IBM z/VSE Version 4 Release 2 is generally available to help enable growth

IBM® z/VSE™ Version 4 Release 2 (z/VSE V4.2) continues the z/VSE focus on scalability, security, interoperability, and service-oriented architecture.

z/VSE V4.2 supports IBM System z™ servers:

- IBM System z10 Enterprise Class (z10 EC)
- IBM System z9® Enterprise Class (z9™ EC) and z9 Business Class (z9 BC)
- IBM eServer™ zSeries® 990, 890, 900, and 800

z/VSE V4.2 is designed to support:

- Up to 512 VSE tasks
- Up to 32 GB of processor storage
- Parallel Access Volume (PAV) feature of IBM DS8000™ and DS6000™ series
- Lightweight Directory Access Protocol (LDAP) sign-on support using a new z/VSE LDAP client
- IBM System Storage™ SAN Volume Controller (SVC) access to FCP-SCSI disks

z/VSE Version 4 executes in z/Architecture® mode only and supports 64-bit real addressing. It offers Midrange Workload License Charge (MWLC) pricing metrics, including a sub-capacity option for IBM System z10 EC, z9 EC, and z9 BC servers.

Overview

z/VSE Version 4 Release 2 (z/VSE V4.2) is built on a heritage of ongoing refinement and innovation that spans more than four decades. It is the latest step in the ongoing evolution of z/VSE. z/VSE V4.2 continues the z/VSE focus on scalability, security, interoperability, and service-oriented architecture. It is designed to help protect and leverage existing investments in VSE information assets. z/VSE V4.2 is designed to address the needs of clients with growing core VSE workloads and/or those who wish to exploit Linux® on System z for new, Web-based business solutions and infrastructure simplification.

z/VSE V4.2 supports IBM System z servers:

- IBM System z10 Enterprise Class (z10 EC)
- IBM System z9 Enterprise Class (z9 EC) and z9 Business Class (z9 BC)
- IBM eServer zSeries 990, 890, 900, and 800
z/VSE V4.2 is designed to support:

- **Scalability enhancements**
  - Up to 512 VSE tasks (two times the 255 limit in z/VSE V4.1)
  - Up to 32 GB of processor storage (four times the 8 GB supported by z/VSE V4.1)
  - Parallel Access Volume (PAV) feature of IBM System Storage DS8000 and DS6000 series

- **Security enhancements**
  - Lightweight Directory Access Protocol (LDAP) sign-on support using a new z/VSE LDAP client
  - IBM System z10 extensions to CP Assist for Cryptographic Function (CPACF)
  - IBM System Storage TS1120 ‘re-keying’ function
  - Basic Security Manager (BSM) improvements
  - Encryption Facility for z/VSE V1.1 as an optional priced feature

- **Enhanced storage options**
  - IBM System Storage SAN Volume Controller (SVC) access to FCP-attached SCSI disks
  - IBM System Storage TS3400 Tape Library and TS7700 Virtualization Engine™ Release 1.4

z/VSE Version 4 executes in z/Architecture mode only and supports 64-bit real addressing for selected system functions. z/VSE V4 is not designed to support 64-bit virtual addressing or allow 64-bit addressing for user applications. z/VSE V4.2 can run in basic mode (z900 and z800 only), in LPAR mode, or as a guest under z/VM® V5.2 or later. It is the preferred follow-on VSE product for clients with z/VSE V4.1, z/VSE V3, and VSE/ESA™ installed. You may choose to use the Fast Service Upgrade (FSU) process when migrating from z/VSE V4.1 or z/VSE V3.1.

z/VSE V4.2 offers Midrange Workload License Charge (MWLC) pricing metrics, including a sub-capacity option, for System z10 EC, z9 EC, and z9 BC servers.

This announcement fulfills the z/VSE Version 4 Release 2 Preview, Software Announcement ZA07-0188, dated October 09, 2007. This announcement contains additional detail and content not included in the preview.

**Key prerequisites**

Refer to the Hardware requirements, Software requirements, and Planning information sections for details.

**Planned availability date**

October 17, 2008

Availability of Programs with encryption algorithm in France is subject to French government approval. Contact the Cryptographic Approvals Manager in France, Olivier Hamel/France/IBM@IBMFR, Paris DCT.

**Description**

z/VSE Version 4 Release 2 (z/VSE V4.2) is built on a heritage of ongoing refinement and innovation that spans more than four decades. It is designed to help protect and leverage existing investments in VSE information assets. z/VSE V4.2 is designed to address the needs of clients with growing core VSE workloads and/or those who wish to exploit Linux on System z for new, Web-based business solutions and infrastructure simplification.

z/VSE V4.2 exploits selected features of innovative IBM System z and IBM System Storage technology. It executes in z/Architecture mode only and supports 64-bit real addressing for
selected system functions. z/VSE V4.2 is not designed to support 64-bit virtual addressing or allow 64-bit addressing for user applications.

z/VSE V4.2 supports IBM System z servers:

- IBM System z10 Enterprise Class (z10 EC)
- IBM System z9 Enterprise Class (z9 EC) and z9 Business Class (z9 BC)
- IBM eServer zSeries 990, 890, 900, and 800

It can run in basic mode (z900 and z800 only), in LPAR mode, or as a guest under z/VM V5.2 or later.

z/VSE V4.2 continues the z/VSE focus on scalability, security, service-oriented architecture (SOA), and hybrid solutions that exploit z/VSE and Linux on System z.

z/VSE V4.2 is designed to:

- Support up to 512 VSE tasks. That is twice the 255 task limit in z/VSE V4.1 and prior versions. Removing the task constraint may help VSE clients grow their CICS® workloads and consolidate their VSE systems, and may ease the migration from CICS/VSE® to CICS Transaction Server for VSE/ESA.
- Exploit up to 32 GB of processor storage. That is four times the 8 GB limit in z/VSE V4.1 and 16 times the limit in z/VSE V3.1 and VSE/ESA V2.
- Support the Parallel Access Volume (PAV) feature of DS8000, DS6000, and ESS series. PAV allows accessing an ECKD-type volume with multiple concurrent requests. PAV may result in a performance improvement compared to traditional I/O.
- Enable LDAP (Lightweight Directory Access Protocol) sign-on for z/VSE V4.2. A user ID and password can be authenticated using an LDAP server that is connected to z/VSE V4.2 via a TCP/IP network. z/VSE V4.2 provides an LDAP client only. An LDAP server on another platform is required. The use of "company-wide" user IDs connects z/VSE with the centralized management of user IDs. As a result, password rules and password renewal can be enforced via the LDAP server. For example, LDAP sign-on can overcome the previous limitation that z/VSE user IDs must be between 4 and 8 characters, and passwords are limited to 8 characters. Using LDAP sign-on, user IDs and passwords can both be up to 64 characters. LDAP authorization is designed to integrate z/VSE into "Identity Management Systems," such as IBM Tivoli® products, or systems based on the Microsoft® Active Directory.
- Support the SAN Volume Controller (SVC). In addition to IBM System Storage qualified for use with z/VSE FCP-SCSI support, VSE clients can now access the IBM System Storage disk subsystems and OEM SCSI disk devices supported by the SVC. SVC support offers more storage choices to clients and may help lower Total Cost of Ownership (TCO).

z/VSE V4.2 offers Midrange Workload License Charge (MWLC) pricing metrics, including a sub-capacity option, for IBM System z10 EC, z9 EC, and z9 BC servers. For a description of MWLC and sub-capacity pricing options, including applicable terms and conditions, restrictions, processes, and procedures, refer to Software Announcement ZA07-0101, dated January 09, 2007.

z/VSE V4.2 is the preferred follow-on VSE product for clients with z/VSE V4.1, z/VSE V3, or VSE/ESA installed. You may choose to use the Fast Service Upgrade (FSU) process when migrating from z/VSE V4.1 or z/VSE V3.1.

This announcement fulfills the z/VSE Version 4 Release 2 Preview, Software Announcement ZA07-0188, dated October 09, 2007. This announcement contains additional detail and content not included in the preview.

Note: Items mentioned in the following sections as being available for z/VSE V4.1 or z/VSE V3 may require the user to install additional PTFs. We recommend z/VSE V4.1.2 or later or z/VSE V3.1.3 or later with the latest recommended service level.

**Offering scalability**

**Up to 512 VSE tasks**
z/VSE V4.2 is designed to support up to 512 VSE tasks. That is two times the "old" 255 task limit and addresses several long-standing customer requirements. Clients having many partitions active are sometimes constrained by the 255 task limit in z/VSE V4.1, z/VSE V3.1, and VSE/ESA V2. This includes, for example, those with multiple CICS Transaction Server for VSE/ESA (CICS TS VSE/ESA) partitions, each running several subtasks. The additional tasks in z/VSE V4.2 may help clients grow CICS workloads or consolidate z/VSE systems. For some clients, additional tasks may help ease migration from CICS/VSE to CICS TS VSE/ESA. z/VSE V4.2 offers various options that allow clients to configure additional tasks according to their needs. The "more task" support can be activated system-wide or for specific applications. z/VSE V4.2 also provides a compatibility mode for applications that rely on the "old" 255 task limit.

32 GB of processor storage

z/VSE V4.2 is designed to exploit up to 32 GB of processor (real) storage. That is four times the 8 GB limit in z/VSE V4.1 (and 16 times the 2 GB limit in z/VSE V3 and VSE/ESA V2). z/VSE V4.2 helps exploit more of the large processor storage available on even the smallest System z9 servers. Clients with especially large z/VSE environments may experience lower paging rates. In fact, many z/VSE environments may be able to run without a page data set at all (the NOPDS option).

In z/VSE V4.2 control blocks have been moved at the end of real storage, thus reducing system's real storage requirements below 2 GB. More real storage below 2 GB is now available for applications that need storage to be fixed.

Parallel Access Volume (PAV)

PAV is an optional licensed feature of the IBM System Storage DS8000 and DS6000, and IBM TotalStorage® ESS series. It enables a single System z server to simultaneously process multiple I/O operations to the same volume. This can help significantly reduce device queue delays and provide enhanced throughput.

Concurrent processing of I/O operations is achieved by defining multiple logical addressses per physical volume (so-called "base" and "alias" volumes). The PAV configuration must be done both in the DS8000, DS6000, or ESS and the System z server. It can then be exploited by the operating system.

PAV enables multiple jobs within a single z/VSE image to transfer data to or from the same physical volume in parallel. When accessing a volume with PAV support active, read operations are executed simultaneously as well as write operations to different extents on the volume. PAV may improve throughput when accessing large volumes. This may allow clients to use, for example, one large volume with one base and two aliases rather than three smaller volumes without PAV support.

Clients have the flexibility to dynamically activate and deactivate PAV processing in z/VSE. The PAV support in z/VSE V4.2 is also designed to distribute I/O traffic to available base and alias volumes and do load balancing. Clients may also want to consolidate their volumes to use fewer large volumes instead of more small ones, which gives them the flexibility to add more devices.

For more information on the PAV feature, refer to

http://www-03.ibm.com/systems/storage/disk/index.html

Note: This function will not be available at z/VSE V4.2 General Availability. The function is planned to be delivered later via PTF. If you plan to use this function, please check the z/VSE Web site after GA for the latest status.

CPU balancing

z/VSE V4.2 is designed to enable CPU balancing. When CPU balancing is enabled, the z/VSE Turbo Dispatcher uses only the number of CPUs needed for the current workload. Clients can activate or deactivate CPU balancing dynamically. Interval and threshold values allow you to tune CPU balancing depending on your workloads. CPU balancing may reduce multiprocessing overhead.

Exploitation of IBM System z and System Storage technology
Open Systems Adapter-Express3 features (Gigabit Ethernet SX and LX, 10 Gigabit Ethernet LR)

OSA-Express3 is exclusive to IBM System z10 and supports CHPID type OSD. This new generation of System z LAN adapters is designed to deliver increased throughput, and double the port density. OSA-Express3 GbE is available with four ports, OSA-Express3 10 GbE with two ports per feature.

**Note:** Support for OSA-Express3 is also available with z/VSE 3.1 and later. With z/VSE 3.1, only two of the four ports of the OSA-Express3 GbE feature can be used.

**IBM System Storage SAN Volume Controller**

The IBM System Storage SAN Volume Controller (SVC) is designed to handle device-specific requirements for whatever collection of disk storage devices a client has attached to the SVC. The SVC can be attached to a storage network to provide a virtualized pool of storage shared by all hosts. It is designed to help reduce complexity and cost of storage and offers enhanced copy services as well. Copy services are controlled by the SVC software, not by the z/VSE operating system.

z/VSE V4.2 support for the SVC allows z/VSE to access FCP-SCSI disks in IBM System Storage disk subsystems, including DS8000, DS6000, DS4000™, and ESS series, as well as disk subsystems from other manufacturers that are supported by the SVC. z/VSE supports the SVC through z/VSE's SCSI device driver. In addition to IBM System Storage qualified for use with z/VSE FCP-SCSI support, clients can now access any FCP-SCSI disk device supported by the SVC.

z/VSE V4.2 SVC support offers more storage choices to clients. More choices plus better storage utilization may help lower Total Cost of Ownership (TCO).

The list of supported hardware, device driver, and firmware levels can be found at


**IBM System Storage DS8000 FlashCopy® SE (Space Efficient)**

z/VSE V4.2 is designed to support IBM FlashCopy SE, an optional feature of the DS8000 series. The FlashCopy SE feature allocates storage space on an "as-needed" basis by using space on a target volume only when it actually copies tracks from the source to the target volume. The IBM FlashCopy SE capability can lower the amount of storage needed, and help lower costs by significantly reducing disk capacity needed for copies.

**Note:** This function will not be available at z/VSE V4.2 General Availability. The function is planned to be delivered later via PTF. If you plan to use this function, please check the z/VSE Web site after GA for the latest status.

**IBM System Storage TS3400 Tape Library**

z/VSE V4.2 supports the TS3400 Tape Library as an automatic cartridge loader operating in auto mode. It can be attached using the IBM System Storage TS1120 Tape Controller. This support fulfills a Statement of Direction in Hardware Announcement ZG07-0286, dated April 18, 2007.

**Note:** The support is also available with z/VSE 3.1 and later.

**Security enhancements**

**Lightweight Directory Access Protocol (LDAP)**

LDAP sign-on support enables users to sign on to z/VSE using long, company-wide user IDs and passwords. User IDs and passwords can be authenticated using an LDAP server that is connected to z/VSE V4.2 via a TCP/IP network. Use of "company-wide" user IDs connects z/VSE with the centralized management of user IDs. As a result, password rules and password renewal can be enforced via the LDAP server. For example, LDAP sign-on can overcome the previous limitation that z/VSE user IDs must be between 4 and 8 characters, and passwords are limited to 8 characters. Using LDAP sign-on, user IDs and passwords can both be up to 64 characters. Using LDAP authorization is designed to integrate z/VSE into "Identity Management Systems," such as IBM Tivoli products, or systems based on the Microsoft Active Directory.
z/VSE V4.2 provides an LDAP client only. An LDAP server on another platform is required.

**Basic Security Manager (BSM) enhancements**

The Basic Security Manager has been enhanced to provide improved auditing of resource access. Logging is now possible on access level like read or update. BSM also supports logging of security relevant BSTADMIN commands. These enhancements allow the system administrator to monitor modifications to security definitions.

**SOA security enhancements**

Transport layer security is designed to secure the network communication between the communication partners by encrypting the data that is being transmitted over the network. A SOAP message can be sent via multiple servers (hops). Connections between hops can use different transport security methods or may even use no transport security at all. Transport security does not span across multiple hops. This means any intermediate hop may be able to look at the message. For greater level of end-to-end security, you need to use message layer security.

z/VSE 4.2 adds support for:

- Secure Socket Layer (SSL/TLS) for HTTP communication when VSE is acting as client or server
- Transport Layer Authentication using HTTP basic password or SSL client authentication
- Message Layer Authentication using UsernameToken with password or certificate

**IBM System Storage TS1120 Tape Drive (3592 Model E05) encryption re-keying support**

z/VSE V4.2 is designed to provide encryption re-keying support. Re-keying provides the capability to re-encrypt the data key of an already encrypted tape cartridge.

**CP Assist for Cryptographic Function (CPACF)**

CPACF is a no-charge optional feature of System z10 EC, z9, z990, and z890 servers. It provides an "on processor" function designed to accelerate symmetric cryptographic operations. CPACF on z990 and z890 servers provides DES and T-DES (triple DES) acceleration. CPACF on z9 servers adds Advanced Encryption Standard (AES) 128-bit key support. z10 EC enhancements include AES for 256-bit keys.

z/VSE V4.2 is designed to support SSL using also AES for 256-bit keys for a stronger encryption. TCP/IP for VSE/ESA is designed to transparently use AES for 256-bit keys: if the hardware is not available, the operations are performed by software. z/VSE V4.2 e-business Connectors support AES for 256-bit keys in addition to AES-128, DES, and T-DES (triple DES) encryption and decryption.

As with other features with sensitive security implications, depending on the geographic location, U.S. Export/Import restrictions may apply.

**Note:** This function is also available with z/VSE V4.1.

**Dynamic change of cryptographic processors**

The z10 EC allows addition or removal of cryptographic processors (Crypto Express2) without reactivating the logical partition. z/VSE V4.2 is designed to dynamically update its cryptographic configuration when running in LPAR mode, giving you more flexibility.

**Encryption Facility for z/VSE (EF for z/VSE) V1.1**

EF for z/VSE is designed to exploit the powerful encryption capabilities of IBM System z to help you securely and efficiently protect data. EF for z/VSE is an optional, priced feature of VSE Central Functions V8 (z/VSE V4) and is eligible for MWLC pricing. The data format of EF for z/VSE V1.1 is compatible with Encryption Facility System z format provided in Encryption Facility for z/OS® V1.1 or later.

EF for z/VSE requires CPACF. EF for z/VSE gives you another encryption option and complements z/VSE support for the TS1120 encrypting tape drives. The TS1120 are the...
preferred solution for high-volume backup/archive applications. EF for z/VSE is designed to allow secure exchange of encrypted data with other locations within your company and with business partners, suppliers, and customers.

Operating system component changes

Basic operating system and component improvements are often driven by requests submitted by customers and/or user groups. This section cannot cover each and every improvement. However, a few examples are described below. See the z/VSE V4.2 Planning Manual for additional improvements as well as for more details on those shown below.

Note: Although z/VSE is the successor to IBM's VSE/ESA product, many functions and related products may continue to use VSE/ESA in their names.

VSE/VSAM enhancements

- IDCAMS SNAP now exploits the IXFP NOCOPY and DDSR functionality and offers BSM protection.
- A cross-reference listing is provided for backups created by IDCAMS without the necessity to restore the data.
- Resource owners are identified by task ID in VSAM error messages.
- Meaningful cluster names are used.
- Duplicate candidate volumes can no longer be added to an existing cluster.

VSE/POWER enhancements

- New messages will report on the console and/or hardcopy file when a queue entry has been processed by a VSE/POWER command.
- Queuing of list and punch queue entries is allowed without considering the form number (FNO) to better adapt to printer capabilities.
- Manipulation of a queue entry based on its age is allowed.

VSE/Fast Copy

VSE/Fast Copy has been enhanced to exploit the IXFP NOCOPY and DDSR functionality.

Language Environment® for z/VSE

A number of enhancements have been incorporated into LE for z/VSE to address customer and vendor requirements and usability, problem determination, and z/OS affinity issues. For example:

- An optional language independent trace tool (for all LE-compliant HLL applications) can be dynamically activated and deactivated.
- Added support of load modules is provided with the current LE z/VSE High Level Language user exit.
- The Attention Routine interface (introduced with z/VSE 3.1) can now handle LE/VSE commands dealing with the trace tool as well as new z/OS affine commands such as the alteration of default system-wide LE/VSE batch run-time options.
- Improved LE PL/I runtime support will reduce the current limitations associated with the use of "fetch" for PL/I application programmers.

Note: Although the official name is Language Environment for z/VSE (LE for z/VSE), technical documents (manuals) may still refer to LE for z/VSE as Language Environment for VSE/ESA, LE/VSE Version 1 Release 4 Modification 6, or LE/VSE V1.4.6.

EZA interface enhancements

With z/VSE V4.2 the EZA socket programming interface:

- Allows you to select a local TCP/IP stack
- Supports the READV and WRITEV functions (for z/OS affinity)

Supervisor enhancements
The "Signal Quiesce" feature of the Hardware Management Console (HMC) can be enabled, which allows the operator to shut down applications in case of a disruptive operations command like IML or IPL.

**Standards**

Java-based VSE e-business connectors have been updated to support the JDK 1.6 (Java6) standard. For z/VSE V4.1 users, connectors updated to the JDK 1.6 standard can be downloaded from the z/VSE Web site.


**High Level Assembler for z/OS, z/VM, and z/VSE V1.6**

A new release of HLASM adds capabilities to simplify application programming, maintenance, and enhancements tasks. Among these are:

- An HLASM Services Interface delivers important operating system environment services to let you write platform-independent exits and external functions.
- Suffix tags for instruction mnemonics let you use identically named macro instructions and machine instructions in the same source program.
- Two new address constants provide resolution into long-displacement format, increasing instruction addressability and reducing the need for additional instructions.

For additional information refer to Software Announcement ZP08-0286, dated June 24, 2008.

**Sub-system component changes**

**CICS Transaction Server for VSE/ESA V1.1.1**

z/VSE V4.2 will continue to ship CICS/VSE V2.3 along with CICS TS VSE/ESA at no additional charge. However it is IBM's intent that z/VSE V4.2 will be the last release to offer CICS/VSE. For more information, see the Statement of direction elsewhere in this announcement.

**TCP/IP for VSE/ESA V1.5**

A major update of TCP/IP for VSE/ESA provides corrections for customer-reported problems, as well as enhancements to various functions. For more details, see APAR PK33472.

TCP/IP for VSE/ESA is designed to transparently exploit CPACF for symmetric encryption (for example, AES-128, AES-256) when available on the server. If hardware assists are not available, a software implementation is used instead. TCP/IP for VSE/ESA is designed to support four-port configuration of the OSA Express3 GbE feature.

**Note:** TCP/IP for VSE/ESA contains the functionality of TCP/IP 1.5.0 Service Pack F.

**DB2® Server for VSE and VM V7.5**

Among other enhancements, DB2 offers improved DRDA® and checkpoint performance and better compatibility with DB2 on distributed platforms (DB2 LUW). DB2 Server for VSE Client Edition V7.5 offers a client-only edition for those DB2 users working with a remote DB2 database server. This may help reduce Total Cost of Ownership (TCO) for VSE clients.

**Note:** DB2 Server for VSE and VM, Client Edition are also available with z/VSE 3.1.3 and z/VSE 4.1.1.

**MQSeries® for VSE/ESA V2.1.2**

MQSeries provides ongoing enhancements to support modern messaging solutions. A recent enhancement was the no-charge WebSphere® MQ Client for VSE. Additional enhancements allow the use of name and distribution lists and automatic channel definitions.

**Note:** These enhancements are also available with z/VSE V3.1 and z/VSE V4.1.
Midrange Workload License Charge (MWLC)

MWLC pricing was first introduced for those running z/VSE V4 in a System z9 EC or z9 BC server environment. It is also available for z/VSE V4 running in a System z10 EC server environment. Clients may choose to implement MWLC in either full-capacity or sub-capacity mode. When implementing the sub-capacity option, clients can generate their own sub-capacity reports using Sub-Capacity Reporting Tool (SCRT) on z/VSE V4. For instructions on how to download the latest SCRT version, see the SCRT home page

http://www-03.ibm.com/servers/eserver/zseries/swprice/scrt/

For a detailed description on MWLC and sub-capacity pricing, including applicable terms and conditions, restrictions, processes, and procedures, see Software Announcement ZA07-0101, dated January 09, 2007.

Product positioning

A primary objective of z/VSE V4.2 is to help clients protect their extensive existing investments in the z/VSE platform.

A second goal is to help clients integrate z/VSE into the overall IT network. A third aim is to help enable clients to extend existing core z/VSE application solutions by exploiting and leveraging Linux on System z (or any other platform they may prefer).

z/VSE V4.2 is designed to meet the needs of z/VSE clients with System z growth opportunities. Mainframe growth may be generated by a combination of:

- z/VSE workloads
  - Added volumes, new users, and new or substantially enhanced core applications
  - Associated IT activity such as application development, maintenance, test, backup/archive, printing, file transfer, and so on
- Linux on System z workloads
  - New solutions (such as applications based on WebSphere Application Server, DB2 LUW, Lotus® Domino®, and so on)
  - New line-of-business applications such as ERP and CRM
  - Infrastructure simplification, including consolidation of existing distributed workload (such as file/print servers, mail servers, firewalls, DNS servers, and so on)
  - Associated IT activity such as application development, maintenance, testing, and so on

Statement of direction

z/VSE V4.2 is planned to be the last release to offer CICS/VSE V2.3.

Beginning with VSE/ESA V2.4 (June 1999), IBM has delivered CICS/VSE V2.3 together with CICS Transaction Server for VSE/ESA V1.1 (CICS TS VSE/ESA) at no additional charge. This 'coexistence' packaging continues with z/VSE V4.2. However, CICS/VSE will not be included in any future version or release of z/VSE.

Recent improvements, including BSM security enhancements in z/VSE V3 and additional VSE tasks in z/VSE V4.2, may help reduce inhibitors to migration.

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

Hardware and software support services

SmoothStart/installation services
IBM SmoothStart™ and Installation Services are not provided.

Reference information

Refer to Software Announcement ZA07-0101, dated January 09, 2007 (Midrange Workload License Charges for z/VSE V4).

Availability of national languages

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Program number

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IBM z/VSE Version 4 Release 2 product content

z/VSE Version 4 Release 2 base programs

The following is a complete list of z/VSE Version 4 Release 2 base programs, including their release/modification levels.

Note that z/VSE is the successor to IBM's VSE/ESA product and that many products and functions supported on z/VSE may continue to use VSE/ESA in their product names.

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<td></td>
<td></td>
</tr>
<tr>
<td>- Multi Domain (MD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Inter Enterprise (IE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DITTO/ESA for VSE</td>
<td>1.03.00</td>
<td>5648-099</td>
<td></td>
</tr>
<tr>
<td>TCP/IP for VSE/ESA</td>
<td>1.05.00</td>
<td>5686-A04</td>
<td>(4)</td>
</tr>
<tr>
<td>- Application Pak</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- NFS Feature</td>
<td></td>
<td></td>
<td>(4)</td>
</tr>
<tr>
<td>- GPS Feature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB2 Server for VSE and VM</td>
<td>7.05.00</td>
<td>5697-F42</td>
<td></td>
</tr>
<tr>
<td>- DataPropagator™</td>
<td>7.05.00</td>
<td>5697-F42</td>
<td></td>
</tr>
<tr>
<td>DB2 Client Edition for VSE</td>
<td>7.05.00</td>
<td>5697-F42</td>
<td></td>
</tr>
</tbody>
</table>

Note:
(1) Mandatory product, not selectable.
(2) No charge product, not selectable.
(3) No charge product as part of CICS TS (5648-054).
(4) NFS and GPS require the Application Pak.

z/VSE Version 4 Release 2 optional programs
The following is a complete list of z/VSE Version 4 Release 2 optional programs, including their release/modification levels.

<table>
<thead>
<tr>
<th>Program name</th>
<th>Version/ Release Mod</th>
<th>Program number</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optional z/VSE Base Features:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encryption Facility for z/VSE</td>
<td>1.01.00</td>
<td>5686-CF8</td>
<td></td>
</tr>
<tr>
<td>HLASM Tool Kit</td>
<td>1.06.00</td>
<td>5696-234</td>
<td></td>
</tr>
<tr>
<td>DITTO/ESA for VSE, VM Option</td>
<td>1.03.00</td>
<td>5648-099</td>
<td></td>
</tr>
<tr>
<td>ACF/VTAM Version 4 VM Options MCR</td>
<td>4.02.00</td>
<td>5686-065</td>
<td></td>
</tr>
<tr>
<td>- Client/Server (CS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Multi/Domain (MD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Inter/Enterprise (IE)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACF/VTAM APPC For VM</td>
<td></td>
<td></td>
<td>VM-format</td>
</tr>
<tr>
<td>DB2 Server for VSE and VM</td>
<td>7.05.00</td>
<td>5697-F42</td>
<td></td>
</tr>
<tr>
<td>- Data Restore Feature</td>
<td></td>
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<td></td>
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<tr>
<td>- Control Center Feature</td>
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<td></td>
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<tr>
<td>- QMF™ for VSE</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>- QMF for Windows</td>
<td></td>
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<tr>
<td>DB2 Server for VSE Client Edition</td>
<td>7.05.00</td>
<td>5697-F42</td>
<td></td>
</tr>
<tr>
<td><strong>System Control and Networking:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VSE/ACLR</td>
<td>1.02.01</td>
<td>5746-XE7</td>
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<tr>
<td><strong>Database and Utilities:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL/I VSE</td>
<td>1.11.00</td>
<td>5746-XX1</td>
<td></td>
</tr>
<tr>
<td>CICSVR/VSE</td>
<td>1.02.00</td>
<td>5686-011</td>
<td></td>
</tr>
<tr>
<td>DFSORT/VSE</td>
<td>3.04.00</td>
<td>5746-SM3</td>
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<tr>
<td>DL/I DOS/VS</td>
<td>1.10.00</td>
<td>5746-XX1</td>
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</tr>
<tr>
<td><strong>Network Control - Current:</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>ACF/SSP</td>
<td>4.08.01</td>
<td>5686-064</td>
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<tr>
<td>ACF/NCP for IBM 3745</td>
<td>7.08.01</td>
<td>5648-063</td>
<td></td>
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<tr>
<td>X.25 NPSI for ACF/NCP Version 7</td>
<td>3.09.00</td>
<td>5688-035</td>
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<tr>
<td>EP V1 for ACF/NCP Version 7</td>
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<td>5735-XXB</td>
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<tr>
<td><strong>Languages and Compilers:</strong></td>
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<td></td>
<td></td>
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<tr>
<td>IBM COBOL for VSE - full function</td>
<td>1.01.00</td>
<td>5686-068</td>
<td></td>
</tr>
<tr>
<td>IBM COBOL for VSE - alt. function</td>
<td>1.01.00</td>
<td>5686-068</td>
<td></td>
</tr>
<tr>
<td>IBM PL/I for VSE - full function</td>
<td>1.01.00</td>
<td>5686-069</td>
<td></td>
</tr>
<tr>
<td>IBM PL/I for VSE - alt. function</td>
<td>1.01.00</td>
<td>5686-069</td>
<td></td>
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<tr>
<td>IBM C for VSE/ESA - full function</td>
<td>1.01.00</td>
<td>5686-A01</td>
<td></td>
</tr>
<tr>
<td>IBM C for VSE/ESA - alt. function</td>
<td>1.01.00</td>
<td>5686-A01</td>
<td></td>
</tr>
<tr>
<td>CCCA for VSE</td>
<td>2.01.00</td>
<td>5686-A07</td>
<td></td>
</tr>
<tr>
<td>VisualAge Generator Server</td>
<td>1.02.00</td>
<td>5648-B02</td>
<td></td>
</tr>
<tr>
<td>DOS/VS RPG II</td>
<td>1.03.00</td>
<td>5746-RG1</td>
<td></td>
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<tr>
<td><strong>Application Development:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MQSeries for VSE/ESA</td>
<td>2.01.02</td>
<td>5686-A06</td>
<td></td>
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<tr>
<td>SDF II</td>
<td>1.06.00</td>
<td>5746-XXT</td>
<td></td>
</tr>
<tr>
<td><strong>Business Professional Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDDM VSE</td>
<td>3.02.00</td>
<td>5686-057</td>
<td></td>
</tr>
<tr>
<td>GDDM IMD</td>
<td>2.01.03</td>
<td>5668-801</td>
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<tr>
<td>GDDM PGF</td>
<td>2.01.03</td>
<td>5668-812</td>
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<tr>
<td>GDDM IVU</td>
<td>1.01.03</td>
<td>5668-723</td>
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<tr>
<td><strong>Advanced Function Printing:</strong></td>
<td></td>
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<tr>
<td>PSF/VSE Comp. Fonts Base</td>
<td>2.02.01</td>
<td>5686-040</td>
<td></td>
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<tr>
<td>AFP Font Collection S/390®</td>
<td>2.01.01</td>
<td>5648-833</td>
<td></td>
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<tr>
<td>- incl. fonts</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PPFA/370</td>
<td>1.01.00</td>
<td>5688-190</td>
<td></td>
</tr>
</tbody>
</table>
z/VSE V4.2 is planned to be the last release to offer CICS/VSE. Beginning with VSE/ESA V2.4 (June 1999), IBM has delivered CICS Transaction Server for VSE/ESA together with CICS/VSE at no additional expense. That practice is planned to continue with z/VSE V4.2. Enhanced BSM security in z/VSE V3 and additional VSE tasks in z/VSE V4.2 help reduce inhibitors to migration from CICS/VSE to CICS TS for VSE/ESA.

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

## Technical information

### Specified operating environment

#### Hardware requirements

z/VSE Version 4 Release 2 will operate on:

<table>
<thead>
<tr>
<th>IBM System z server</th>
<th>Basic mode</th>
<th>LPAR mode</th>
<th>Guest under z/VM 5.2 or later</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM System z10 Enterprise Class</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>IBM System z9 Enterprise Class</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>IBM System z9 Business Class</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>IBM eServer zSeries 990</td>
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<tr>
<td>IBM eServer zSeries 890</td>
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<td>x</td>
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<tr>
<td>IBM eServer zSeries 900</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>IBM eServer zSeries 800</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

x: supported

Hardware-assisted asymmetric key encryption (RSA only) requires:

- Crypto Express2 (in either coprocessor or accelerator mode) on z10 EC, z9 EC, and z9 BC.
- Crypto Express2 in coprocessor mode or PCICA on z990 and z890 servers.
- PCICA on z900, z800, z990, and z890. (PCICA is not available on z10 EC, z9 EC, and z9 BC servers.)

Hardware-assisted symmetric key encryption requires the CPACF feature on a:

- z10 EC, z9 EC, z9 BC, z990, or z890 server for DES, T-DES
- z10 EC, z9 EC, or z9 BC server for AES-128
- z10 EC for AES-256

#### Software requirements

Many VSE clients choose to run under z/VM for operational flexibility or to supplement the capabilities of z/VSE alone. VSE clients who choose to run one or more z/VSE V4.2 systems as guest systems under z/VM will require z/VM V5.2 or later.

For specific functions and for the most current information on z/VM, refer to

http://www.ibm.com/eserver/zseries/zvm

z/VM allows users to exploit state-of-the-art virtualization technology for one or more of the following reasons:

- Multiple z/VSE production, development, or test images
- Multiple Linux on System z images to exploit the potential of Integrated Facility for Linux (IFL) speciality engines
- Both z/VSE and z/OS during a migration transition period
- Both z/VSE and z/OS on a permanent basis
z/VM V5.2, or later, allows you to use z/VM in combination with Integrated Facility for Linux (IFL).

For users running z/VSE V4.2 together with Linux on System z, a Linux distribution is needed. Linux on System z is not provided by IBM. It must be obtained from an independent distributor. For a current list of Linux on System z distributors, refer to


**Compatibility**

Compatibility aspects include:

- z/VSE V4 operates in z/Architecture mode only.
- z/VSE V4.2 is designed so that programs running on VSE/ESA V2.7, z/VSE V3.1, or z/VSE V4.1 that use official interfaces will be able to run unchanged with z/VSE V4.2.
- The German and Spanish national language versions have been dropped with z/VSE V4.1. However, the Japanese national language version continues to be available with z/VSE V4.2. The optional feature GPS (shipped with TCP/IP for VSE/ESA) does not support Double Byte Character Set (DBCS) printing.
- The Label Area can no longer reside on a physical disk. The IPL DLA statement will be ignored.
- z/VSE V4.2 is shipped with a single supervisor, $$A$$SUPI, only. Starting with z/VSE V4.1, supervisor generation has been dropped.
- The support for ‘up to 512 VSE tasks’ has to be enabled explicitly. A compatibility mode is provided for applications that rely on the ‘old’ 255 task limit.
- If initial installation is performed, the ACF/VTAM 31-bit I/O buffer support is enabled. It might be necessary to increase the number of copy blocks.
- z/VSE V4.2 product is no longer delivered on 3480 tape cartridges.

**Limitations**

Limitations when using the FSU process:

- Fast Service Upgrade (FSU) to z/VSE V4.2 is possible from z/VSE V3.1 and z/VSE V4.1 for English and Japanese versions. The FSU process supports two releases only.
- If your VSE system is a German or Spanish version, FSU is not possible. You have to do initial installation to upgrade to an English or Japanese version of z/VSE V4.2.
- Users migrating from VSE/ESA V2.4 or later can either FSU to the next possible release prior to FSU to z/VSE V4.2 or do an initial installation.
- Users migrating from a release prior to VSE/ESA V2.4 must use initial installation.
- If ACF/VTAM 31-bit support is not enabled on your current system, you have to enable it explicitly after FSU to z/VSE V4.2. It might be necessary to increase the number of copy blocks.

**Performance considerations**

The overall performance of z/VSE Version 4 Release 2 depends on the individual hardware and software components and on the specific environment and setup parameters.

In general, the overall CPU requirement of z/VSE V4.2 is similar to that of z/VSE V4.1. This applies as long as the same environment is used (for example, Batch or CICS TS for VSE/ESA V1.1.1) without exploitation of new functions. Actual user experience may vary.

For more information on z/VSE Version 4 Release 2 performance, visit the z/VSE home page at

http://www.ibm.com/servers/eserver/zseries/zvse/

**User group requirements**

This announcement addresses or partially addresses requests from one or more of the worldwide user group communities. Groups include WAVV, COMMON, COMMON Europe, Guide Share Europe (GSE), InterAction (Australia/New Zealand), Japan Guide Share (JGS), and SHARE Inc. Requirements satisfied include:

MR1221061922   -  More VSE tasks
Planning information

Customer responsibilities

Fast Service Upgrade

The Fast Service Upgrade (FSU) process is available for users migrating to z/VSE V4.2 from z/VSE V4.1 and z/VSE V3.1.

Exception: z/VSE V3.1 users with a German or Spanish version can't use the FSU process, since the German and English national language versions are no longer available since z/VSE V4.1.

Status of z/VSE V3.1

End of service has been announced for z/VSE V3.1 and will be effective July 31, 2009.

Status of z/VSE V4.1

No end of service has been announced for z/VSE V4.1 as of August 5, 2008.

The most current status of z/VSE V3.1 and z/VSE V4.1 marketing and support can be found on the z/VSE Web site at

http://www-03.ibm.com/servers/eserver/zseries/zvse/about/status.html

This information is provided for planning purposes only and is not a commitment by IBM. IBM plans are subject to change without notice at any time.

No longer available with z/VSE Version 4 Release 2

Software support no longer available with z/VSE V4.2:

• The base product VSE/OLTEP will no longer be shipped.
• z/VSE V4.2 is no longer delivered on a 3480 tape cartridge.
• No Optional Source Material will be available with z/VSE V4.2.

Further information on the status of z/VSE and related programs can be found at
TCP/IP for VSE/ESA

Each feature of TCP/IP for VSE/ESA (Application Pak, NFS, GPS) requires a unique user access key. The license order for TCP/IP for VSE/ESA can be placed either together with any other program with the z/VSE V4.2 product set or alone at a later point in time.

SSL for VSE is also key protected and only usable with the key for the Application Pak. If you use a product key that allows you to run TCP/IP in demonstration mode only, you cannot use SSL for VSE.

The user access keys will be generated and delivered automatically from IBM whenever an order is placed for one of these features.

Customers who do not wish to use TCP/IP for VSE/ESA from IBM are requested to run product delete jobs (that are provided with z/VSE V4.2) after system installation, to delete the product from their system.

Note: It is suggested that customers who have licensed "TCP/IP for VSE" from a third-party vendor check which Service Pack, if any, needs to be installed. Customers who have licensed "TCP/IP for VSE" from a third-party vendor should read supplementary information, if available. PRODUCT ACCESS KEYS FROM IBM AND THIRD-PARTY VENDORS ARE DIFFERENT AND ARE NOT INTERCHANGEABLE.


DB2 Server for VSE and VM and DB2 Server for VSE Client Edition use an access/usage protection method that requires a password key to enable the software function. The password key will be generated and delivered automatically from IBM when an order is placed for DB2 Server for VSE and VM or DB2 Server for VSE Client Edition.

ACF/VTAM for VSE/ESA Version 4 Release 2

ACF/VTAM for VSE/ESA V4.2 uses an access/usage protection method that requires a password key to enable the software function. The following types may be ordered:

- Client/Server (CS)
- Multi Domain (MD)
- Inter Enterprise (IE)

The password key will be generated and delivered automatically from IBM accordingly when an order is placed for ACF/VTAM for VSE/ESA V4.2.

Software Key Management:

In exceptional cases (for example, off-line situations), it may be necessary to contact the IBM Registration Center by telephone, fax, mail, or e-mail as appropriate. Please note, the IBM Registration Center cannot handle product/license orders. You may contact them only if you already have a license for your software program.

Mail: WW Customer Support
IBM - ISC, Customer Fulfillment
Sortemosevej 21
3450 Alleroed
Denmark

Telephone: - From Australia, please call 1-800-992-402
- From Hong Kong, Malaysia, New Zealand, South Korea and China, please call +800-539-274-26
- From all other countries, please call our non-toll-free number (+45) 48101521

Fax: 45 4814 0391
Email: speckeys@dk.ibm.com

Installability
The Fast Service Upgrade (FSU) process is available for users migrating from z/VSE Version 4 Release 1 or z/VSE Version 3 Release 1.

Note. You cannot use the FSU process to upgrade to z/VSE V4.2, if your current system is a z/VSE V3.1 German or Spanish version.

Initial installation of z/VSE Version 4 Release 2 is possible on the following disk types:

- 3380
- 3390
- FBA (FBA also includes FCP-attached SCSI disks)

**Packaging**

Depending on the order, z/VSE Version 4 Release 2 will be packaged and delivered either:

- On three tape cartridges (of type 3590 or 3592) containing:
  - z/VSE Base (including z/VSE Base products)
  - z/VSE Extended Base
  - DB2 Server for VM & VSE Help Text
- On CD-ROM, containing:
  - DB2 Server for VM & VSE Help Text
  - ReadMe File
  - z/VSE Base (including z/VSE Base products)
  - z/VSE Extended Base
- Through electronic delivery (via ShopzSeries) to be downloaded, containing:
  - z/VSE Base (including z/VSE Base products)
  - z/VSE Extended Base
  - Help Text
  - ReadMe File

Depending on the order, the package will contain one or more additional cartridges for the z/VSE Version 4 Release 2 optional programs, stacked one after the other on the medium.

Program directories and the publication entitlement sets of the ordered z/VSE base and optional programs will be shipped with the z/VSE package. The Program Directory for z/VSE Version 4 Release 2 has the following IBM form number: GI11-2698.

**TCP/IP for VSE/ESA:** TCP/IP for VSE/ESA is shipped on the z/VSE Version 4 Release 2 base tape and is installed during the standard z/VSE V4.2 installation.

TCP/IP for VSE/ESA will be shipped enabled for demo mode only. This allows you to test the entire function set on your z/VSE V4.2 system in a functionally limited way (not suited for any production purposes). The different features must be enabled via user access keys.

SSL for VSE is also key protected and only usable with the key for the Application Pak. It cannot be used in demo mode.

The TCP/IP for VSE/ESA documentation is available on the z/VSE Version 4 Release 2 DVD (SK3T-8348), or from the Internet.

Further information: For further information, refer to the VSE home page

http://www.ibm.com/servers/eserver/zseries/zvse/

**Security, auditability, and control**

The announced programs use the security and auditability features of the operating system software. The customer is responsible for evaluation, selection, and implementation of security
features, administrative procedures, and appropriate controls in application systems and communication facilities.

**Ordering information**

**Order VM SDO and VSE SIPO through the Internet**

ShopzSeries provides an easy way to plan and order System z software upgrades. This now includes VM and VSE. Using ShopzSeries, you can quickly generate orders for VM SDOs and VSE SIPOS. Additionally, ShopzSeries will ensure your order is technically correct (that is, ensures any co-req or pre-req or incompatibility conditions are resolved to ensure timely order placement and processing). ShopzSeries is available in the United States and several countries in Europe. In countries where ShopzSeries is not available yet, contact your IBM representative (or IBM Business Partner) to handle your order via the traditional IBM ordering process. For more details and availability, visit the ShopzSeries Web site at http://www.ibm.com/software/ShopzSeries

**New licensees**

Orders for new licenses can be placed from October 17, 2008. When z/VSE Version 4.2 is available, z/VSE V4.1 will no longer be available. As of the availability of z/VSE V4.2, 3480 media will no longer be selectable.

Registered customers can access IBMLink™ for ordering information and charges.

New users of z/VSE V4.2 should specify:

- Type: 5609 Model: ZV4 (SIPO SPO)
- Type: 5686 Model: CF8 (CF)
- Type: 5686 Model: 065 (ACF)
- Type: 5648 Model: 099 (DITTO)
- Type: 5696 Model: 234 (HLASM)
- Type: 5747 Model: DS2 (ICKDSF)
- Type: 5656 Model: 260 (EREPE)
- Type: 5686 Model: A04 (TCP/IP)
- Type: 5648 Model: 054 (CICS)
- Type: 5697 Model: F42 (DB2)

To order a basic license, or a DSLO or MOSP license for z/VSE Central Functions V8 (5686-CF8) or IBM Encryption Facility for z/VSE V1.1, specify the program number, and the appropriate license or charge option as applicable and corresponding to the processor group that contains the designated machine.

**DSLO: Distributed System License Option**

**MOSP: S/390 Multiple Operating Systems - PR/SM™**

<table>
<thead>
<tr>
<th>Entitlement identifier</th>
<th>Description</th>
<th>License option/ Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S013NPW</td>
<td>z/VSE Central Functions V8.2 Processor Based, Basic MLC, DSLO MLC, MOSP Basic MLC, MOSP DSLO MLC</td>
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</tr>
<tr>
<td>S014BJL</td>
<td>IBM Encryption Facility for z/VSE V1.1 Processor Based, Basic MLC, DSLO MLC, MOSP Basic MLC, MOSP DSLO MLC</td>
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</tr>
</tbody>
</table>

**Workload License Charge (WLC) basic license**

**Flat Workload License Charge features**

<table>
<thead>
<tr>
<th>Entitlement identifier</th>
<th>Description</th>
<th>License option/ Pricing metric</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Flat Workload License Charge Basic license monthly license charge</td>
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</tr>
</tbody>
</table>
Tiered Workload License Charge (TWLC)

To order TWLC software, specify the TWLC license or charge option from the table below.

<table>
<thead>
<tr>
<th>Entitlement</th>
<th>Description</th>
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<td>z/VSE Central Functions V8.2</td>
<td>Basic MLC, Tiered WLC</td>
</tr>
<tr>
<td>S014BJL</td>
<td>IBM Encryption Facility for z/VSE V1.1</td>
<td>Basic MLC, Tiered WLC</td>
</tr>
</tbody>
</table>

Growth Opportunity License Charge (GOLC)

To order a basic license, specify the program number and the correct level.

Specify the GOLC monthly license or charge option from the table below. Also, specify the desired distribution medium.

<table>
<thead>
<tr>
<th>Entitlement</th>
<th>Description</th>
<th>License option/ Pricing metric</th>
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</thead>
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<tr>
<td>S014BJL</td>
<td>IBM Encryption Facility for z/VSE V1.1</td>
<td>Basic MLC, GOLC</td>
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System z Entry License Charge (zELC)

To order zELC software, specify the program number and z800 model. Specify the zELC monthly license option.

<table>
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<tr>
<th>Entitlement</th>
<th>Description</th>
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<td>Basic MLC, zELC</td>
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<tr>
<td>S014BJL</td>
<td>IBM Encryption Facility for z/VSE V1.1</td>
<td>Basic MLC, zELC</td>
</tr>
</tbody>
</table>

Basic machine-readable material

5609-ZV4 System Program Order

To order, select the desired distribution medium. Basic machine-readable material for the individual licensed base programs will be shipped on 3590 or 3592 tape cartridges, on CD-ROM, or via Electronic Delivery as part of the 5609-ZV4 system program order.

Program name: z/VSE Central Functions V8.2
Program number: 5686-CF8

Orderable supply Description

<table>
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<tr>
<td>S013MFV</td>
<td>3590 Tape Cartridge U.S. English</td>
</tr>
<tr>
<td>S013MFF</td>
<td>3592 Tape Cartridge U.S. English</td>
</tr>
<tr>
<td>S013MFX</td>
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High-level identifiers, to be specified under 5609-ZV4 are:

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<th>High level identifiers</th>
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<tr>
<td>3433</td>
<td>3590 Tape Cartridge</td>
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<tr>
<td>3436</td>
<td>3592 Tape Cartridge</td>
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**z/VSE V4.2 Base Programs**

<table>
<thead>
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<th>Description</th>
<th>Note</th>
<th>Logical supply</th>
</tr>
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<tr>
<td>5686-CF8</td>
<td>z/VSE Central Functions 8.2.0</td>
<td>(1)</td>
<td>S013BBG</td>
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<tr>
<td>5696-234</td>
<td>HighLevAss z/OS,z/VM,z/VSE 1.6.0</td>
<td>(1)</td>
<td>S00KBK9</td>
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<tr>
<td>5656-260</td>
<td>VSE/EREP 3.5.0</td>
<td>(2)</td>
<td></td>
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<tr>
<td>5747-B52</td>
<td>VSE/ICKDSF 1.17</td>
<td>(2)</td>
<td></td>
</tr>
<tr>
<td>5648-054</td>
<td>CICS Transaction Server for VSE/ESA 1.1.1</td>
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<td>S00LVWICICS/VSE 2.3.0</td>
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<td>5686-065</td>
<td>ACF/VTAM for VSE/ESA 4.2.0</td>
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<tr>
<td>5696-234</td>
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<td></td>
<td>S00LVWICICS/VSE 2.3.0</td>
</tr>
</tbody>
</table>

Notes:

1. Mandatory program, not selectable
2. No-charge program, not selectable
3. NFS/GPS feature require the Application Pak
4. Assign under 5609-ZV4
5. No-charge program as part of CICS TS (5648-054)

**Basic license for optional programs of 5609-ZV4**

The optional programs are available under the z/VSE package offering (5609-ZV4). To order, specify the orderable supply under the 5609-ZV4 program number.

<table>
<thead>
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<th>Description</th>
<th>Logical supply **</th>
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<td>5686-CF8</td>
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<td>5648-063</td>
<td>ACF/NCP 3745 7.8.1</td>
<td>S00VWV2</td>
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<td>5648-099</td>
<td>DITTO/ESA for VM 1.3.0</td>
<td>S00LMS8</td>
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<tr>
<td>5686-068</td>
<td>COBOL for VSE 1.1.0</td>
<td>S00K3CW</td>
</tr>
<tr>
<td>5686-069</td>
<td>PL/I for VSE 1.1.0</td>
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<td>5686-A01</td>
<td>C for VSE/ESA 1.1.0</td>
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<td>5686-A06</td>
<td>MQSeries for VSE/ESA 2.1.2</td>
<td>S00L5VX</td>
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<td>5686-A07</td>
<td>CCA for VSE/ESA 2.1.0</td>
<td>S00LWX</td>
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<td>5688-035</td>
<td>X.25 NPSI 3.9.0</td>
<td>S0035V</td>
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<td>5688-190</td>
<td>PPFA/370 1.1.0</td>
<td>S00J35V</td>
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** Assign under 5609-ZV4.

<table>
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<tbody>
<tr>
<td>5698-191</td>
<td>OGL/370 1.1.0</td>
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<td>5696-234</td>
<td>HLASM Toolkit 1.6.0</td>
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** Assign under 5609-ZV4.

### Midrange Workload License Charges (MWLC) in IBM z/VSE V4 ordering information

MWLC is a monthly license charge price metric on the IBM System z10 Enterprise Class (z10 EC), the IBM System z9 Business Class (z9 BC), and the IBM System z9 Enterprise Class (z9 EC) servers that applies to z/VSE V4 and 12 key VSE middleware programs such as CICS TS for VSE, DB2 Server for VSE, and ACF/VTAM for VSE.

#### Midrange Workload License Charges (MWLC) for z/VSE V4

#### Basic license structure

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<th>License option/ Pricing metric</th>
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<td>z/VSE Central Functions V8.2</td>
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</tr>
<tr>
<td>S014BJL</td>
<td>IBM Encryption Facility for z/VSE V1.1</td>
<td>MLC, MWLC</td>
</tr>
</tbody>
</table>

#### Extended License Charge (ELC) basic license: To order a basic license, specify the appropriate program and license option, if required, for asset registration. Specify the applicable Extended License Charge options. Also, specify the desired distribution medium. Processors with assigned capacity above 80 MSUs will now have VM and VSE software prices based on the CPU service unit capacity of the processor. The ELC price structure will have a Base Charge for 80 MSU capacity and an incremental Per MSU charge for all additional MSUs above the 80 MSU base.

Specify the applicable ELC license option.

<table>
<thead>
<tr>
<th>Entitlement identifier</th>
<th>Description</th>
<th>License option/ Pricing metric</th>
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<tbody>
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<td>S013NPW</td>
<td>z/VSE Central Functions V8.2</td>
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<td>ELC Above 80 MSU, Per Usage Additional Quantity</td>
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<td>ELC Above 80 MSU, Per Block of 50 MSU Additional Quantity</td>
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<tr>
<td>S014BJL</td>
<td>IBM Encryption Facility for z/VSE V1.1</td>
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<td>ELC Above 80 MSU, Per Usage Additional Quantity</td>
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<td>ELC Above 80 MSU, Per Block of 50 MSU Additional Quantity</td>
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</table>

Unlicensed documentation
Unlicensed documentation within the z/VSE Version 4 Release 2 library is available as Adobe®
PDF files, as BookManager® files, or partially as printed books. They have been defined as
either "Basic" or "Optional."

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  you receive a z/VSE V4.2 system:

  - VSE Collection DVD: SK3T-8348
  - Program Directory for z/VSE V4.2: GI11-2698
  - z/VSE Release Guide: SC33-8300

  Additionally you will receive some other Program Directories, Memo to Licensees, and
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  site at

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  z/VSE V4.2 in hardcopy format. It also shows softcopy publications that have been updated with
  z/VSE V4.2. Softcopy publications that have not been updated but are available with z/VSE V4.2
  can be found on the DVD.

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<td>z/VSE Release Guide</td>
<td>SC33-8300</td>
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VSE Collection DVD                      SK3T-8348              X
z/VSE LPS (Licensed Program Spec.)     GC33-8317              x
TCP/IP LPS                              GC33-6594              x
DL/I VSE LPS                            GH24-5031              x
VSE/ACLR LPS                            GH12-5241              x
DOS/VS RPG II LPS                       GC33-6029              x

Program Directory for z/VSE V4.2       GI31-2698              X
z/VSE Release Guide                     SC33-8300            x  x  x
z/VSE Planning                          SC33-8301              x  x
z/VSE System Upgrade and Service        SC33-8302              x  x
z/VSE Administration                    SC33-8304              x  x
z/VSE System Control Statements         SC33-8305              x  x
z/VSE Messages and Codes Vol1           SC33-8306            x  x
z/VSE Messages and Codes Vol2           SC33-8307            x  x
z/VSE Messages and Codes Vol3           SC33-8308            x  x
z/VSE Operation                         SC33-8309            x  x
z/VSE e-Business Connectors             SC33-8310            x  x
z/VSE Networking Support                SC33-8311            x  x
z/VSE Guide to System Functions         SC33-8312            x  x
z/VSE Diagnosis Tools                   SC33-8313              x  x
VSE/POWER Admin. and Operation          SC33-8314            x  x
VSE/VSAM Commands                       SC33-8315            x  x
VSE/VSAM User's Guide and               SC33-8316            x  x
  Application Programming
VSE/ICCF Administration and Operation   SC33-8329            x  x

TCP/IP for VSE/ESA V1R5.0 -             SC33-6601            x  x
  IBM Program Setup and Supplementary
  Information
LE for z/VSE Debugging Guide            SC33-6681            x  x
  and Run-Time Messages
LE for z/VSE Customization Guide        SC33-6682            x  x
LE for z/VSE Programming Guide          SC33-6684            x  x
LE for z/VSE Programming Reference      SC33-6685            x  x
LE for z/VSE C Run-Time Programming     SC33-6688            x  x
  Guide
LE for z/VSE C Run-Time Library         SC33-6689            x  x
  Reference
LE for z/VSE Writing ILC                SC33-6686            x  x
  Applications

Displayable softcopy publications
All unlicensed online books are also available on DVD SK3T-8348, the VSE on DVD Collection.

The VSE Collection on DVD contains libraries for most of the products that run on z/VSE Version 4 Release 2. The VSE Collection on DVD will be available at general availability of the z/VSE Version 4 Release 2 product. For a list of kit contents, contact your IBM Business Partner or IBM representative.

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Terms and conditions for use of the machine-readable files are shipped with the files.

**Source file publications**

z/VSE V4.2 manuals are not offered in source file form.

**Licensed documentation**

**z/VSE V4.2 base programs**

Microfiche material is no longer offered. Viewing Program Listings (VPL) online has replaced the need for microfiche. With the VPL system, entitled users all around the world are able to view both Program Temporary Fix (PTF) and base program listings electronically, 24 hours a day. VPL can be accessed via ServiceLink and DialIBM. For details, ask your IBM representative, or an IBM Business Partner.

**z/VSE V4.2 optional programs**

May be available, as announced, with the individual programming announcements.

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**Global Technology Services**

Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings, for the efficient installation, implementation, and integration of this product.

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