Promote innovation with a simpler approach to software development

Rational. software

IBM Rational Business Developer, Version 7.1

Highlights

- ***Helps accelerate the delivery of Web and SOA systems with a simplified development environment***
- ***Helps eliminate skills silos and achieve new levels of flexibility and responsiveness through a unified, easy-to-learn programming approach***
- ***Enables you to build innovative, modern solutions with minimal developer retraining, and helps position your organization to manage the effects of technology changes***
- ***Allows IT groups to use less-skilled developers to deliver more-complex mainframe applications***
- ***Helps reduce IT costs with improved developer productivity and the means to reuse and extend legacy assets***
- ***Provides a migration path for IBM VisualAge Generator customers***

IBM® Rational® Business Developer software is the component of the IBM Rational Software Delivery Platform that's specifically designed to fulfill the needs of business-oriented developers. It provides a comprehensive development workbench for the Enterprise Generation Language (EGL). EGL is a powerful, easy-to-learn and highly productive modern language that equips developers of almost any background with a simplified, high-level development model that can help them quickly deliver cross-platform, transactional data–centric services and applications.

As a business programming language, EGL is designed to let you write full-function applications quickly and independently from the target run-time platform, freeing you to focus on business problems rather than on complex software technologies.

For example, EGL hides the Java™ and Java Platform, Enterprise Edition (Java EE) details; the Web services standards; and the enabling middleware, so—with minimal Web technology experience—you can deliver enterprise data to employees, customers and partners through Web browsers.

Rational Business Developer software helps you easily reuse and leverage your valuable existing IT assets. You can build innovative IT solutions while controlling costs, reducing application backlogs and improving flexibility and responsiveness to the business. With limited retraining, you can achieve increased levels of application development productivity and enable business-savvy developers to exploit emerging computing technologies to fulfill new and changing business requirements.

IBM Rational Business Developer, Version 7.1 software installs as a stand-alone product. It can also install along with other IBM development solutions—such as IBM Rational Developer for IBM System z™ software, and it can share the same underlying workbench. Rational Business Developer, Version 7.1 is also included in IBM Rational Developer for IBM System i™ for SOA Construction software.

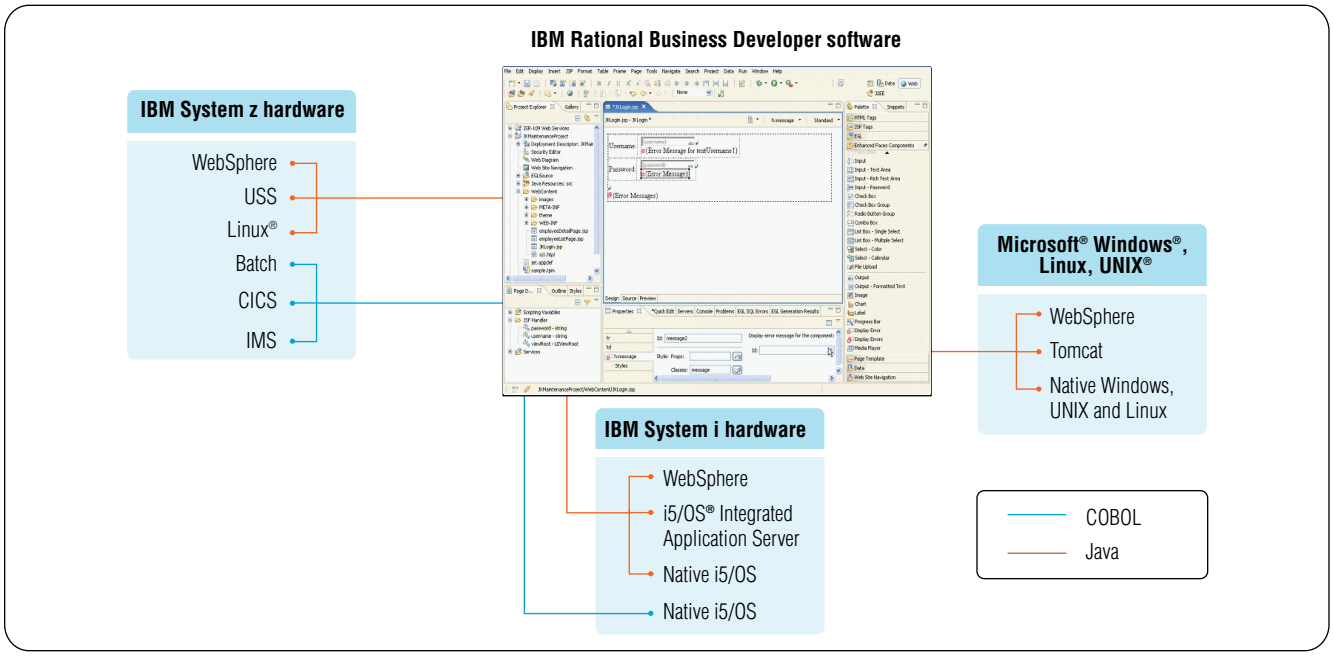
Empower developers

IBM Rational Business Developer software gives developers direct access to a broad range of EGL construction, test, debug and deployment capabilities, so they can create Web, Web service, batch, character-based and GUI applications quickly and easily. The offering includes a generation engine that can transform the EGL source into Java or COBOL code optimized for deployment to a broad variety of application hosting environments, including Java EE servers (such as IBM WebSphere® software and Apache Tomcat) and traditional systems such as IBM CICS® Transaction Server and IBM IMS™ Transaction Manager software on the System z platform.

EGL is designed to hide the details of the target execution platforms and associated middleware, freeing you to concentrate on addressing business issues rather than on managing the underlying implementation technologies. Developers who have little or no experience with Java and Web technologies, but have procedural programming skills and valuable business domain expertise, can use EGL to create enterprise-class services and leading-edge applications. And developers with little or no experience with mainframe programming can quickly create highly optimized System i or System z services and applications. You can establish a flexible pool of development resources that are adaptable and deployable across projects and platforms. EGL helps empower this broader class of developers with abilities to:

- *Build Java and Java EE applications or mainframe applications without having a deep knowledge of the underlying technology.*
- *Deliver applications based on industry standards that interoperate with existing systems.*
- *Adopt service orientation without extensive knowledge of service-oriented architecture (SOA)-supporting technologies and standards.*
- *Achieve higher levels of productivity while leveraging the latest platforms and technologies and minimizing the training requirements.*
- *Reduce application errors through abstraction, code generation and automation.*
- *Deploy to many IBM platforms, including the System i and System z environments.*

IBM Rational Business Developer is based on the Eclipse open source platform; therefore, it allows you to adapt and extend your development environment to match your needs. It also can plug in seamlessly to the IBM Rational Software Delivery Platform to provide comprehensive lifecycle support for EGL development projects.



With its EGL language, IBM Rational Business Developer helps organizations improve productivity and enhance flexibility of deployment to multiple platforms.

Help reduce complexity and cost

Regardless of your background as a developer, you can use IBM Rational Business Developer and EGL to quickly generate applications and services that can deploy natively to a broad variety of platforms. EGL is designed to address a spectrum of business application requirements by allowing development of:

- ***Business services.*** *The language includes a "service" construct, allowing you to create and consume services in an extremely simple and straightforward way, and to permeate systems architecture with service orientation.*
- ***Web applications.*** *Tight integration of EGL with the JavaServer Faces (JSF) framework and JSF tooling can enable developers to create Web applications in a simple and productive way, without needing to know the details of Java or the JSF framework.*
- ***Portlets.*** *New in version 7.1, EGL JSF Web applications can also be deployed to IBM WebSphere Portal Server software. EGL provides built-in functions to interface the portal framework, including support for interportlet communications.*
- ***Reports.*** *Rational Business Developer supports the creation of sophisticated reports through its integration with Business Intelligence and Reporting Tools (BIRT). BIRT is an Eclipse-based open source reporting system. EGL can provide business logic to turn raw data into useful information that BIRT generates into HTML or Adobe® PDF reports.*
- ***Batch systems.*** *The language includes the notion of "batch program," which can be generated to run without end-user interaction; for example, to support reports production or batch database load and update.*
- ***Text User-Interface applications.*** *To facilitate migration of legacy systems to a modern development environment, version 7.1 includes the ability to create traditional character-based user interfaces (green screen, such as 5250 and 3270) and relative programming constructs. This capability can also be used for new development, if needed.*

IBM Rational Business Developer can empower business-oriented developers to be highly productive very quickly as a result of the following capabilities:

- *Abstraction. EGL can provide concise and powerful notations that help eliminate tight coupling and reduce the amount of coding required to interface systems and middleware. This abstraction can significantly simplify and speed up developers' work.*
- *Declarative programming. EGL includes declarative specifications aimed at reducing repetitive and error-prone coding. For example, by associating a validation rule to a data item, virtually every time the item is used in a certain context, the validation is automatically applied and enforced.*
- *Language. EGL provides a comprehensive but easy-to-learn language programming model that's modern and modular. And it includes a rich library of built-in functions to help boost your productivity for commonly required operations, such as date and time, math and string manipulation. Additionally, the language is extensible and offers interoperability with other languages; in particular, it provides EGL interfaces to native Java, COBOL, RPG and other code.*
- *Generation. Although simplified, the EGL development technology can help ensure optimal deployment to run-time platforms to take advantage of their qualities of service and to allow native management and monitoring of the systems in operation. This is accomplished through a code generation engine included within Rational Business Developer that transforms the EGL specification into native Java or COBOL source, and creates other required deployment artifacts.*
- *Tools. To help further boost developers' productivity, Rational Business Developer includes a rich set of tools built upon the Eclipse integrated development environment (IDE) framework. These include EGL source animation for debugging; powerful smart editing; visual construction; graphical navigation; and specialized capabilities such as tight integration of EGL notations with graphical Web development tooling and automatic transformation of Unified Modeling Language (UML) models or database schemas into functional EGL services and applications.*
- *SOA. EGL has been designed from the ground up to facilitate services development and deployment. A simplified and abstracted SOA development paradigm has been built into the language itself, and it's complemented by tools and generation that are consistent with the basic tenets of the power of EGL. Rational Business Developer can help you create services without needing to know Web service protocols and standards.*

Additional enhancements

In addition to the capabilities already called out, this latest version of Rational Business Developer offers enhancements in the areas of security, JSF support, EGL, Java wrappers, usability and automated conversion as shown in table 1.

IBM is currently working to extend EGL to provide a simplified programming model to deliver applications with rich user interfaces that exploit the Ajax framework and popular Web 2.0 widgets. This technology is currently available as an IBM alphaWorks® project.*

Enhancement	New capabilities
Security	Restricted access to EGL applications through new EGL support for access to Java Naming and Directory Interface/Lightweight Directory Access Protocol (JNDI/LDAP) directory data and enablement of both Container-managed and Application-managed security
JSF support	A number of editor usability enhancements, the use of JSF Ajax enabled type-ahead fields and the use of LDAP security JSF support
EGL	Use of XOR operator, the ability to pass and return EGL records on functions invocation, improved CheckDigit, HEX/Float compatibility, and the use of return code on InvocationException
Java wrappers	EGL invocation from native Java code
Usability	A new project wizard and numerous source editor and debugger improvements (such as automated formatting, improved content assist, dynamic error markers, code refactoring, “Jump to line” during debugging, dynamic code modification during debugging)
Automated conversion	Built-in tools for automated conversion of IBM VisualAge® Generator code to EGL

Table 1

Features and benefits of IBM Rational Business Developer software

Feature	Benefit
Simplified creation and consumption of Web services and native services	The built-in EGL service construct and service generation facility allows business-oriented developers to create SOA-based applications without extensive training
Model-driven development with UML and database schema	UML-to-EGL transformations (for the Rational Business Developer and IBM Rational Software Architect software combination) allow architects to model complex applications graphically and implement EGL services or full create read update and delete (CRUD)-capable applications with no manual coding, which can help significantly increase productivity and reduce errors. Automated transformation is also possible starting from relational database schemas
Eclipse-based EGL IDE with powerful editing, code templates, code completion, refactoring, browsing, searching and other capabilities	Advanced development environment features help create a high-productivity environment for EGL coding
Familiar programming model using EGL development and generation capabilities	EGL is easily adopted by business-oriented developers, reducing learning curves and training expenses
Single development and generation environment for a broad variety of target platforms	Support for multiple target platforms allows you to work within the same IDE, leveraging development skills across platform boundaries
Higher quality of generated code	EGL code generation automates the creation of repetitive and commonly needed application infrastructure coding, helping you to significantly reduce manually injected errors
JSF page development, dynamic modification of JSF control properties and integration of EGL control and logic behind JSF pages	EGL provides state-of-the-art Web development tools that support nearly all levels of user interaction, thus affording higher productivity and reduced skills for creating sophisticated Web solutions
Use of abstraction and no application infrastructure coding	EGL hides the arcane implementation details of the infrastructure so you can concentrate on business logic in solving business problems. And by generating most of the "plumbing code," EGL helps increase developer productivity

Table 2

(Continued on next page)

Feature	Benefit
Creation of batch applications	EGL supports the development of batch programs that require virtually no user interaction—increasing the flexibility of the array of solutions and the organization's responsiveness to business requirements
Powerful interactive EGL source-level debugger with the ability to invoke local or remote external programs and access to remote databases	EGL is designed to promote agile and iterative development, shortening the development cycle and increasing developer productivity by removing the need to deploy the generated code to identify application or service logic problems
Automated conversion tool for IBM VisualAge Generator applications	Easily reuse and extend valuable existing IT assets, including automated conversion of IBM VisualAge Generator applications to EGL
Easy access to legacy data; the ability to call programs in legacy environments; the ability to migrate a fourth-generation programming language (4GL) environment to EGL	A leave-and-leverage approach can be taken in addressing legacy code, since EGL can coexist and easily call out to these applications. If required, older 4GL code can be migrated to EGL, which allows you to deploy the application to the most appropriate environment (e.g., Java/Java EE, COBOL). In addition, support is provided for legacy databases such as mainframe virtual storage access method (VSAM) DL/I hierarchical databases. Programming data access and connecting databases are time-consuming tasks, but EGL can help simplify these tasks by giving greater flexibility and productivity to the programmer

Table 2 (Continued from previous page)

For more information

To learn more about IBM Rational Business Developer software, contact your IBM representative or IBM Business Partner, or visit:

ibm.com/software/awdtools/developer/business

To learn more about the products mentioned in this paper, visit:

ibm.com/developerworks/rational/products

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