

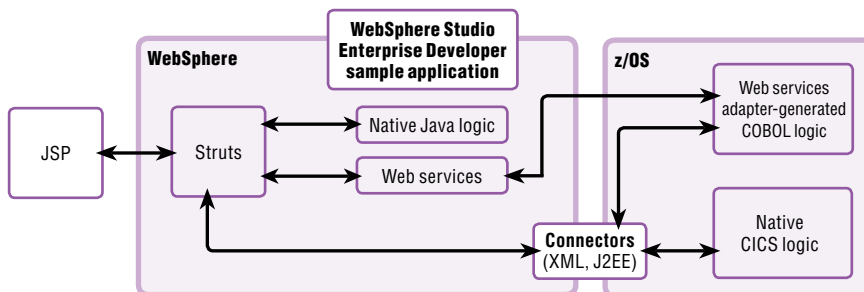
IBM WebSphere Studio Enterprise Developer, Version 5.1.1

Highlights

- **Helps reduce the skills needed to develop component-based Web applications**
- **Lets developers rapidly create well-structured e-business systems that integrate WebSphere software and traditional transactional environments, including CICS and IMS**
- **Promotes the reuse and transformation of existing applications to reduce costs and shorten the development cycle**
- **Automates the adoption of industry-standard e-business architectures through visual construction facilities based on open Struts implementation**
- **Helps developers create dynamic Web applications, with support for J2EE, XML and Web services technologies**
- **Improves productivity to develop z/OS system-based applications while making the transition to an e-business architecture**
- **Helps enable developers by facilitating skill transfer and knowledge in mission-critical enterprise technologies**
- **Supports team-member collaboration across the process of development, testing and deployment of multitiered, mixed-workload applications**

Building today's complex e-business applications often requires assembling teams of people with varying levels of technology backgrounds and areas of expertise. Teams can include business-oriented developers, Java™ technology-based programmers with Web systems experience, and traditional programmers—who understand the business inside and out—but lack Web systems skills. You want to leverage all these professional skill sets, and exploit existing and new Web technologies—focused on linking service-oriented architectures (SOAs)—to speed the entire development process.

As IBM's premier enterprise application development environment, IBM WebSphere® Studio Enterprise Developer, Version 5.1.1 brings the power of Java 2 Platform, Enterprise Edition (J2EE), rapid application development (RAD) and support to diverse enterprise application development teams. With comprehensive development tools to help create, deploy and maintain enterprise Web applications, developers from different technical backgrounds can easily participate in e-business projects together. As traditional programmers collaborate in the development process, their exposure to new technologies widens—while they continue to leverage their existing skills.



WebSphere Studio Enterprise Developer simplifies the J2EE application process by providing a Struts-based, visual-component construction environment supporting enterprise-scale SOAs.

Extend IBM WebSphere Studio technology throughout your enterprise

Built on IBM WebSphere Studio Workbench technology and written to J2EE specifications, WebSphere Studio Enterprise Developer can optimize and simplify application development to SOAs with best practices, visual tools, templates, code generation and a comprehensive development environment. So your developers can share a common view of applications and resources accessible from linked environments. Employing the common services of an integrated development infrastructure helps facilitate better management and communication, and can reduce requirements for manual integration — ultimately shortening the development process. WebSphere Studio Workbench technology also enables you to integrate complementary development tools that interoperate with other WebSphere Studio Workbench technology-based products.

WebSphere Studio Enterprise Developer also includes tools for building the underlying business processing and infrastructure for Web applications. These tools support the popular, open-source Struts run time, and they include a visual construction environment that allows a developer to quickly link views with business logic implemented in a number of different technologies — such as Web services, J2EE Connector Architecture (JCA) adapters, COBOL and PL/I. This capability allows individuals with a variety of skill sets to contribute to the construction of sophisticated Web, traditional and mixed-workload applications.

Simplify the development process

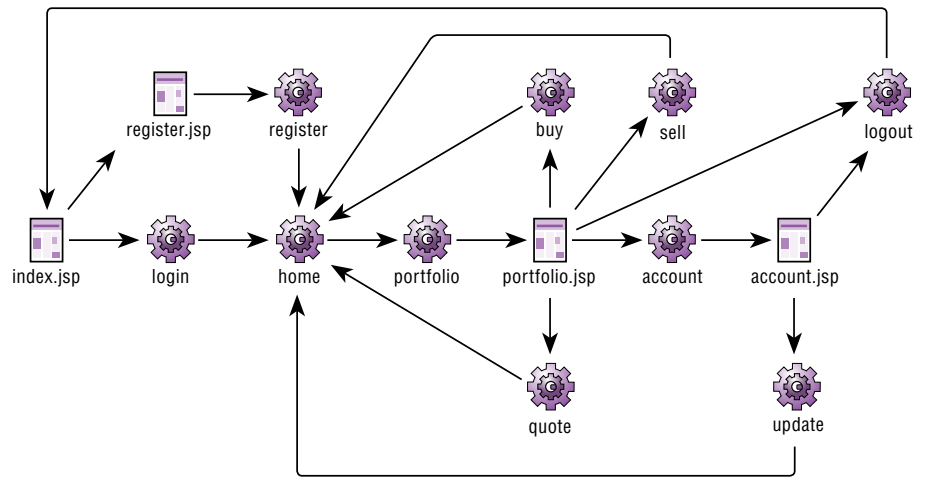
Creating high-performance, content-rich Web applications requires the strategic investment and careful management of resources and skills. To help shorten the development cycle and leverage resources, enterprise developers rely heavily on component technologies. Using these components, or services, helps teams reuse proven and reliable capabilities, instead of duplicating development efforts.

WebSphere Studio Enterprise Developer combines visual construction of complex Web systems with the open, Struts-based, model-view-controller (MVC) component architecture. The MVC pattern contains three main elements:

- **Model**
Manages access to persistent data and houses the core of application functions.
- **View**
Gathers and submits information of user-interface elements.
- **Controller**
Manages the execution flow of an application.

This simplified pattern helps you create components and helps simplify the development process by enabling key aspects of Web applications to be isolated and maintained independently. You can rapidly define, reuse and debug application flows, actions and patterns with a model-based development paradigm. The MVC architecture enables you to develop and deploy well-structured e-business systems delivered to IBM WebSphere Application Server. And to integrate new applications with traditional transactional environments (IBM CICS® and IBM IMS™) and languages (COBOL and PL/I).

WebSphere Studio Enterprise Developer supports HTML and JavaServer Pages (JSP) components incorporated in the view. It also supports servlet processing for the controller and Enterprise JavaBeans (EJB), COBOL and PL/I component processing in the supported WebSphere Application Server and traditional IBM z/OS® environments. You can quickly evolve and integrate environments as your business needs change. Developers with varied skill sets can easily maintain Web applications and help reduce development costs.



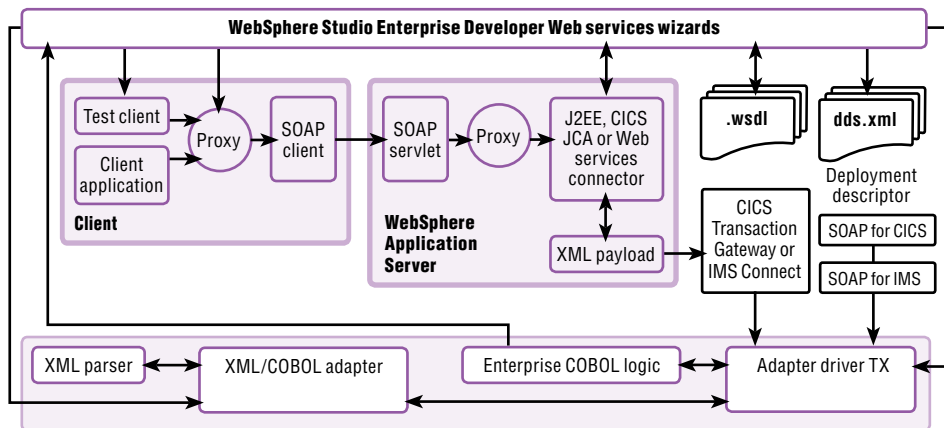
WebSphere Studio Enterprise Developer application flow created in the Web diagram editing facility.

Ease the creation, understanding and maintenance of Web applications

A comprehensive view of the Web application flow can help ease maintenance requirements and promote a greater understanding of unfamiliar application construction and components. To help support the Struts framework, WebSphere Studio Enterprise Developer includes a Web diagram editor that maps applications to help you quickly recognize the flow, structure and components of Struts-based Web applications.

You can use the Struts-based automated design and construction environment provided to develop a Web application architecture and the underlying code that can implement that architecture. JSP components implement the visual parts of an application, beans implement data access, and usage and actions implement the business process in an application. Their relationships are painted on a palette. This palette contains wizards available to help you enter required information and properties.

Architects, analysts and developers can have quick access to a point-and-click design tool and wizards throughout the development process, including a wizard to help quickly generate JSP and Java syntax. As a result, team members can separate responsibilities and improve productivity and focus.



WebSphere Studio Enterprise Developer lets you create dynamic Web applications.

Enhance development capabilities with leading-edge servlet, JSP and EJB tools

You have existing applications that you want to keep and important data residing in legacy systems. You need advanced tools to build Web applications that include business logic to help preserve investments and reduce development time. With WebSphere Studio Enterprise Developer, you can define JSP components and servlets, and map entity beans to databases. And you can generate EJB components and access transaction processing systems to better leverage your investments and lower the cost of retooling, integrating and updating existing applications.

WebSphere Studio Enterprise Developer offers a fully supported EJB, Version 2.0 development environment to help you create and test applications for rapid deployment to application servers. To provide a robust unit-test environment, WebSphere Studio Enterprise Developer can integrate tightly with WebSphere software and helps enable easy deployment to WebSphere Application Server. A robust query engine supports deployed code by creating Structured Query Language (SQL) strings to be generated into persister classes. WebSphere Studio Enterprise Developer also provides tools to help create, edit and validate enterprise archive (EAR) files and editors to format deployment descriptors.

With Version 5.1.1, J2EE development support has been enhanced to include:

- Support for J2EE, Version 1.3 specifications, with EJB, Version 2.0, Servlet, Version 2.3 and JSP, Version 1.2.
- The ability to generate code for both J2EE, Version 1.2 and Version 1.3 specifications.
- Full EJB, Version 2.0 support, comprising EJB Query Language, Container Managed Persistence (CMP), Version 2.0 and message-driven beans.
- Support for standard deployment descriptors, as well as extensions and bindings specific to WebSphere Application Server.
- EJB-to-relational-database mapping that provides the model, run-time environment and interface for editing the mapping between EJB fields and relational database tables, and views with top-down, meet-in-the-middle and bottom-up capability.
- Editors for deployment descriptors (*ejb-jar.xml* and *application.xml*).
- Web archive (WAR) and EAR deployment support.
- Updated EJB test client.
- Enhanced J2EE unit-test environment, with support for both WebSphere Application Server, Version 4 and Version 5.

Build Web services quickly with a robust XML tool set

WebSphere Studio Enterprise Developer provides wizards and tools to help you rapidly develop Web services in distributed and z/OS environments. Web services are standards-based e-business applications—accessed through XML—that you can use individually or combine to perform complex transactions with minimal programming. Web services give global businesses a common language with shared definitions to discover each other's resources, connect dynamically and conduct transactions in real time with minimal human input.

WebSphere Studio Enterprise Developer also includes a comprehensive XML tool set to help you build document type definitions (DTDs), XML schemas and files, and integrate relational data with Web services. The COBOL compiler included with WebSphere Studio Enterprise Developer can help you to quickly and easily transform and combine CICS system-based COBOL code into XML-based applications to redeploy as Web services. The Web services you create with WebSphere Studio Enterprise Developer can conform to Universal Description, Discovery and Integration (UDDI), Simple Object Access Protocol (SOAP) and Web Services Description Language (WSDL) standards.

Specialized z/OS system-based Web services support includes mapping XML schema files, DTDs and other XML documents to and from COBOL data structures generating the underlying transformers and high-speed parsing in the IBM Enterprise COBOL language environment. Specific options support deployment to various z/OS run times, including specialized support for the SOAP for CICS and SOAP for IMS features.

WebSphere Studio Enterprise Developer also facilitates the following Web services development tasks to help you build and deploy Web services-enabled applications for your on demand e-business across a broad range of software and hardware platform. WebSphere Studio Enterprise Developer:

- *Enables you to browse the UDDI business registry or a Web Services Inspection Language (WSIL) document.*
- *Lets you create Web services from existing artifacts, such as JavaBeans, EJB components, URLs that take and return data, IBM DB2® XML Extender calls, DB2 stored procedures and SQL queries.*
- *Allows you to wrap existing artifacts as SOAP and HTTP GET/POST-accessible services and describe them in WSDL.*
- *Enables you to deploy Web services into WebSphere Application Server (or Tomcat test environments for local or remote testing).*

- *Offers the ability to generate a sample application to assist you in creating your own Web services client application.*
- *Delivers Apache Axis, Version 1.0 run-time support.*
- *Provides the WSDL Editor, a graphical tool for editing WSDL files and embedded XML schemas.*
- *Provides an enhanced Web services explorer with support for discovering, browsing, invoking and publishing WSDL in a UDDI.*
- *Includes support for creation of Web services, Web Services clients and test environments.*

WebSphere Studio Enterprise Developer also provides a comprehensive visual XML development environment that can help you:

- *Debug and edit Extensible Stylesheet Language (XSL) with code assist.*
- *Create, view and validate DTDs, XML schemas and XSL stylesheets with an enhanced XML Schema Graphical Editor.*
- *Define mappings between XML documents and generate XSL Transformations (XSLTs).*
- *Create an HTML or XML document by applying an XSL stylesheet against an XML document, using the Xalan processor.*
- *Debug XSL stylesheets using the XSL debugger.*

- *Create and execute your XPath using the XPath wizard.*
- *Compile XSL stylesheets for fast execution.*
- *Produce XML-related artifacts from an SQL query.*
- *Update a relational table from an XML document.*
- *Define mappings between relational tables and DTD files.*
- *Generate a Document Access Definition (DAD) script, used by DB2 XML Extender, to either compose XML documents from existing DB2 data or decompose XML documents into DB2 data.*
- *Generate XML and related artifacts from SQL statements and use these files to implement your query in other applications.*

Develop and reuse traditional application processes

Traditional application processing participates in SOAs, meets your quality-of-service requirements and contains viable business functionality needed when implementing new e-business solutions. WebSphere Studio Enterprise Developer gives you an interactive workstation-based environment to help develop and reuse traditional COBOL and PL/I, and CICS, IMS and batch application processing. With WebSphere Studio Enterprise Developer, Version 5.1.1, COBOL and PL/I support has been enhanced to include:

- *The ability to generate code to IBM Enterprise COBOL for z/OS and IBM Enterprise PL/I for z/OS compiler specifications.*
- *Wizards to help you create enterprise Web services applications for SOAP for IMS and SOAP for CICS environments.*
- *Support for z/OS system perspective to provide access to code without having to download or copy files to your workstation.*
- *Support for z/OS local and remote development perspective to offer workstation-based development with project synchronization and management to z/OS system-based file structures.*
- *Access to COBOL and PL/I Batch, CICS and IMS application code assist.*
- *Color-coded editing of COBOL, PL/I and ASM languages as well as Job Control Language (JCL).*
- *Local and remote syntax check.*
- *Remote compile-generation, build and deployment support.*
- *IBM DB2 COBOL and PL/I stored-procedure build and debug support (as a technical preview).*
- *Extensible build based on JCL processes (JCL Procs).*

Leveraging existing assets through an automated code-extraction process can reduce development time and costs. IBM WebSphere Studio Asset Analyzer, a separately available, complementary product, provides broad support for recognition of traditional applications and separate components. Traditional developers can create and edit host-based resources, using WebSphere Studio Enterprise Developer COBOL and PL/I source editors. These editors can help developers connect to various host systems to locate development resources, highlight syntax, compile, map errors to source code, monitor jobs, and enter and execute batch jobs and TSO commands.

Quickly and efficiently send and receive data from your host application

IBM WebSphere Host Access Transformation Server transforms the screens of a host application into Web pages that can be accessed through a Web browser or through IBM WebSphere Portal. End users can use a Web interface to send and receive data from the host application more quickly and efficiently by taking advantage of the easy navigation and workflow of host screens. WebSphere Host Access Transformation Server includes:

- *IBM WebSphere Host Access Transformation Services Toolkit for WebSphere Studio, running on a workstation. You can use this toolkit to create a Web application that can transform host screens into Web pages, improving the end-user experience in the process. WebSphere Host Access Transformation Services Toolkit for WebSphere Studio runs in the WebSphere Studio Workbench development environment and appears as a perspective in WebSphere Studio Enterprise Developer.*
- *IBM WebSphere Host Access Transformation Services run-time code, running inside one or more WebSphere Host Access Transformation Services applications deployed on WebSphere Application Server and sending data between the user and an application on the host. End users interact with the WebSphere Host Access Transformation Services application through their Web browsers or through WebSphere Portal software.*

Test and debug during run time on local or remote servers

Testing Web applications is just as complex and crucial as building them. With the WebSphere Studio Enterprise Developer unit-test environment, you can configure local or remote servers to perform cross-platform interactive testing and debugging live in WebSphere, CICS, IMS and DB2 transactional environments, and in z/OS batch environments. The testing and debugging process begins early in application development, with breakpoint and monitor-testing capability available in the visual assembly environment. This capability helps enable each aspect of the flow and the associated connections to perform as required.

WebSphere Studio Enterprise Developer includes a validation framework to identify errors on the fly—so programmers can save time and money by immediately identifying and correcting errors. Troubleshooting options include traditional debugging in mixed-workload environments, distributed code profiling and unit testing in J2EE environments. WebSphere Studio Enterprise Developer can enable you to edit, test, check syntax and compile the source code locally. Then recompile the source, build a load module, and test and debug on a remote z/OS system.

A comprehensive integrated development environment

WebSphere Studio Enterprise Developer, Version 5.1.1 supports a broad range of developers with added flexibility and the ability to integrate with existing applications. With WebSphere Studio Enterprise Developer, you can:

- *Create Web applications by melding diverse employee skill sets and extending existing systems.*
- *Develop and integrate CICS and IMS transactional applications and batch applications.*
- *Take advantage of proven run-time environments, leveraging SOAs and Web services, while helping reduce your deployment risks.*

WebSphere Studio Enterprise Developer offers an integrated development environment (IDE) with advanced, easy-to-use tools and features to help diverse developers rapidly design, code and deploy complex applications.

For more information

To learn more about IBM WebSphere Studio Enterprise Developer, visit:

ibm.com /software/awdtools/
studioenterprisedev/

IBM WebSphere Studio Enterprise Developer, Version 5.1.1 at a glance

Hardware requirements

- Intel® Pentium® II processor (Pentium III 500MHz or higher recommended)
- VGA (800x600) display or higher (1024x766 recommended)
- 512MB RAM minimum (768MB RAM recommended)
- 1.57GB available disk space minimum

Software requirements

- TCP/IP installed and configured
 - One of the following: Microsoft® Windows® XP Professional, Server or Advanced Server; Windows 2000 Professional, Server or Advanced Server with Service Pack 1, or later; Microsoft Windows NT® Workstation or Server, Version 4.0 with Service Pack 6a, or later
 - Microsoft Internet Explorer 5.5 with Service Pack 1, or later
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