IBM

WebSphere® software

IBM WebSphere Application Server - Express, Version 5.1

Highlights

■ *Offers a quick and affordable solution to develop, deploy and manage e-business applications*

■ *Speeds application development through simplified database access and robust user interface controls*

■ *Leverages existing skills and investments through a simplified programming model that supports JavaScript and tag libraries*

■ *Eases the development process with wizards, samples and templates*

■ *Increases flexibility with support for the latest specifications for JavaServer Pages, Java servlets and Web services*

■ *Minimizes administration requirements through simplified application assembly and deployment and near-zero maintenance*

■ *Allows migration to other WebSphere software products when more-advanced development and deployment capabilities are required*

■ *Provides support for SDK for Java 2 Platform, Standard Edition, Version 1.4 across supported operating system platforms, including OS/400, Linux, UNIX and Windows*
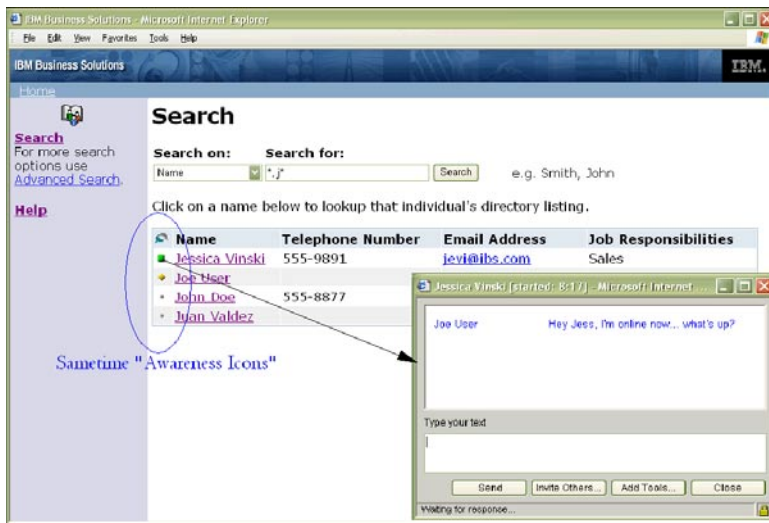

Figure 1. The IBM Telephone Directory business application is a ready-to-go solution that comes already integrated with WebSphere Application Server - Express for iSeries, Version 5.1.

Building dynamic Web sites is an increasingly integral part of any business. Virtually all companies want to develop and manage e-business applications that help streamline business processes and speed time to value. But with short project timelines and limited IT resources, midsize companies often face unique challenges. IBM WebSphere® Application Server - Express software is designed to help companies like yours quickly build and extend dynamic Web sites to help reduce overall costs, improve customer loyalty and adapt quickly to leverage new business opportunities.

Based on the latest Java™ technology and Web services standards, WebSphere Application Server - Express gives you an affordable, ready-to-go solution, including streamlined server functionality, quick-start application templates and robust development tools. Jump-start your way into e-business with a fast, cost-effective solution that can help generate immediate business value and a rapid return on investment (ROI).

Build your e-business quickly

A low-risk, affordable entry point to e-business, WebSphere Application Server - Express is designed for end-to-end ease of use to get your projects up and running quickly. Through an integrated development environment built on Eclipse technology, WebSphere Application Server - Express helps you create, test, deploy and manage dynamic Web sites, applications and Web services. With wizards for quick and simple installation, application assembly and deployment, and little to no maintenance, WebSphere Application Server - Express requires
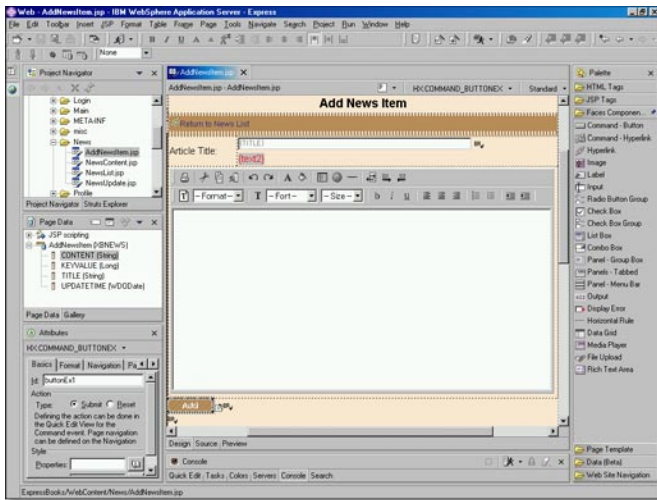

Figure 2. WebSphere Application Server - Express shown within the various views visible in a developer's perspective; palettes of reusable objects can be dragged and dropped onto the Web page being developed.
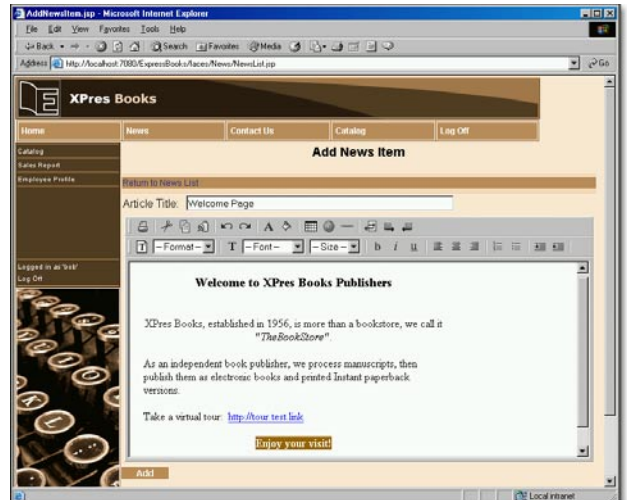

Figure 3. The finished Web page as seen by the application user.

minimal administrative resources. Browser-based administration allows you to perform remote administration across firewalls in addition to separating development and deployment tasks. Default settings help eliminate the complexities of configuring a Web server, including database access and communications; and the capability to start, stop and publish applications to the server as your needs require. Wizards, samples and application templates ease the complexity of building applications and provide code whenever possible.

WebSphere Application Server - Express also includes a set of already integrated applications for IBM @server® iSeries® customers that can help boost productivity. These applications (IBM Telephone Directory, IBM Welcome Page) for iSeries servers demonstrate the value of integrated e-business solutions, can help increase worker productivity, provide services that virtually any business may find useful, and are easy to understand and use.

As your business requirements evolve, WebSphere Application Server - Express allows you to leverage your financial and development investments. As you migrate to more-advanced IBM WebSphere Application Server and

IBM WebSphere Studio configurations, applications can run with virtually no alterations. And the skills acquired through using WebSphere Application Server - Express are applicable to other WebSphere products.

Develop your applications with ease
You want fast, efficient application development to help ensure cost-effective investment of your time and resources. WebSphere Application Server - Express helps you lower your labor costs with a tightly integrated Java development environment based on WebSphere Studio software, which is powered by Eclipse technology.

WebSphere Application Server - Express, Version 5.1 adds support for the emerging JavaServer Faces (JSF, Java Specification Request 127) industry standard.* JSF can help developers eliminate much of the routine, hand-coding required to develop rich user interfaces, Web forms and simple data access for Web applications. The new rich user interface features help developers produce Web applications that are more intuitive and easy-to-use, which can help reduce the overall training costs.

WebSphere Application Server - Express provides a palette of reusable components, such as an enhanced data grid, date picker and tabbed panel, which you can drag and drop onto a page. In addition, support for WebSphere Data Objects enables developers to bind the user interface (UI) components to relational data without writing any code. These new rapid Web-development features help boost developer productivity, enable rapid time to value and, in particular, shorten the learning curve for developers that are new to Java programming.

WebSphere Application Server - Express supports a variety of tools to help simplify application development. The Web Diagram Editor offers a high-level view of an application, which can help you visually map out the pages and actions within an application before writing any code. Web Site Designer is a Web-authoring tool that increases your productivity through visual site management, allowing you to visually create, import and customize complete Web sites with consistent style and layout using a tree view of the site structure. Web Art Designer provides rich-media tools to help you easily create graphic titles, logos, buttons and photo frames with a professional look

and feel. Quick-start samples speed application development and can be used as a starting point, as a code repository or as a reference guide to help developers through the process of building a dynamic Web site. The samples are written with a variety of development techniques to help developers build skills on a gradual basis.

WebSphere Application Server - Express also includes support for JavaServerPages™ (JSP™) technology and Java servlets with additional support for JavaScript™ and Jakarta tag libraries (standard predefined JSP tags) to help non-Java technology developers leverage their existing programming skills. Additional Web development productivity is provided with support for the Software Development Kit for Java 2 Platform, Standard Edition (J2SE™), Version 1.4 (SDK 1.4). WebSphere Application Server - Express offers SDK 1.4 across the supported operating systems platforms (IBM OS/400®, Linux, UNIX® and Microsoft® Windows®). SDK 1.4 helps Java developers build more-demanding business applications with less time and effort. And you can help ensure that your Web sites will run correctly through automatic test-server creation and dynamic debugging, which helps provide easy verification.

Take the first steps toward integrating your business

One of the first ways a business becomes an e-business is by integrating a Web site with a database. WebSphere Application Server - Express can help you take this step. With support for the latest versions of databases, WebSphere Application Server - Express helps you leverage new features and capabilities in leading databases, including IBM DB2® Universal Database™, IBM Informix®, Oracle 9i, IBM SQL Server 2000 and Sybase. Support for Java Database Connectivity (JDBC™) helps users write database applications productively, while database connection pooling helps facilitate efficient connections to those databases.

Extend applications with Web services support

WebSphere Application Server - Express includes wizards, tools and samples to help you quickly build dynamic Web services and reduce costs by leveraging existing Web services. Web services — standards-based e-business applications — used individually or combined to perform complex transactions with minimal programming — 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 user input. WebSphere Application Server - Express helps you build, publish and manage Web services-enabled applications that
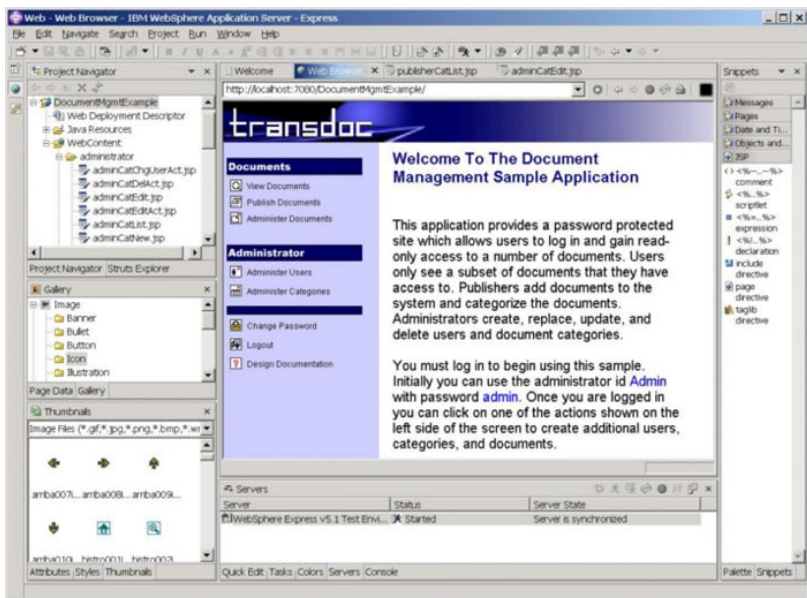

Figure 4. WebSphere Application Server - Express user interface with the document management sample open in the main work area.

can be used by other internal or external organizations across a broad range of platforms. WebSphere Application Server - Express provides integrated support for key Web services open standards, including Simple Object Access Protocol (SOAP); Universal Description, Discovery and Integration (UDDI); Web Services Description Language (WSDL) and Web Services Inspection Language (WSIL). You can easily browse UDDI business registries or a WSIL document to locate existing Web services for integration, then publish your Web services to a UDDI registry. Additional security through Web server security plug-ins allows you to separate your Web server from your application server to help minimize your risk.

A flexible e-business infrastructure
IBM WebSphere Application Server, Version 5.1 provides flexible options and a smooth migration path to help you develop and maintain complete solutions. WebSphere Application Server provides several configurations — from basic to sophisticated — to help you grow to meet your evolving business requirements.

Choose the level of capability best suited for today's needs and expand as your business needs change. In addition to WebSphere Application Server - Express, an extensive list of offerings includes:

- IBM WebSphere Application Server
  The core Web services Java 2 Platform, Enterprise Edition (J2EE™), Version 1.3 technology-compatible application server, enabling industry-leading and flexible deployment options
- IBM WebSphere Application Server Network Deployment
  A J2EE and Web services Web application server with advanced deployment services that include clustering, edge services and high-availability services for distributed configurations
- IBM WebSphere Application Server for z/OS
  A J2EE and Web services application server specifically optimized for the IBM z/OS® environment

- IBM WebSphere Application Server for iSeries
  WebSphere Application Server - Express for iSeries, WebSphere Application Server for iSeries and WebSphere Application Server Network Deployment for iSeries deliver WebSphere Application Server value on the IBM iSeries platform.

  WebSphere Application Server - Express for iSeries, Version 5.1 also includes the IBM WebFacing Tool, which helps modernize existing 5250 system-based applications.

Note: Development licensing is also available.

Please refer to the specific WebSphere Application Server product information for more details.

For more information

IBM WebSphere Application Server is the foundation of the IBM WebSphere software platform for e-business—a set of integrated, award-winning e-business solutions. No matter where you are in the e-business cycle, the WebSphere software platform can allow you to grow at the speed that your market demands. Building on this robust platform, you can integrate your current investments. And leverage existing skills with a full range of server solutions from the WebSphere family of products.

To learn more about IBM WebSphere Application Server - Express and the IBM Business Partner solutions that support it, visit **ibm.com**/software/ webservers/appserv/express.

To learn more about IBM WebSphere Application Server - Express for iSeries, visit **ibm.com**/servers/ eserver/iseries/software/websphere/ wsappserver.

To learn more about IBM WebSphere Application Server, IBM WebSphere Studio and about how the IBM WebSphere software platform can help you succeed in e-business, contact your IBM representative, IBM Business Partner or visit **ibm.com**/websphere.

To order IBM WebSphere Application Server - Express, contact your IBM representative or IBM Business Partner, or call 800 IBM-CALL. Or visit the IBM Web site **ibm.com**/shop.

IBM WebSphere Application Server - Express, Version 5.1 configurations

	WebSphere Application Server - Express, Version 5.1	WebSphere Application Server, Version 5.1	WebSphere Application Server Network Deployment, Version 5.1
Java programming model			
Support for JavaServer Pages 1.2 and Java Servlets 2.3	X	X	X
Support for SDK for J2SE, Version 1.4 across supported operating system platforms, including OS/400, Linux, UNIX and Windows[1]	X	X	X
Full J2EE 1.3 support		X	X
Full XML support	X	X	X
Web services			
Full Web services support	X	X	X
Support for private UDDI registries			X
Web services gateway			X
Database support and connectivity			
JDBC and Connection Management for access to IBM DB2 Universal Database, SQL Server 2000, Oracle 9i, Informix and Sybase[2]	X	X	X
JDBC for access to DB2 UDB for iSeries	X	X	X
Application development			
Sample applications	X[3]	X	X
Integrated development tool based on WebSphere Studio including prerelease version of JSF emerging standard (Java Specification Request 127)*	X		
Integrated e-business applications			
IBM Telephone Directory[4]	X	X	X
IBM Welcome Page[4]	X	X	X
Web server support			
Embedded HTTP server	X	X	X
IBM HTTP server included[5]		X	X
Web server plug-ins	X	X	X
Security			
Basic authentication and authorization for secure access to Web resources	X	X	X
Enhanced authentication and authorization through Common Secure Interoperability (CSI), Version 2.0, single sign-on and support for Lightweight Directory Access Protocol (LDAP)	X	X	X
Advanced Authentication and Authorization, such as Java authentication authorization service (JAAS) and Java Cryptographic Extension (JCE) for enhanced security	X[4]	X	X

[1] As a first step toward full J2EE 1.4 compliance
[2] Not supported for iSeries
[3] Samples are integrated with the tool for quick-start development

[4] Available on WebSphere Application Server - Express for iSeries, Version 5.1 only
[5] IBM HTTP Server included with IBM OS/400

IBM WebSphere Application Server - Express, Version 5.1 configurations (continued)

	WebSphere Application Server - Express, Version 5.1	WebSphere Application Server, Version 5.1	WebSphere Application Server Network Deployment, Version 5.1
Platform support			
Broadest platform support for rapid implementation on Microsoft Windows (2000, 2003, and XP), Linux and IBM OS/400, IBM AIX® systems, Sun Solaris operating environment, HP-UX	X	X	X
Application connectivity			
Full Java Message Service (JMS) supported message-driven beans, including embedded JMS transport		X	X
Microsoft component object model architecture to Enterprise Java-Beans™ (EJB™) support for integration with Microsoft ActiveX client and server resources[2]		X	X
Performance support			
Enhanced features for performance, such as dynamic caching, IBM Tivoli® Performance Viewer software, integration with third-party tools		X	X
Administration and workload management			
Simplified administration using the development tool interface	X		
Browser-based administration for remote administration across firewalls	X	X	X
Convenient administration through embedded administrative console[4]	X	X	
Intelligent workload distribution across a cluster			X
Failure bypass			X
Clustering support			X
Migration support			
Migration documentation	X	X	X
Migration tools and assistance	X	X	X

[1] As a first step toward full J2EE 1.4 compliance
[2] Not supported for iSeries
[3] Samples are integrated with the tool for quick-start development

[4] Available on WebSphere Application Server - Express for iSeries, Version 5.1 only
[5] IBM HTTP Server included with IBM OS/400

IBM WebSphere Application Server - Express, Version 5.1 at a glance

Hardware requirements

For remote server only on one machine
- One of the following:
  - Intel® Pentium® II processor minimum; 500MHz or faster recommended (Windows)
  - Intel x86 processor at 500MHz or faster (Linux)
  - IBM RS/6000® workstation or RS/6000 SP Frame at 375MHz or faster (AIX)
  - G5, G6 or faster processor (Sun Solaris)
  - HP 9000 at 440MHz or faster (HP)
- Support for a communications adapter (Windows)
- Support for TCP/IP and an appropriate communications adapter (Linux, AIX, Sun Solaris, HP)
- Minimum 300MB available disk space for installation (includes IBM Software Developer Kit); additional disk space required if downloading the electronic image
- Minimum 256MB memory; 512MB recommended

For tools only on one machine
- Intel Pentium II processor minimum; Pentium III at 500MHz or faster recommended
- 512MB RAM minimum; 768MB RAM recommended
- 1.2GB minimum disk space; 1.5GB required if downloading the electronic image

For tools and remote server on one machine
- Intel Pentium II processor minimum; Pentium III at 500MHz or faster recommended
- 512MB RAM minimum; 768MB RAM recommended
- Support for a communications adapter (Windows)
- Support for TCP/IP and an adapter (Linux)
- 1.5GB minimum disk space; additional disk space required if downloading the electronic image

*Note: Hardware and software requirements are updated frequently. For the most current requirements, please visit: **ibm.com**/software/webservers/appserv/express/requirements*

Development tool features

- *Web site management tools to reduce the cost of building and maintaining Web sites*
- *Simplified database access tools for building data driven Web applications*
- *Improved user interface development using pre-release version of JSF (JSR 127)**
- *Rapid Web design and authoring tools, including HTML, JSP and JavaScript*
- *Visual Page Designer to create Web user interfaces*
- *Web Diagram Editor to simplify creation of applications*
- *Wizards to create Web interfaces to databases*
- *Image editing and animation tools*
- *Web services creation and consumption*
- *Rich media tools to create graphic titles, logos, buttons, and photo frames with professional-looking touches with WebArt Designer*
- *JSP debugging*
- *Interface to version control systems*
- *Simple deployment of applications to the application server*
- *Sophisticated XML tools*
- *Visual Editor for Java to create client-side Java applications*

IBM WebSphere Application Server - Express, Version 5.1 at a glance (continued)

Software requirements

One of the following operating systems:

- Windows 2000 Advanced Server with Service Pack 3 or later
- Windows 2003 Server Standard Edition Remote Server component only
- Windows 2000 Server with Service Pack 2 or later
- Windows XP Professional with Service Pack 1 for the WebSphere Studio
  tools and components
- Red Hat Linux, or SuSE Version 7.2 or 8.0, based on kernel 2.4 for the WebSphere Studio
  tools component, including the unit test environment only
- Red Hat Linux Advanced Server 2.1, SuSE 7.3, based on kernel 2.4 for the remote
  server component only
- Red Hat Linux Enterprise Server 2.1, SuSE 7.3, based on kernel 2.4 for the remote
  server component only
- United Linux, Version 1.0 (SuSE SLES, Version 8.0) for the remote server component only
- Red Flag Advanced Server 4.0 (Red Flag is supported only in China) for the remote
  server component only
- AIX, Version 5.2 (plus APARIY44183) for the remote server component only, with remote
  deploy from any supported WebSphere Studio tools platform
- Solaris 9 (with the Recommended Patch Cluster of July 2003) for the remote
  server component only
- HP 11i with Fix Level December 2002 for the remote server component only

Web browser
Windows
- Microsoft Internet Explorer, Version 5.5, Service Pack 1 or higher
- Netscape Navigator Version 4.76
Linux
- The universal test client, Web Services Explorer and the help system require
  Netscape Version 4.6 or Mozilla, Version 0.7 or later
  (Note: To profile your applications, ensure that JRE 1.3.0 or later is installed.)

*Note: Hardware and software requirements are updated frequently. For the most current requirements,
please visit:*

ibm.com*/software/webservers/appserv/express/requirements*

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IBM WebSphere Application Server - Express for iSeries at a glance

Hardware requirements

- CPU and memory recommended minimum server models:
  - iSeries Model 270 with processor feature 2250
  - iSeries Model 820 with processor feature 2395
  - iSeries Model 800 with processor feature 2463
- 300 CPW minimum
- 512MB RAM minimum; 768MB minimum recommended if the Web Administration GUI included in the IBM HTTP Server for iSeries is used to administer the server
- 785MB available disk space minimum
- Support for a communications adapter

Note: These requirements represent the recommended minimum requirements. Deployments that must support many users or require shorter response times may require additional resources. Use the IBM AS/400® Workload Estimator for help with sizing all system configurations.
Visit: http://as400service.ibm.com/estimator

Software requirements

One of the following operating systems:

- IBM OS/400, Version 5.1 or later
- IBM Developer Kit for Java, Version 1.4
- IBM OS/400 Qshell Interpreter
- IBM TCP/IP Connectivity Utilities for iSeries
- IBM HTTP Server for iSeries (powered by Apache)
- IBM OS/400 Digital Certificate Manager (optional, only needed when using Digital Certificates)
- Cryptographic Access Provider 128-bit for iSeries

Note: Hardware and software requirements are updated frequently. For the most current requirements, visit http://publib.boulder.ibm.com/iseries/v5r2/ic2924/index.htm?info/rzatz/51/install/inprrq.htm

Workstation requirements at a glance

Hardware requirements

- Intel Pentium II processor at 600MHz or higher
- 256MB RAM minimum; 512MB RAM recommended
- Support for TCP/IP
- 768MB RAM required when using the WebSphere Application Server test environment
- 128MB RAM required when using the CODE and IBM VisualAge® RPG tools
- 1650MB hard drive space required; additional 700MB of temporary hard drive space required during installation
- VGA graphics card (800 x 600 or higher recommended; 256 colors)
- CD-ROM/DVD drive

Software requirements with supported operating environment

- Windows XP Professional with Service Pack 1 or later
- Windows 2000 Professional Edition with Service Pack 2 or later
- JRE 1.3.0 or later if profiling applications

Web browser
- Web browser that supports HTML 4.0 and cascading style sheets (CSS)
- Microsoft Internet Explorer 5.5 with Service Pack 1 or later