

## Multi-Platform Development and z/VSE

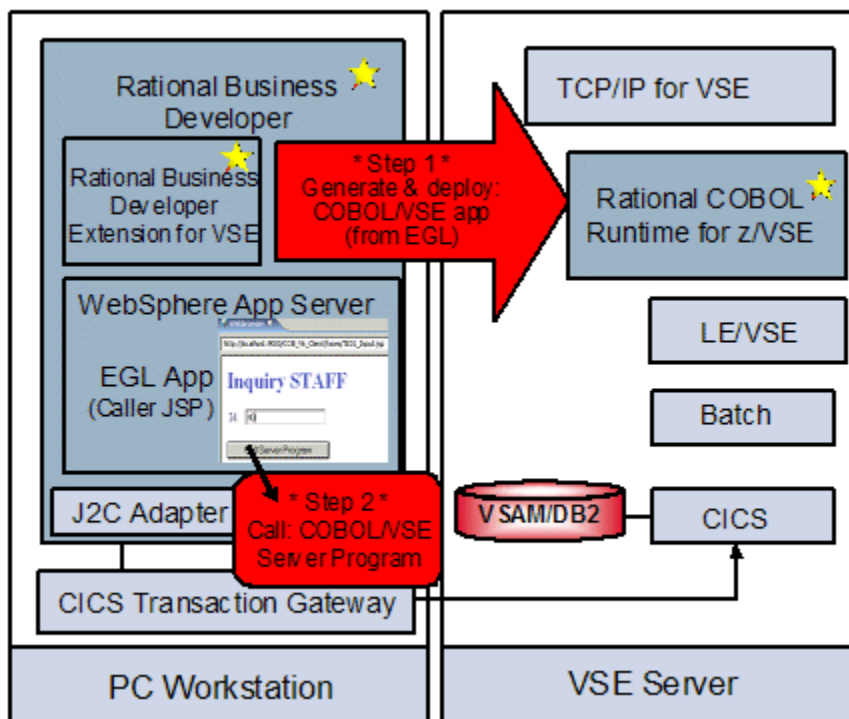
With availability of VisualAge Generator EGL plug-in z/VSE (in 2005) there evolved new Application Development (AD) opportunities for the z/VSE environment. This included the possibility to generate COBOL/VSE applications from IBM's new business language and involve web architectures.

In December 2008, continued support was announced for IBM's new business language and z/VSE based on:

- [IBM Rational Business Developer \(RBD V7.5.1\)](#) and the associated feature
  - [IBM Rational Business Developer Extension for z/VSE V7.5.1](#)
- z/VSE host component [IBM Rational COBOL Runtime for z/VSE \(V7.5\)](#)
- Currently Rational Business Developer 9.0.1 would be our recommendation for install

The sections below outline the details for this approach.

### Overview



### Notes:

- IBM Rational Business Developer (RBD) will be the recommended integrated development environment for IBM's new business language applications (regarding z/VSE)
- IBM Rational COBOL Runtime for z/VSE is the optional z/VSE host component (replacing VisualAge Generator for z/VSE)

The interaction of workstation and z/VSE components outlined in the figure above allows the generation and deployment of COBOL/VSE back-end programs that are called from an [Enterprise Generation Language \(EGL\)](#) front-end (actually Java applications that are located on a Web Application Server and invoked from a Web browser).

EGL Rich UI enables organizations to quickly deliver rich Web 2.0-style solutions without needing to learn or program the intricacies of Ajax, JavaScript, REST, HTML, or XML.

## Benefits

The possibility to concentrate on business processes is considered a key element in application development. The following list references some of the benefits and opportunities associated with using EGL.

- IBM [Whitepaper](#) - “Exploiting Java with Enterprise Generation Language”
- Modern, flexible AD - in coexistence with - traditional z/VSE operating system(s) and its related, approved functionality. There is no need to take migration risks
- Supports development **of platform-independent** application solutions
- Complementary element to existent z/VSE e-business infrastructure, tools and application support on the host (e.g. z/VSE Connectors, z/VSE Redirector, z/VSE Navigator ...)
- Reproducible approach to build new web applications of similar nature (e.g. DB access from Java application)
- Special language skills are subordinate (COBOL, Java ...)
- Instead the focus is with the EGL-language and maintenance of build descriptors to generate code for specific target environments
- Coding and program maintenance is kept in EGL, not the generated program(s)
- Data implementation types defined in EGL can be exchanged at later point of time e.g. „indexedRecord“ (VSAM KSDS) - „sqlRecord“

## Software prerequisites

### Workstation:

- IBM Installation Manager (IM)
- IBM Rational Business Developer (RBD) associated components and licenses via IM
  - Generation for z/VSE
  - Generation for System z
  - J2C-Tools (Java EE Connector)
  - Tools for WebSphere Application Server Version 7.0
- DB2 UDB - Enterprise Server Edition (optional – for data repository on a workstation)
- IBM CICS Transaction Gateway (optional – for CICS access only)

**z/VSE Server:**

- Rational COBOL Runtime for z/VSE
- CICS Transaction Server
- TCP/IP
- COBOL for VSE/ESA compiler
- Language Environment for VSE/ESA
- DB2/VSE (optional - for data repository on z/VSE)

**How to get started**

To get started the following could be of further interest.

**IBM Rational Software Development Platform:**

- The “Welcome” and “Help” sections provide a link to EGL sample applications

**Further references and articles:**

- [Enterprise Generation Language \(EGL\) resources](#)  
(Tutorial and more ...)
- [Generating COBOL using EGL and JSF with WebSphere Studio Enterprise Developer](#)  
(z/OS focused – nevertheless very similar for a z/VSE target system)

**Major enabling tasks on z/VSE Server site:**

- Rational COBOL RunTime for z/VSE setup and customization (related CICS Resource Definitions such as files, transient data (TD) queues and transaction ELAC). Refer to subject program directory for details and finally run the provided install verification program.
- Ensure transaction CPML is defined with TWASIZE=1024. It is recommended to create a copy of CPML and make the change to avoid modification of CICS supplied RDO entries.
- Ensure CICS system definition (SIT) parameter TCPIP=YES being set and optionally tailor journal control (JCT) table
- CICS Web Support (CWS) and External Call Interface (ECI) must be enabled.
- Dependent on environment needs DB2/VSE batch & online might be required. In this case the related setup must be performed including key validation (IVALPKEY), online transactions (ISQL) and (CIRB) and sample DB „SQLDS“ enablement.

**Major enabling tasks on the Workstation:**

- Use IBM Install Manager to install RBD 7.5.1, z/VSE Generation Feature and Generation System z. Maintain products from here (manage licensees, updates etc.)
- Rational Business Developer - IDE:
  - Window tab -> Preferences -> General -> Capabilities: „EGL Developer“ profile should be activated

- Window tab -> Preferences -> EGL -> SQL -> Check "Add Level numbers to Record Definition". This will create the best record definitions for performance when doing COBOL Generation (fixed data types, level numbers, etc.).
- Import JAR files (e.g. for DB2 UDB drivers, z/VSE Connectors), names might be case-sensitive
- Define EGL projects, parts, build descriptors, pagehandlers, user-/work areas, perspectives, properties
- Create EGL & JSP files e.g. via Page Designer Tool
- As an alternative, import, customize existing EGL projects (project interchange zip-files/refresh) and migrate sources to current EGL V7 level
- It is recommended to delete old JAVA files in an EGL migration context (formerly generated from EGL source)
- Check z/VSE generation templates regarding desired JCL and SETPARM parameters used. These are in the RBD supplied "VSETemplates" folder under "plugins\com.ibm.etools.egl.generators.cobol ..."
- DB2 UDB Control Center – Table Setup:
  - Consider to maintain/synchronize DB2 tables (if using supplied sample databases on a workstation and z/VSE)
- Web Application Server - Configuration:
  - Ensure your Web server is started
  - Enter „Administration Console“ with authorized user
  - Focus on Resources, Adapter and Security configuration
  - Add/delete projects possible in „down“ mode
- [CICS Transaction Gateway](#):
  - Configure z/VSE target machine(s)

## Documentation

### References to related components (Workstation)

IBM Rational Business Developer (RBD)

- [Overview on Developerworks](#)

IBM Rational Business Developer Generation Extension for z/VSE

- [Overview](#)

Enterprise Generation Language (EGL)

- [Overview on Developerworks](#)
- [Documentation](#)

#### CICS Transaction Gateway (CTG)

- [Overview](#)

#### DB2 Universal Database (UDB)

- [Overview](#)
- [Problem solutions](#)

#### References to related components (z/VSE Server)

##### IBM Rational COBOL Runtime for z/VSE

- [Overview](#)

##### Language Environment for VSE/ESA

- [Overview](#)
- [Support](#)
- [Examples](#)
- [Documentation](#)
- [Tools](#)

##### CICS Web Support (CWS)

- [Configuration](#)
- Web Bridge (please note that this link must be configured before used):  
`http://vse-ip:cws-port/cics/CWBA/dfhwbttta/cemt`
- [Conversion Table](#)

##### DB2/VSE (optional)

- [Enabling DB2 Server for z/VSE](#)
- [Steps Required to Install the Sample Database](#)
- [Customize the DB2 Based Connector](#)
- [Using the DB2-Based Connector to Access Data](#)

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