



**Rational** software

## IBM Rational Application Developer for WebSphere Software, Version 7.0

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### Highlights

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- **Enables installation of only the features you need through flexible, granular options**
- **Extends your Eclipse 3.2 environment and tools**
- **Leverages an integrated, optimized tool for IBM WebSphere Application Server and IBM WebSphere Portal Server products**
- **Accelerates J2EE, portal, Web services and SOA application development using rapid application development tools and visual development techniques**
- **Shortens the Java learning curve through visual design that updates code, point-and-click database connectivity and visual portal development tools**
- **Helps improve code modeling and sharing of designs across distributed teams**
- **Integrates business applications with WS-I-compliant Web services and SOAs**
- **Enables collaboration and assets sharing using built-in IBM Rational ClearCase LT software version-control functionality**
- **Helps improve code quality with automated tools that apply coding standards and perform run-time analysis**

The IBM Rational® Application Developer for WebSphere software application helps Java™ developers create Java/Java Platform, Enterprise Edition (J2EE), portal, Web, Web services and service-oriented architecture (SOA) applications. This integrated development environment assists in rapidly designing, developing, assembling, testing and deploying these applications. Its visual tools can be leveraged to reduce manual coding by abstracting the J2EE programming model, making it easier for those less familiar with Java technology to complete development projects. It is designed to be a highly flexible development tool—based on the Eclipse open framework and with a range of flexible installation options.

#### **Leverage an easy-to-use tool**

It's hard to incorporate new technology into existing processes, so IBM has designed flexibility options into its Rational Application Developer for WebSphere Software product to help make it easier to use—beginning with installation. The flexible installation process provides a choice of options at a granular level, enabling each member of the development team to access only the functions needed and to optimize the size of the desktop installation.

### Take advantage of the Eclipse open and extensible platform

For many years, software developers have realized and used the benefits of open standards in their projects. Now, through Eclipse, all of the benefits of open software have come to the development environment itself. Because the Rational Application Developer for WebSphere Software product is built on top of the open Eclipse 3.2 platform, you can more easily extend its features to meet specific project requirements through an ecosystem of third-party plug-ins. Eclipse is written in Java code, which means you can outfit your team across both Microsoft® Windows® and Linux® desktops.

Because the Rational Application Developer for WebSphere Software product and the Eclipse foundation are modular, installation is highly configurable. Install both the Eclipse environment and the Rational Application Developer for WebSphere Software product. Or install selected Rational Application Developer for WebSphere Software features into an existing Eclipse shell that, for example, supports an established

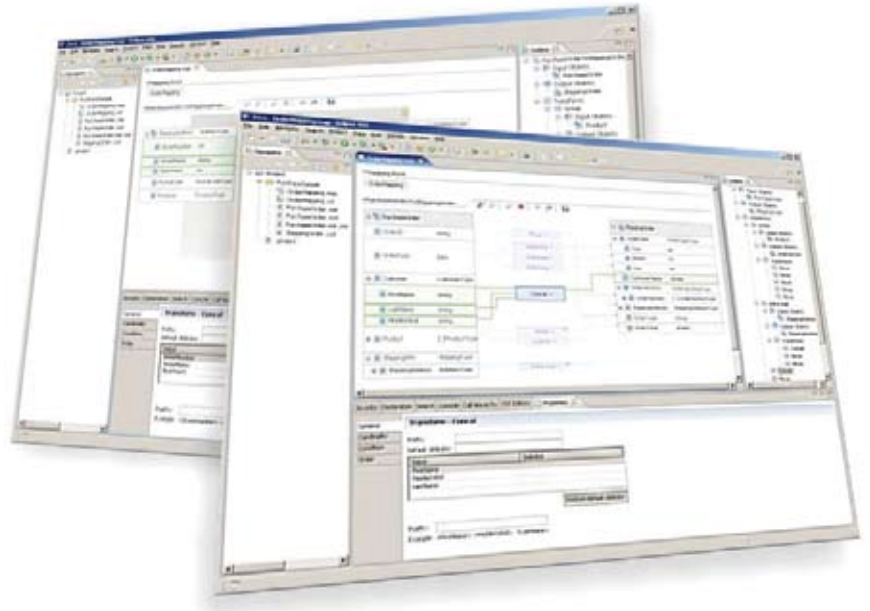


Figure 1: The XML Mapping editor is an intuitive, yet powerful, visual data mapping tool that transforms any combination of XSD, DTD and XML documents.

development project or environment. This modularity also makes it possible to unify the data, application and software system development environments on Eclipse.

### Comprehensive support for the full J2EE programming model

The Rational Application Developer for WebSphere Software product supplies full J2EE 1.2, 1.3 and 1.4 compatibility, and it supports Java 5 code across all configurations. It includes full support for Enterprise

JavaBeans (EJB), message-driven beans, EJB Query Language, Container-Managed Persistence (CMP), Web archive (WAR) and enterprise archive (EAR) deployments. The Rational Application Developer for WebSphere Software product also supports Java Development Kit 5 language.

Several visual tools in the Rational Application Developer for WebSphere Software product ease the development process—whether you need to

create an interface, connect the application or interface to the data, build a portlet, create application logic or analyze the application at a greater level of abstraction. To test applications before deployment, the Rational software includes unit test environments for multiple configurations of IBM WebSphere® Application Server software. What's more, it can automate WAR and EAR assembly processes for test and deployment.

**Integrate applications using Web services and service-oriented architectures**

The Rational Application Developer for WebSphere Software product provides the tools you need to discover, create, build, test, deploy and publish new Web services applications or enable existing applications as Web services-Interoperability (WS-I)-compliant Web services.

The Rational Application Developer for WebSphere Software product lets you automatically generate from existing assets the Web Services Definition Language (WSDL) and Web Services Inspection Language (WSIL) files needed to describe Web services and prepare them for inspection, or you

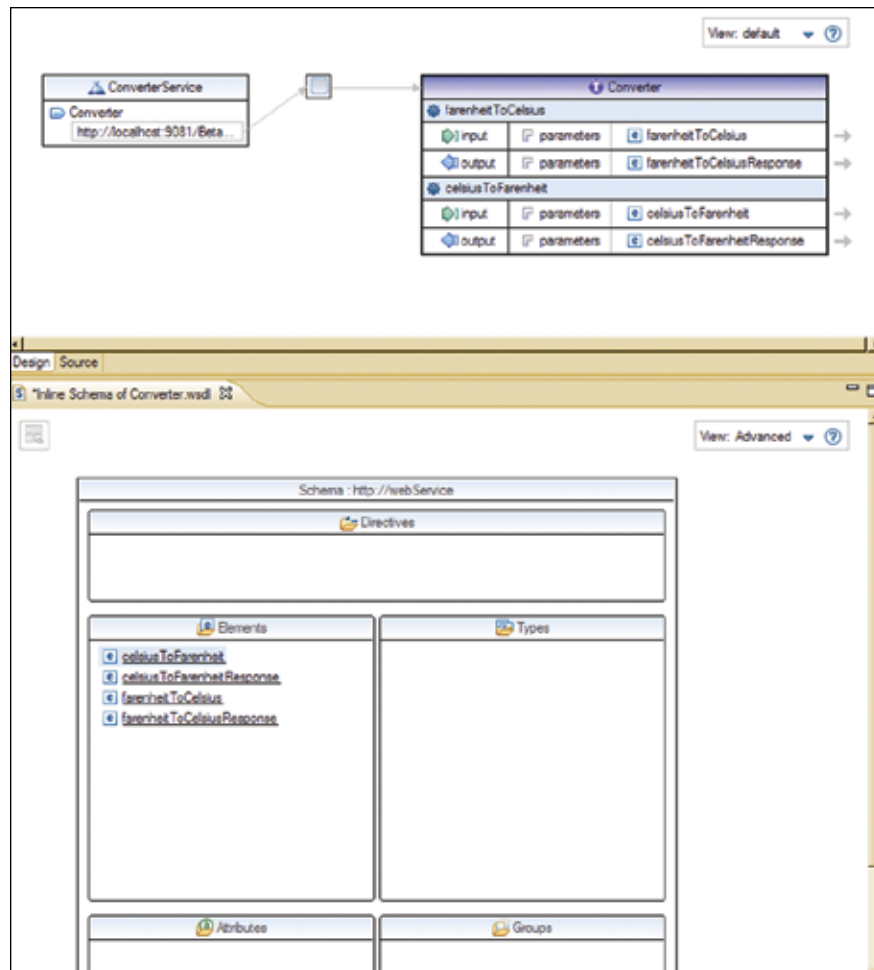


Figure 2. The Web Services Creation wizard makes it easy to generate new Web services from existing assets, such as JavaBeans and EJB components.

can design a WSDL file and generate Java code from it. A redesigned WSDL editor and Web Services Explorer tool help you to easily create, validate and detect WS-I-compliant, interoperable

Web services. You can encode input and output messages through support for both Simple Object Access Protocol (SOAP) and the open Apache Extensible Interaction System (AXIS)

specifications, and you can create a Java proxy to interface with client applications. The Rational Application Developer for WebSphere Software product enables you to generate Web services test clients without coding, and to deploy to the Universal Description, Discovery and Integration 2 (UDDI 2) registry. All of these features help to increase productivity.

### **Simplify Web development and Web site management**

Easy-to-use wizards and tools help to bring virtually all aspects of Web development—HTML, JavaServer Pages (JSP), JavaServer Faces (JSF) and servlets—into a common interface. The Rational Application Developer for WebSphere Software product enables developers with diverse technical backgrounds—even those new to Java—to build rich, data-driven applications. You can easily build function-rich Web pages in either a visual editing mode or source editing mode using the advanced HTML and JSP editors included in the product. Import an entire Web site and apply global style changes, and visually add or delete pages from a tree-structure view using the Rational software's Web Site Designer tool.

The Rational Application Developer for WebSphere Software product is designed to fully support JSF 1.1 to help quickly build rich Web user interfaces and Web forms. You can create managed data beans in the page data view, leverage third-party JSF components, support run-time page templates using tiles and leverage additional support for Asynchronous JavaScript Technology and XML (Ajax) implementations. Reusable, drag-and-drop JSF components can be leveraged to generate code for event handling, to validate user input and to bind data, creating a more productive end-user experience.

It can often be challenging to create and maintain Web applications that include diverse, intertwined elements—data access, business logic and presentation logic. On the one hand, you need to separate the elements to ease complexity, and on the other hand, you need fast, easy ways of connecting these components. The Rational Application Developer for WebSphere Software product lets you visually construct and map Web applications that employ either a Model-View-Controller design or a Struts 1.1 framework—including

connecting Web applications to relational databases, EJB components and Web services. Service Data Objects is an emerging industry standard for accessing heterogeneous data, where point-and-click tools in the Rational Application Developer for WebSphere Software product support its use.

A built-in Crystal Reports tool is designed to help you rapidly create visual data reports, including the ability to design and deploy custom reports or use predefined report templates. A JSF report viewing component incorporates reports into Web applications or dynamically renders them on the Web.

### **Visually develop portlets and portal applications**

The Rational Application Developer for WebSphere Software product includes a set of visual portal development tools and a WebSphere Portal unit test environment so you can build and test individual portlets and entire portal applications. Create new portlets using wizards that generate both the J2EE portlet project structure and the complete portlet. These portlets comply with either the IBM Portlet

application programming interface (API) or with Java Server Request 168 (JSR 168), which is a standard specification for portlet aggregation, personalization, presentation and security. Using the Rational Application Developer Portal Designer feature, you can visually create and edit portal applications, and visually edit the themes and skins that control their appearance.

Many other facilities in the Rational Application Developer for WebSphere Software product support portlet development as well. You can design the interface for portlets using JSF components in the Page Designer tool, and you can visualize the structure and event flows using the Web Diagram editor and the Struts framework to make applications easier to maintain.

### Improve team productivity with effective change management

The Rational Application Developer for WebSphere Software product is tightly integrated with IBM Rational ClearCase® and IBM Rational ClearQuest® change management solutions. This deep integration enables a wide range of change management operations to be performed directly from within the

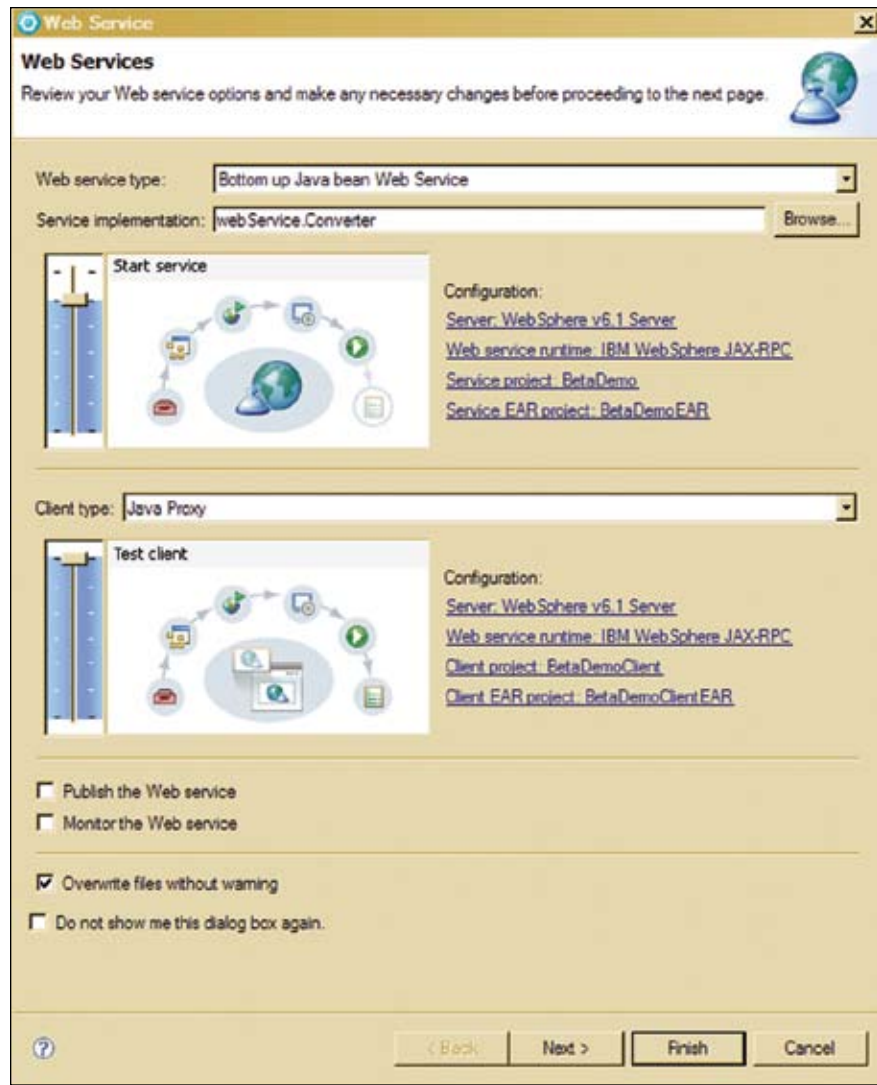


Figure 3: An easy-to-use Web service design user interface enables the creation of either bottom-up or top-down Web services.

Rational Application Developer software, and it allows an integrated view of projects that helps to increase team collaboration. The Rational Application Developer for WebSphere Software product includes IBM Rational ClearCase LT software for reliable, entry-level version control and out-of-the-box team support. It also supports Concurrent Versions System (CVS) and third-party software configuration management systems through vendor plug-ins.

### **Develop data-driven applications**

Many powerful features help increase productivity and flexibility by helping you create data-driven applications that leverage a variety of data implementation technologies. The Rational Application Developer for WebSphere Software product offers comprehensive XML visual tools and functions to create, edit and transform XML and Document Type Definition (DTD) assets, while mapping to relational database tables. Tight integration with IBM DB2® information management software helps speed the process of creating XML documents from DB2 data.

The structured query language (SQL) query wizard and SQL query builder provide a visual interface for defining and executing both simple and complex SQL statements, while enabling the use of wizards to create XML documents from the SQL statements. The database connection wizard makes it easy to establish a Java Database Connectivity (JDBC) connection to a database—like the IBM DB2 Universal Database™, IBM Informix®, Oracle or Microsoft SQL Server solutions. There is SQL for Java support as well to meet your varied needs.

Object-to-relational mapping is easy with top-down, meet-in-the-middle and bottom-up support. Simplify the creation and testing of EJB components with wizards. And build applications that target, extract and display the data you want to present—formatted to your customized design. The Rational Application Developer for WebSphere Software product supports many-to-many mappings to help you generate multiple persistence implementations.

### **Work at a higher level of abstraction with synchronized code modeling**

Hand coding applications takes time. Working at a higher level of abstraction with the Rational Application Developer for WebSphere Software product code modeling capabilities helps increase productivity and can be less error prone. The Code Modeling editor enables you to graphically visualize and edit J2EE code and data objects. You can work in a visual mode to create Java classes, EJB or data models, and/or jump into a code mode—where each mode is automatically updated with the changes you made in the other mode.

Another modeling editor is the Web Diagram editor, which provides a range of capabilities for visually designing complete Web applications with one tool. This single editor supports the creation of data-, JSF- or Struts-based service-driven applications, helping the team save time.

### **Automate code quality review**

The earlier defects are captured, the simpler they are to correct. The Rational Application Developer for WebSphere Software product

includes tools to help developers automate code quality reviews. First, an automated code review feature applies more than 200 J2EE coding standards and best practices to application code, flagging violations and suggesting repairs—including rapid, one-click quick fixes. Existing rule categories include Java SE/J2EE best practices, globalization and accessibility. New rules can be imported with an Interactive Rules editor.

#### **Automate deployment and system test for WebSphere servers**

IBM WebSphere Application Server, Versions 5.1, 6.0 and 6.1 and IBM WebSphere Portal Server, Versions 5.1 and 6.0 test servers are conveniently included with the product to support testing and debugging of applications intended for these deployment platforms. The Rational software is designed for deep integration with the test servers, which means that the test servers autoconfigure for the application under test. Automated support for creating and debugging the application's wsadmin files helps to expedite testing and deployment processes. The Rational Application Developer for WebSphere

Software product also supports IBM WebSphere Application Server Community Edition and Apache Tomcat software.

#### **Integrate with other facets of the lifecycle**

The Rational Application Developer for WebSphere Software product helps you integrate with other facets of the lifecycle. Requirements stored and managed in IBM Rational RequisitePro® software can be accessed and associated to corresponding modeling elements and code. Users can generate reports highlighting traceability from requirements to design. The integration with the IBM Rational Unified Process® (IBM RUP®) solution gives teams the ability to work through all of this with common, online and integrated process guidance. These integrations help reduce the risk associated with software development and make application development more predictable.

#### **For more information**

To learn more about the IBM Rational Application Developer for WebSphere Software product, or to download a trial version, visit:

[ibm.com/rational/adc](http://ibm.com/rational/adc)



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