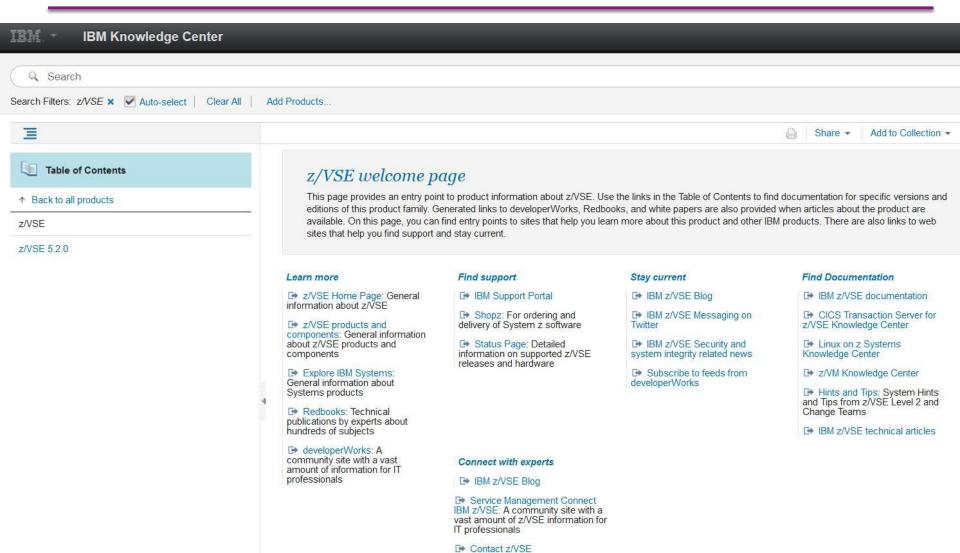
VSE Release	z800 / z900	z890 / z990	z9	z10 / z196 / z114 / zEC12 / zBC12 / z13	VSE EoS
z/VSE 6.1 (GA 11/27/2015)	No	No	No	Yes	tbd
z/VSE V5.2	No	No	Yes	Yes	tbd
z/VSE V5.1	No	No	Yes	Yes	06/30/2016
z/VSE V4.3	Yes	Yes	Yes	Yes	10/31/2014
z/VSE V4.2	Yes	Yes	Yes	Yes	10/31/2012
z/VSE V4.1	Yes	Yes	Yes	Yes	04/30/2011
z/VSE V3.1	Yes	Yes	Yes	Yes	07/31/2009
VSE/ESA V2.7	Yes	Yes	Yes	Yes	02/28/2007
VSE/ESA V2.6	Yes	Yes	Yes	Yes	03/2006
VSE/ESA V2.5	Yes	No	No	No	12/2003
VSE/ESA V2.4	Yes	No	No	No	06/2002
VSE/ESA V2.3	No	No	No	No	12/2001

z/VSE release / Hardware status: http://www-03.ibm.com/systems/z/os/zvse/about/status.html





New: z/VSE Knowledge Center

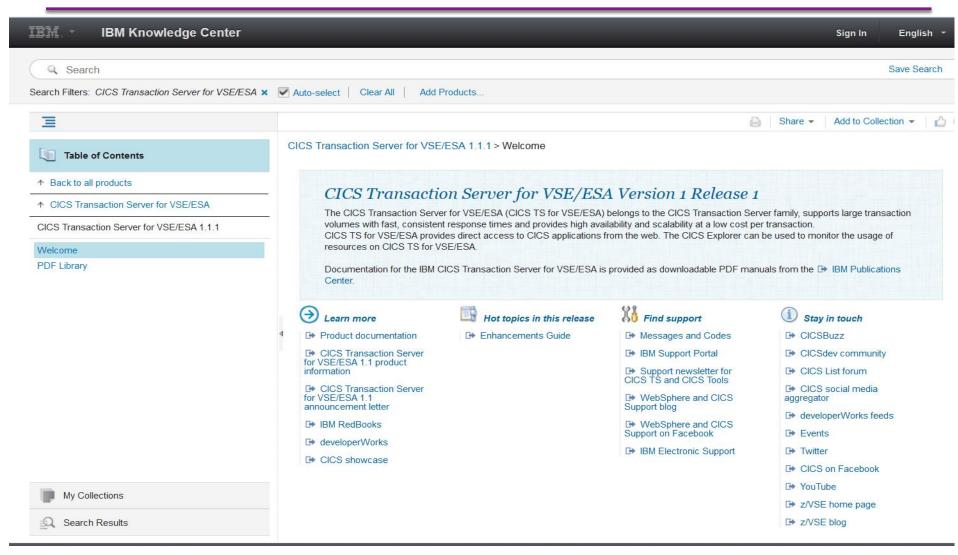


http://www-01.ibm.com/support/knowledgecenter/SSB27H/zvse_welcome.html





CICS TS for VSE Knowledge Center



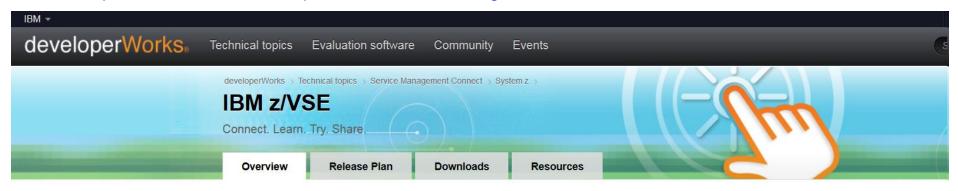
http://www-01.ibm.com/support/knowledgecenter/SSB2JE 1.1.1/welcome.html





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









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z/VSE Requirements

- You may submit requirements at conferences (GSE, zUniversity (Edge), VM Workshop, ...)
- 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/VSF
 - 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/

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- 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 Homepage: <u>www.ibm.com/vse</u>
- 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





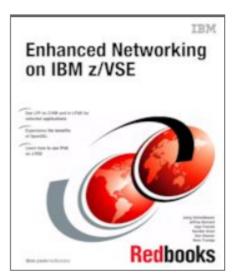
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Enhanced Networking on IBM z/VSE

An IBM Redbooks publication



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- Karsten Graul
- Don Stoever
- Rene Trumpp

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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
- 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/sq247691.html?Open
 - z/VSE Using DB2 on Linux for System z http://www.redbooks.ibm.com/abstracts/sg247690.html?Open

9th European GSE / IBM TU for z/VSE, z/VM and Linux on z Systems

- 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







