

IBM z/VSE



Release Guide

Version 4 Release 2 Modification Level 1

IBM z/VSE



Release Guide

Version 4 Release 2 Modification Level 1

Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page v.

This edition applies to Version 4 Release 2 Modification Level 1 of IBM z/Virtual Storage Extended (z/VSE), Program Number 5609-ZV4, and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC33-8300-02.

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Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in z/VSE enable users to:

- Use assistive technologies such as screen readers and screen magnifier software
- Operate specific or equivalent features using only the keyboard
- Customize display attributes such as color, contrast, and font size

Using Assistive Technologies

Assistive technology products, such as screen readers, function with the user interfaces found in z/VSE. Consult the assistive technology documentation for specific information when using such products to access z/VSE interfaces.

z/VSE Information

z/VSE information is accessible using screen readers with the BookServer/Library Server versions of z/VSE books in the Internet library at:

<http://www.ibm.com/servers/eserver/zseries/zos/bkserv/vse.html>

One exception is command syntax that is published in railroad track format. If required, screen-readable copies of z/VSE books with that syntax information are separately available in HTML zipped file form upon request to s390id@de.ibm.com.

About This Book

This manual provides details of the enhancements and changes implemented with IBM® z/VSE Version 4 Release 2 Modification Level 1 (z/VSE 4.2.1).

Who Should Use This Book

This manual is intended for those z/VSE users who need to be aware of important information provided with z/VSE Version 4 Release 2 Modification Level 1.

How to Use This Book

The book contains one chapter:

- “What Is New With z/VSE 4.2.1?” on page 1

Where to Find More Information

Whenever appropriate, the book refers to other z/VSE manuals that provide further details on a specific topic.

The z/VSE home page provides additional z/VSE information:

z/VSE Home Page

z/VSE has a home page on the World Wide Web, which offers up-to-date information about VSE-related products and services, new z/VSE functions, and other items of interest to VSE users.

You can find the z/VSE home page at:

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

You can also find VSE User Examples (in zipped format) at:

<http://www.ibm.com/servers/eserver/zseries/zvse/downloads/samples.html>

What Is New With z/VSE 4.2.1?

This chapter provides a brief description of the items and changes introduced with z/VSE 4.2.1.

It contains these main topics:

- “Exploitation of IBM System Storage Disk Technology”
- “Exploitation of IBM System Storage Tape Technology” on page 2
- “Support for Encryption Using the OpenPGP Standard” on page 3
- “IBM WebSphere MQ for z/VSE” on page 5
- “IBM Rational COBOL Runtime for z/VSE V7.5.0” on page 5
- “Language Environment Enhancements” on page 6

Exploitation of IBM System Storage Disk Technology

Parallel Access Volume (PAV) Support

Parallel Access Volume (PAV) is an optional licensed feature on the IBM System Storage™ DS6000/DS8000 series.

Parallel access volumes:

- Are managed by creating *multiple* addresses for a *single* logical device.
- Allow your z/VSE system to access volumes *in parallel*.
- Enable more than one I/O operation to be processed for a *single* logical device.
- Depending upon workload, might result in a performance improvement compared to traditional I/O processing for jobs running in different z/VSE tasks.
- Can significantly reduce device queue delays to busy devices (all I/O operations are normally processed from a single queue).
- Allow your system to access a single volume from a single z/VSE host with multiple concurrent requests.

To activate PAV support, you must install the APAR **DY46953** (PTFs UD53399 and UD53400) which is shipped with z/VSE 4.2.1.

For details of PAV, refer to the chapter “Configuring Your System to Use PAV” in the *z/VSE Administration*, SC33-8304.

IBM DS8000 Full Disk Encryption

Full Disk Encryption provides the ability to encrypt data “at rest” on a DS8000™ series storage controller. The Full Disk Encryption disk drive sets are optional for the DS8000 series.

IBM DS8000 Disk Encryption is usually transparent to applications, and can be used with *z/VSE 3.1 and later*.

From *z/VSE 4.2.1 onwards*, you can use the AR (Attention Routine) `VOLUME` command to identify *Full Disk Encryption* disk drives. If the display from this

command shows an *E or EB in the CODE column, this indicates that this is a Full Disk Encryption disk drive. Here is an example (where the B in column CODE indicates a PAV Base Volume):

```
VOLUME
AR 0015 CUU  CODE DEV.-TYP  VOLID  USAGE  SHARED  STATUS  CAPACITY
AR 0015 201  6E   2105-000  SYSWK1  USED           1200 CYL
AR 0015 202  6E*E 2105-000  VOLXY1  USED           1200 CYL
AR 0015 203  6E*B 2105-000  VOLXY2  USED           1200 CYL
AR 0015 204  6EEB 2105-000  VOLXY3  USED           1200 CYL
```

Indication of Whether a Volume is Space-Efficient

IBM FlashCopy® SE (Space Efficient) is an optional licensed hardware feature on the IBM System Storage DS8000 series. FlashCopy SE support was first shipped with z/VSE 4.2.

With z/VSE 4.2.1, you can use the AR (Attention Routine) command `VOLUME cuu` to identify Space Efficient volumes. If a volume is a Space Efficient volume, **SE** (for Space Efficient) is included in the display.

For example, if a volume has a cuu of e59 and is a Space Efficient volume, the display would look like this:

```
volume e59
AR 0015 CUU  CODE DEV.-TYP  VOLID  USAGE  SHARED  STATUS  CAPACITY
AR 0015 E59  6E   2107-900  *NONE* UNUSED           DOWN SE 65520 CYL
```

For further details, refer to “Job Control and Attention Routine” in the *z/VSE System Control Statements*, SC33-8305.

Exploitation of IBM System Storage Tape Technology

z/VSE 4.2.1 is designed to support selected IBM System Storage products and features. The innovative IBM System Storage technology might offer significant value to z/VSE customers.

IBM TS7700 Virtualization Engine Release 1.5

The IBM TS7700 Virtualization Engine™ Release 1.5 supports these capabilities:

- IBM TS7720 Virtualization Engine disk-only configuration, with new disk cache models that provide up to **70 TB** disk cache capacity.
- Larger disk cache models that provide over **13 TB** capacity for new TS7740 configurations.
- Integrated library manager.
- New Grid adapters.
- TS1130 Model E06 Tape Drive.

IBM TS7720 Virtualization Engine

The IBM TS7720 Virtualization Engine is a new member of the TS7700 Virtualization Engine family that is:

- a *disk-cache only* configuration (it does *not* attach to a “physical” tape library),
- configured with different server and disk cache models than the TS7740.

To support the use of the TS7720, z/VSE provides this additional information:

- Using the QT cuu command, you can see if a member of the TS7700 family is a tapeless TS7720 Virtualization Engine. The parameter DISK-ONLY is displayed together with the other details. For example:

```
qt c90
AR 0015 CUU CODE DEV.-TYP VOLID USAGE MED-TYP STATUS POSITION
AR 0015 C90 5408 3490-C2A *NONE* BG RESERVED 10 BLK
AR 0015 CU 3490-C2A LIB 3957-VEA (BARR88) DISK-ONLY
```

- The JCL LIBSERV LQUERY command and the LBSERV LQUERY macro call can be used to obtain information about the percentage of cache that is currently being used. For example, the command:

```
0 libserv lquery,lib=cash02
```

Might return this type of information (in this example, 80 percent of cache is currently being used):

```
BG 0000 1YL6I LIBRARY QUERY ,LIB : CASH02 STATUS : 0000 CACHE USAGE:
080%
```

Support for Encryption Using the OpenPGP Standard

The Encryption Facility for z/VSE (V1.1) was first introduced with z/VSE Version 4 Release 1 Modification Level 1. It is an optional, priced feature of VSE Central Functions Version 8. It is a host-based software solution designed to encrypt sensitive data before transferring it to tape for archival purposes, or to exchange with remote locations or business partners. In addition to writing encrypted data to tape, the Encryption Facility for z/VSE can be used to produce encrypted data written to disk and other removable media.

With z/VSE Version 4 Release 2 Modification Level 1, the *Encryption Facility for z/VSE OpenPGP (V1.2)* now supports the *OpenPGP standard*.

OpenPGP is a standard message format for ensuring the integrity of data that can be exchanged between trusted partners. It is designed to help provide data integrity through:

- Data encryption using either a randomly-generated symmetric session key or a password.
- OpenPGP certificates for the exchange of public key information.

OpenPGP support is designed to offer even more choice and flexibility for exchanging data with business partners. For example, it does not require that your business partners purchase new storage hardware, have a mainframe, or run z/VSE.

The Encryption Facility for z/VSE OpenPGP complies with selected OpenPGP (RFC 4880) features, and is designed to be compatible with other products that are OpenPGP-compliant. This support is designed to allow you to exchange an encrypted, compressed file between your internal data centers using the Encryption Facility for z/VSE OpenPGP and any remote site, external business partner, or vendor who has an OpenPGP-compliant client, regardless of server or operating system.

The Encryption Facility for z/VSE OpenPGP supports:

- SAM files, VSE/VSAM files, z/VSE library members, tapes, or virtual tapes may be used as input or output.
- Password-based encryption.
- RSA key generation using the Keyman/VSE tool.

- Data encryption with a randomly-generated symmetric session key using AES-128, -192, and -256 bit keys, and Triple-DES algorithms.
- Asymmetric encryption of randomly-generated symmetric keys using RSA-512, -1024, and -2048 bit keys.
- Optional compression using ZIP and ZLIB algorithms.
- Digest/Hash using SHA-1, MD5, SHA-256, SHA-384, SHA-512 algorithms.

In addition to the Encryption Facility for z/VSE OpenPGP tool, the *Keyman/VSE* provides:

- Import/Export of PGP certificates (needed to upload a public key from a PGP certificate to z/VSE).
- Conversion between x.509 certificates and PGP certificates (needed to transfer a public key from z/VSE into a PGP environment).

Note!

The Keyman/VSE tool that is required for OpenPGP support requires the Java™ Development Kit (JDK) 1.5 or higher.

With OpenPGP support added to Encryption Facility for z/VSE, you now have a choice of *two* formats.

- *System z format*, introduced with the Encryption Facility for z/VSE V1.1:
 - This format continues to be offered with the Encryption Facility for z/VSE OpenPGP (V1.2).
 - The System z format is compatible between the Encryption Facility for z/OS® and the Encryption Facility for z/VSE.
- *OpenPGP format*, introduced with the Encryption Facility for z/VSE V1.2:
 - The functions and services supported by the OpenPGP format are *not* compatible with the functions and services of the System z format.
 - Both the *Encryption Facility for z/OS Client* and the *Decryption Client for z/OS* only support the System z format.

OpenPGP offers you one more option to meet your critical encryption needs:

- System z format may be suitable for data exchanges between locations with IBM System z servers.
- OpenPGP format may be better suited for exchange with an external business partner who may, or may not, have an IBM System z.
- IBM TS1120 or 1130 encrypting tapes may be better suited for high volume backup/archive, or exchange between IBM System z servers is required.

For further details, refer to “Implementing the Encryption Facility for z/VSE OpenPGP” in the *z/VSE Administration*, SC33-8304.

IBM WebSphere MQ for z/VSE

IBM WebSphere® MQ for z/VSE™ Version 3.0 (V3.0) is a new member of the WebSphere MQ family of messaging products. It is designed to help provide:

- improved interoperability on both distributed and mainframe platforms,
- potential performance enhancements.

WebSphere MQ for z/VSE is designed to enhance manageability through WebSphere MQ Explorer, as well as currency, and performance enhancements for the IBM z/VSE platform. It integrates with *IBM WebSphere MQ* in solutions for:

- Reliable application connectivity
- SOA connectivity with a proven messaging backbone
- A universal, multipurpose data transport

IBM WebSphere MQ for z/VSE V3.0 is a replacement for *MQSeries® for VSE/ESA™ V2.1*.

For details of how to:

- install WebSphere MQ for z/VSE V3.0,
 - migrate from MQSeries for VSE/ESA V2.1 to WebSphere MQ for z/VSE V3.0,
- refer to the *WebSphere MQ for z/VSE System Management Guide*, GC34-6981.

IBM Rational COBOL Runtime for z/VSE V7.5.0

IBM Rational® COBOL Runtime for z/VSE V7.5 is designed to execute applications developed with the EGL (Enterprise Generation Language) capability of Rational Business Developer.

EGL, IBM's latest business language, frees developers to focus on the business problem rather than on the details of the target execution platforms and associated middleware. EGL is ideal for business-oriented development teams who value ease of learning and high productivity, but need to quickly deliver modern applications and services.

Rational COBOL Runtime for z/VSE provides the libraries to enable EGL code, generated as COBOL, to run on the z/VSE platform.

Using the new extension to Rational Business Developer, COBOL code can be generated and deployed in z/VSE as:

- Traditional 3270 CICS® applications,
- Traditional batch applications,
- Application programs capable of being invoked from an EGL Web or Web 2.0 front-end, or from an EGL service on a distributed application server.

Rational COBOL Runtime for z/VSE 7.5 is the replacement for *VisualAge® Generator Server V1.2*.

For details of how to install Rational COBOL Runtime for z/VSE 7.5, refer to the *Rational COBOL VSE Runtime for z/VSE V7.5.0 Program Directory*, GC10-8803.

For details how to integrate Rational COBOL Runtime for z/VSE V7.5 in an IT infrastructure, refer to the document "Multiplatform Development and VSE" which you can find in the "Solutions" section of the *z/VSE Home Page* (see "Where to Find

More Information” on page ix).

Language Environment Enhancements

Additional Recommendations for Defining Interlanguage Communication

Additional recommendations have been provided for defining interlanguage communication between COBOL and C routines.

For details, refer to these sections contained in the chapter “Communicating between C and COBOL” of the *LE/VSE Writing Interlanguage Communication Applications*, SC33-6686:

- “COBOL Dynamically Calling C”
- “Passing Data between C and COBOL”

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Release Guide
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Publication No. SC33-8300-03

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Program Number: 5609-ZV4

SC33-8300-03



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