IBM WebSphere Application Server — Express, V5.1: Fast development, deployment, and management of dynamic Web sites

Overview
Designed to meet the unique needs of small to mid-size companies and departments of larger organizations, IBM WebSphere® Application Server — Express, V5.1 combines the power and function of an industry-leading application server and development tool with a smaller, up-front investment for a low risk, affordable entry to e-business.

WebSphere Application Server — Express, V5.1 can help you build static and dynamic Web sites which run on popular servers, including IBM® server iSeries™ and popular operating systems such as Linux, UNIX® (AIX®, Solaris, HP-UX), and Windows™. You can view information in databases, perform simple updates, and create and use Web services.

V5.1 benefits:
• Ready to go
  - Quick, wizard-driven installation
  - One-click application assembly and deployment that can help improve productivity
  - Browser-based interface that can help minimize administration requirements
• Migration ready
  - Investment protection as you grow to other WebSphere Application Server and WebSphere Studio V5 configurations when more advanced development and deployment capabilities are required.
  - Leverage your investment through a discount when you are ready to upgrade.

Key prerequisites
Refer to the Hardware requirements and Software requirements sections for details.

At a glance
WebSphere Application Server — Express, a cost-effective, out-of-the-box solution, comes with the tools necessary to create and run a simple yet dynamic Web site. V5.1 includes the following new features:
• Simplified development for database access, Web site design, and rich user interface controls to enable rapid time to value for new applications (refer to Statement of direction section)
• Support for the Software Development Kit (SDK) for Java™ Technology Edition 1.4 across supported operating system platforms (OS/400®, Linux, UNIX, and Windows)
• Integrated applications for iSeries customers
• Support for UNIX, specifically AIX, Solaris, HP-UX
• Additional security with Web Server Security Plug-ins that allow you to separate your Web server from your application server
• Browser-based interface for near-zero administration

Planned availability dates
Electronic software delivery:
• December 19, 2003: National language support for Multiplatforms without iSeries
• February 20, 2004: National language support for Multiplatforms with iSeries
Physical software delivery (media and documentation):
• January 16, 2004: National language support for Multiplatforms without iSeries
• February 20, 2004: National language support for Multiplatforms with iSeries

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: http://www.ibm.com.
WebSphere Application Server — Express, V5.1, is a cost-effective, affordable entry point to e-business. It offers fast and productive development, deployment, and management of dynamic Web sites. Designed for the first steps of e-business, WebSphere Application Server — Express, V5.1 simplifies the development of applications that update/retrieve information from relational databases.

WebSphere Application Server — Express V5.1 includes a pre-release version of JavaServer Faces (JSF, Java Specification Request 127) which is still undergoing testing at IBM and other companies. This pre-release component is not an IBM production release. JSF may be used only for the purpose of testing functionality and performance of WebSphere Application Server — Express, V5.1 (refer to Statement of direction section).

Integrated offering for new e-business projects
WebSphere Application Server — Express, V5.1 combines the functions you need to get started in e-business into one integrated package. It includes a simplified configuration of WebSphere Application Server V5.1 and development tools from WebSphere Studio. (Since WebSphere Development Studio Client is not an IBM production release. JSF may be used only for the purpose of testing functionality and performance of WebSphere Application Server — Express, V5.1 offers the flexibility of a single installation, if installing both components on the same hardware, or a custom installation, if you want to install the development tools and application server components on separate machines.

Simplified application server
Built from a Java 2 Platform, Enterprise Edition (J2EE) 1.3-compatible base, WebSphere Application Server — Express, V5.1 supports the latest Java standards:

- Support for the Software Development Kit (SDK) for Java Technology Edition 1.4 across supported operating system platforms (OS/400, Linux, UNIX, and Windows). SDK 1.4 support enables you to use Java technology to develop more demanding business applications with less effort and in less time.
- JSP 1.2 including custom tag libraries
- Java Servlets 2.3
- Pre-release version of JSR 127 (Refer to the Statement of direction section regarding iSeries support.)
- Web Services (Simple Object Access Protocol [SOAP] 1.1, Web Services Description Language [WSDL], and Universal Description Discovery and Integration [UDDI] client)
- Security model, including APIs, and J2EE authentication and authorization
- XML tools, including Xerces and Xalan
- Java Database Connectivity (JDBC)
- Java Naming and Directory Interface (JNDI)

WebSphere Application Server — Express, V5.1 also includes JavaScript and Database Connection Pooling.

The integrated design means that you can use the same familiar development tool interface for your administrative tasks including configuring a server instance, configuring an application, publishing an application to the server, and stopping and restarting the server or application. Wherever possible, you can use default settings so that configuration is not required.

Powerful development tools
WebSphere Application Server — Express, V5.1 offers a robust, easy-to-use development environment based on WebSphere Studio that allows developers to create, build, and maintain dynamic Web sites, applications, and Web services. Founded on open technologies and built on Eclipse, WebSphere Studio provides a flexible, portal-like integration of multilanguage, multiplatform, and multidevice application development tools for building, testing, and deploying dynamic applications. The tools in WebSphere Application Server — Express are a subset of WebSphere Studio Site Developer. The main difference is simply that the license for WebSphere Studio Site Developer allows you to deploy your application to any application server, while WebSphere Application Server — Express license restricts you to deploying to WebSphere Application Server — Express only.

Major development tool capabilities include:

- 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 JSR 127 (Refer to the Statement of direction section regarding iSeries support.)
- 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

Eclipse technology-based tools give developers freedom of choice in a multilanguage, multiplatform, multivendor supported environment. Developers who want the flexibility to choose the best technology can use tools built using open source code consistent with open standards. For more information, visit:

http://www.ibm.com/websphere/eclipse

Easy to install and use
WebSphere Application Server — Express, V5.1 is easy to use from end to end.
Ease-of-use features include:

- Fast and simple installation: An installation wizard walks you through the installation in five steps. On iSeries servers, installation is done using the OS/400 Restore License Program (RSTLICPGM) command.
- Code generation: Wizards, samples, and application templates help write or provide samples for you.
- Simplified development: A choice of programming models takes advantage of your existing skills. To offer a model that more closely parallels HTML and Visual Basic programming skills, Jakarta Tag Libraries are included and JavaScript support is enhanced.
- Productive development: The development tool includes a list of valid alternatives for completing the current line of code to speed the development process.
- Rapid application design: The Web Diagram Editor offers a high-level view of an application, allowing you to visually map out the pages and actions within an application before writing any code.
- Simplified testing: Automatic creation of the test server and dynamic debugging allows for easy verification that your applications will run correctly. The debugger enables you to detect and diagnose errors in your program running either locally or remotely. You control the execution of your program by setting breakpoints, suspending execution, stepping through your code, and examining the contents of variables. You can debug live server-side code as well as programs running locally on your workstation.
- Simplified deployment: Assembling and deploying your application takes as little as one click.
- Simplified Web site design: The Web Site Designer allows you to visually create, import, and manage complete Web sites.
- Simplified administration:
  - Optional browser-based administration
  - Creating and configuring server instances
  - Configuring data sources and ports
  - Starting and stopping the server
  - Publishing an application to the server
  - Stopping and restarting the application
- Wherever possible, you can use the default settings so configuration is not required.
- Additional ease-of-use features such as hover help, context sensitive help, dynamic tag help, error assistance, and extensive documentation.

Helpful wizards

The development environment contains numerous wizards to walk you through the process of creating a new application. Each wizard will indicate the content and entries necessary to be entered and then will generate the code for you based on your entries. There are over 70 wizards included in the development environment, such as XML and Web services wizards.

Quick start samples

Samples can be used as an educational guide or a starting point for your own applications. The samples demonstrate a variety of development techniques from basic Web application development to a more advanced scalable method. Each sample comes with extensive documentation on how to use and customize the sample.

- Custom home page — Features an employee-based home page with links to existing Web-based resources.
- Each employee can easily access current company information via sub-windows, and can add or delete links or subwindows.
- Customer self-service — Features a company Web site that permits customers to log in to a private, SSL-protected user account with an associated list of activities by that customer.
- Document management — Features a password-protected site that allows users to log in and have read-only access to numerous documents.
- Survey — Features an internationalized company Web site and shows you how to internationalize your own site.
- Your company — Illustrates how you can use HTML pages, cascading style sheets, tag libraries, and JSPs to provide a complete intranet for a fictitious YourCo company. The YourCo Web application enables employees of YourCo to look up an employee’s phone number, reserve conference rooms, view or post job listings, manage vacation and leave, and personalize the view of the intranet site.
- My home page — Illustrates how you can use HTML to build a simple static home page containing text and images.
- JSP and servlet — A collection of examples that illustrate how you can use Java servlets and JSPs for various common functions in Web sites.

Application templates: Like samples, the application templates are based on common usage scenarios. However, application templates actually use a wizard to walk you through customizing the application to your specific needs. When you complete the wizard, the application code is generated for you.

Application templates included are:

- Solutions template: Address book, resource reservation, self service insurance, white pages
- IT template: List — details, login
- Tutorial: Shopping cart

Build and deploy Web services: WebSphere Application Server-Express, V5.1 facilitates the following Web services development tasks.

- Discover — Browse DDI business registries or a WSIL document to locate existing Web services for integration. A UDDI registry allows storage of business units that describe basic services to help users find information about Web services.
- Create or transform — Create Web services from existing artifacts such as JavaBeans, URLs that take and return data, DB2® XML Extender calls, DB2 stored procedures, and SQL queries.
- Build — Wrap existing artifacts such as SOAP and HTTP GET/POST-accessible services and describe them in WSDL.
- Deploy — Deploy the Web service to the integrated test environment or to a production server.
- Test — Test the Web service as it runs locally or remotely.
- Develop — Generate a sample application to assist you in creating your own Web service client application.
- Publish — Publish your Web services to a public UDDI business registry advertising your Web services so that other clients or businesses can access them.
• Create, detect, test, and validate — Create Web services consistent of the WS-I Basic Profile V1.0 specifications for interoperability.

All Web services support is based on open standards such as UDDI V2, SOAP, WSDL, and now new support for WSDL.

Sophisticated XML support
WebSphere Application Server — Express, V5.1 provides a comprehensive visual XML development environment that allows you to:

• Debug and edit XSL with code assist.
• Create, view, and validate DTDs, XML schemas, XMLs, and XSLs.
• Create XML documents from a DTD/XML schema and vice-versa.
• Generate JavaBeans from XML and vice-versa.
• Define mappings between XML documents and generates XSLT.
• 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.

Security
WebSphere Application Server — Express, V5.1 offers strong security through its sophisticated infrastructure and support of open-standards-based Java specifications. To validate user identities, it supports Basic (User ID and password), forms-based and client-side public key infrastructure (PKI) certificates for user authentication. It can be configured to use certificates from any certificate authority, such as VeriSign, Entrust, or Baltimore Technology. To protect against unauthorized access to your critical J2EE resources, WebSphere Application Server — Express, V5.1 supports J2EE Roles-Based Authorization. Additionally, V5.1 now includes Web Server Security Plug-ins that allow you to separate your Web server from your application server. Your Web server can be placed in a demilitarized zone (DMZ) while your application server and application data stay protected behind your company firewall.

Support for growth
As the on-ramp to the WebSphere family, WebSphere Application Server — Express, V5.1 enables you to easily migrate when you require more sophisticated capabilities. Applications can run without alteration with the more advanced configurations of WebSphere Application Server and WebSphere Studio. Finally, trade-up discounts are available for WebSphere Studio Site Developer, WebSphere Studio Application Developer, and WebSphere Application Server. The investment in skills acquired with WebSphere Application Server — Express is protected when migrating to these other products.

Broad database integration
WebSphere Application Server — Express, V5.1 supports the current versions of databases including DB2 Universal Database®, Informix®, SQL Server, Sybase, and Oracle. In addition, DB2/400 is the supported database on the iSeries platform.

iSeries specifics
In addition to the above, WebSphere Application Server — Express for iSeries offers tight integration with the iSeries HTTP server through easy-to-use Web-based GUI. Wizards allow for easy configuration of multiple application servers and deployment of applications. The wizards allow for easy configuration of both HTTP servers and access to iSeries databases. WebSphere Application Server — Express for iSeries also includes:

• IBM Business Solutions — A set of fully supported enterprise Web applications available for iSeries servers
• Web Services Object Runtime Framework (WORF) — A Web service for accessing DB2 Universal Database (UDB)
• Integration with HTTP Server for iSeries and Domino™ for iSeries HTTP servers
• Integration with OS/400 security for authentication of users
• HTTP session support
• Migration support for WebSphere Standard Edition (SE) and Apache Software Foundation (ASF) Jakarta Tomcat
• Migration support to more advanced WebSphere Application Serving configurations

IBM Business Solutions V1.0 for iSeries provides two enterprise Web applications for iSeries servers. Each application is an integrated solution to a common business need that works in conjunction with your existing applications, server components, and enterprise data. They demonstrate the value of integrated e-business solutions, increase worker productivity, provide services that virtually any business may find useful, and are easy to understand and use.

Enterprise Web applications must be deployed into an application server before they can be used. Deployment of such applications may be tricky, which is why deployment wizards for the applications provided by IBM Business Solutions have been added to the new Web Administration GUI provided by IBM HTTP Server (powered by Apache) (5722-DG1). The new Web Administration GUI now includes setup and deployment wizards, making these enterprise Web applications ready for immediate use with existing or new WebSphere applications servers.

The following describes each of the enterprise Web applications:

• IBM Telephone Directory for iSeries, V5.2. At its core, IBM Telephone Directory is a Web-based business application that provides an online telephone directory (or "white pages") with the ability to search, view, and manage information in a directory. Personnel information is managed securely by the OS/400's lightweight directory access protocol (LDAP) server. Another suggested use for the IBM Telephone
IBM Telephone Directory may be used with a directory you have set up for your existing applications, or with a new directory set up by the new Web Administration GUI (described previously), or the IBM Welcome Page application (described below).

V5.2 of the IBM Telephone Directory application now includes integration with Lotus® Sametime® servers and Enterprise Identity Mapping domain servers.

The following functions are provided:
- Ability to search by name, job responsibilities, e-mail address, telephone number, department, and division
- Ability to see organizational structure (report-to chart, department listings)
- Ability to store personalized information (picture)
- Ability to initiate chat sessions with colleagues using Lotus Sametime technology — new for V5.2
- Ability to add entries to Lotus Sametime contact lists (or “buddy lists”) — new for V5.2
- Ability to view and self-manage Enterprise Identity Mapping registries — new for V5.2

The IBM Telephone Directory supports up to 1,000 directory entries. If additional entries are needed, contact IBM Global Services to purchase additional entries or to customize the application.

- IBM Welcome Page for iSeries V1.1 is a Web-based business application whose purpose is twofold. First, it provides a starting point for non-administrators, possibly you and your colleagues, to go to find links to the other business applications provided by IBM Business Solutions — a simple welcome page specifically for business applications. Second, it provides administrative interfaces used for setup and configuration of the other business applications.

Administrative interfaces, called “Administrator Pages”, provide a graphical interface (or GUI) for setup of new or existing (LDAP) directories as well as management of directory (LDAP), SSL communication, Sametime, and EIM configuration properties to be used by the other business applications. It also provides links to administrative interfaces provided specifically by the other business applications.

Non-administrative interfaces simply include a welcome page with links to the other business applications.

The following functions are provided:
- Administrative interfaces
  -- Ability to set up new or existing (LDAP) directories for business application data
  -- Ability to manage directory (LDAP), SSL, Sametime, and EIM configuration properties for all business applications
  -- Ability to link to administrator pages provided specifically by the other business applications (if any)
- Non-administrative interfaces

Web services are XML-based application functions that can be invoked over the Internet. Included with WebSphere Application Server — Express for iSeries, WORF provides an environment to easily create simple XML-based Web services that access DB2. Using Apache SOAP 2.2, or later, and the Document Access Definition Extension (DADX) standards, you can, with minimal knowledge of SQL or XML, specify a Web Service.

You can also use DB2 UDB Extenders (5722-DE1) to implement Web services within WORF. The DB2 XML Extender (part of 5722-DE1) consists of a set of stored procedures, user-defined types (UDT) and user-defined functions (UDF) that you can use to store and retrieve XML data using DB2. The DB2 XML Extender allows XML documents to be stored intact, and optionally indexed in side tables, using the XML column access method, or as a collection of relational tables using the XML collection access method.

WORF is integrated with WebSphere Application Server — Express for iSeries run time, allowing for easy administration and deployment of DB2 UDB Web services. A sample application is provided and easily deployed from the application server’s integrated GUI.

Section 508 of the U.S. Rehabilitation Act

WebSphere Application Server — Express V5.1 is capable of January 16, 2004, when used in accordance with IBM’s associated documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it.

Product positioning

WebSphere Application Server is available with multiple configuration options. This enables support for a wide variety of scenarios, from simple administration of a single server to a clustered, highly available, high-volume environment with edge-of-network services all on a single server foundation. With your chosen WebSphere Application Server configuration, you can:
- Get to market fast by quickly designing new applications ready to be integrated as Web services, and by leveraging existing software through customizable, programmable adapter technology that is built-in
- Administer, deploy, and manage applications with agile setup options and administration features
- Boost developer productivity with an integrated, open-standards-based development environment featuring customizable, high-end tools that promote reuse of modular resources
- Meet the changing demands of dynamic e-business using intelligent, end-to-end application optimization built with an industry-leading combination of reliability, scalability and performance, all within an environment that uses rich security features

WebSphere Application Server — Express, V5.1 is one of the configurations of WebSphere Application Server. It is designed for companies in the early stage of e-business adoption — companies that are just beginning to make their static Web sites dynamic. More specifically, it is targeted at mid-market companies, departments within
larger organizations, and the Independent Software Vendors that serve them.

Configuration options, in addition to WebSphere Application Server—Express include:

- WebSphere Application Server — The premier Web services and Java-based application server, integrating enterprise data and transactions for business on demand. WebSphere Application Server provides a rich e-business application deployment environment with a set of application services that include enhanced capabilities for enablement and management of heterogeneous Web services, increased security, performance, availability, connectivity, and scalability. WebSphere Application Server Network Deployment configuration provides the option for advanced Web services and clustering capabilities.

- WebSphere Application Server Enterprise — A next-generation application server that simplifies build-to-integrate tasks, accelerates application development, and enables real-time adaptable applications. WebSphere Application Server Enterprise meets the needs of customers who require advanced build-to-integrate capabilities such as advanced application adapters, application flow composition and choreography, extended messaging, dynamic rules-based application adaptability, and internationalization. WebSphere Application Server Enterprise can be differentiated from the core WebSphere Application Server in that it delivers more integration capabilities than WebSphere Application Server Network Deployment through innovations extending beyond the limitations of the J2EE standards.

- WebSphere Application Server for z/OS — A J2EE 1.3-compatible Web services application server that is specifically optimized to utilize the unique qualities of service provided by IBM zSeries® hardware and the z/OS operating system. WebSphere Application Server for z/OS was built to provide the robust, enterprise-level capabilities for workload management, availability, and scalability demanded by the most advanced, mission-critical e-business applications.

For more information about WebSphere Application Server and WebSphere Studio configurations, visit:

http://www.ibm.com/websphere

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**Statement of direction**

IBM plans to make available a future release of WebSphere Application Server—Express which enhances the current implementation of JavaServer Faces. JavaServer Faces (Java Specification Request 127) is not yet a final specification. When the specification is final, IBM intends to upgrade the JavaServer Faces capabilities in this release to adhere to the final specification. There is also a plan for WebSphere Application Server—Express for iSeries to support JavaServer Faces capability at a later date.

All statements regarding IBM’s plans, directions, and intent are subject to change or withdrawal without notice.

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Education support

The following educational offering is available as listed below:

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<th>Course title</th>
<th>Course number</th>
<th>Course type</th>
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<tbody>
<tr>
<td>WebSphere® Application Server — Express (Self-pace virtual class)</td>
<td>WE126</td>
<td>Self-study</td>
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IBM Global Services, IT Education Services, provides education to support many IBM offerings. Descriptions of courses for IT professionals and managers are on the IBM Learning Services Web site:


Refer to the IBM IT Education Services Web site for information on course locations and availability dates.

Call IBM IT Education Services at 800-IBM-TEACH (426-8322) for catalogs, schedules, and enrollments.

Offering information

Product information will be available through the Offering Information Web site at:

http://www.ibm.com/common/ssi

And, through the Passport Advantage® Web site at:

http://www.ibm.com/software/passportadvantage

Publications

No publications are shipped with this product.

The IBM Publications Center:

http://www.ibm.com/shop/publications/order

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. Payment options for orders are via credit card or customer number. A large number of publications are available online in various file formats, and they can all be downloaded free of charge.

The IBM Publications Notification System

http://service5.boulder.ibm.com/pnsrege.nsf/messages/welcome

The Publications Notification System (PNS) enables subscribers to set up profiles of interest by order number/product number. PNS subscribers automatically receive notifications by e-mail of all new publications defined in their profiles. These may then be ordered/downloaded via the Publications Center.

Technical information

Specified operating environment

Hardware requirements

Display resolution:
- 800 x 600 display minimum (1024 x 768 recommended)
- 1024 x 768 display minimum

For tools only on one machine:
- Intel™ Pentium™ II processor minimum. Pentium III 500 MHz, or higher, is recommended.
- 512 MB RAM minimum. (768 MB RAM recommended.)
- Disk space: 1.2 GB minimum disk space for installing WebSphere Application Server — Express and additional disk space for your development resources.
- 1.5 GB is also required for the electronic image if you are using it to install WebSphere Application Server — Express.

For tools and remote server on one machine:
- Intel Pentium II processor minimum. Intel Pentium III 500 MHz, or higher, is recommended.
- 512 MB RAM minimum (768 MB RAM recommended).
- Support for a communications adaptor.
- Support for TCP/IP and an adaptor.
- Disk space: 1.5 GB minimum disk space for installing WebSphere Studio Site Developer and additional disk space for your development resources.
- 1.5 GB disk space is also required if you are installing WebSphere Application Server — Express using the electronic image.

For remote server on Windows™ 2000:
- Intel Pentium II processor minimum. Pentium III 500 MHz, or higher, is recommended.
- Support for a communications adaptor.
- Minimum 300 MB free disk space for installation (includes SDK). You will also require additional disk space if you download the electronic image to install WebSphere Application Server — Express.
- Minimum 256 MB memory; 512 MB recommended.

For remote server alone on Linux on Intel:
- Intel x86 processor at 500 MHz, or faster.
- Support for TCP/IP and an adaptor.
• Minimum 300 MB free disk space for installation (includes SDK). Additional disk space is also required for the electronic image if you are using it to install WebSphere Application Server — Express.

• Minimum 256 MB physical memory; 512 MB recommended.

For remote server on AIX®:

• RS/6000® workstation or RS/6000 SP™ Frame at 375 MHz or faster.
• Support for TCP/IP and an adaptor.
• Minimum 300 MB free disk space for installation (includes SDK). Additional disk space is also required for the electronic image if you are using it to install WebSphere Application Server — Express.

• Minimum 256 MB physical memory; 512 MB recommended.

For remote server on Sun Solaris:

• G5, G6, or better processor.
• Support for TCP/IP and an adaptor.
• Minimum 300 MB free disk space for installation (includes SDK). Additional disk space is also required for the electronic image if you are using it to install WebSphere Application Server — Express.

• Minimum 256 MB physical memory; 512 MB recommended.

For remote server on HP:

• HP 9000 at 440 MHz or faster.
• Support for TCP/IP and an adaptor.
• Minimum 300 MB free disk space for installation (includes SDK). Additional disk space is also required for the electronic image if you are using it to install WebSphere Application Server — Express.

• Minimum 256 MB physical memory; 512 MB recommended.

IBM iSeries™ hardware requirements. Systems that do not meet the recommended minimums may be used in environments that support a limited number of users and where longer server initialization times can be tolerated.

CPU/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 (recommended minimum).

• 512 MB of memory (recommended minimum) — If the Web Administration GUI included in the IBM HTTP Server for iSeries is used to administer the server, 768 MB of memory is the recommended minimum.

Note: These requirements represent the recommended minimum requirements. Deployments that must support many users or require shorter response times may require additional resources. Deployments on smaller configurations may be possible for very light applications, or where longer responses and start-up time are acceptable.

Available iSeries DASD:

• WebSphere Application Server — Express, 785 MB
• IBM Business Solutions for iSeries, 8 MB

Communications adapter that supports TCP/IP.

Use the AS/400® Workload Estimator for help with sizing all system configuration. Visit:

http://as400service.ibm.com/estimator

Workstation hardware requirement: Workstation capable of supporting a Web browser

Workstation hardware requirements for WebSphere Development Studio Client for iSeries V5.1 (minimum requirements):

• Server development.
  - Intel Pentium II processor.
  - 256 MB RAM minimum.
  - Java™/Web/WebFacing development.
  - Intel Pentium II processor minimum; Pentium III 500 MHz, or higher, is recommended.
  - 512 MB RAM minimum.
  - 768 MB RAM recommended for running or debugging in Unit Test Environment.
  - Required hard drive space: 1650 MB.
  - Additional disk space is required for your development resources.
  - Additional 700 MB of temporary hard drive space is needed during product installation.
  - Windows: VGA graphics card (800 x 600, or higher, recommended, 256 colors).
  - CD-ROM/DVD drive.
  - Mouse or pointing device.

Software requirements

Operating systems:

The following software must be installed before you install WebSphere Application Server — Express:

One of the following operating systems:

• Windows 2000 Server or Advanced Server with Service Pack 3 or higher, remote server component only
• Windows 2003 Server Standard Edition Remote Server Component only
• Windows 2000 Professional with Service Pack 2 or higher, WebSphere Studio tools and server components
• Windows XP SP1® Professional for the WebSphere Studio tools and server components
• Windows XP SP1® Professional for the WebSphere Studio tools and server components
• Red Hat, V7.2 for the WebSphere Studio tools component, including the unit test environment only
• Red Hat, V8.0 for the WebSphere Studio tools component including the unit test environment only
• Red Hat, Version AS 2.1 for the remote server component only
• Red Hat, Version EL 2.1 for the remote server component only
• SuSE, V7.2 WebSphere Studio tools component including the unit test environment only
• SuSE, V8.1 Studio Tools Component including the unit test environment only
• United Linux V1.0 (Suse SLES 8) Remote Server Component only
• AIX 5.2 Remote Server Component only, with Remote deploy from any supported Studio Tools platform
• Solaris 9 Remote Server Component only
• HP 11i (Fix Level December 2002) Remote Server Component only

**iSeries software requirements**

- OS/400® V5.1, or later (in an unrestricted state) to install and run WebSphere Application Server — Express for iSeries.
- IBM Developer Kit for Java, V1.4 (5722-JV1 option 6).
- OS/400 Qshell Interpreter (5722-SS1 option 30) for using the scripts included with the product.
- OS/400 Directory Services (5722-SS1 option 32) to secure WebSphere resources using LDAP or LTPA.
- IBM TCP/TP Connectivity Utilities for iSeries to configure and run WebSphere Application Server.
- HTTP server to support requests for servlets and JSP resources managed by WebSphere Application Server and for SSL protocol. The internal HTTP server can optionally be used for the admin console. The following HTTP Servers are supported:
  - HTTP Server (powered by Apache) is available as licensed program product 5722-DG1.
  - Lotus® Domino™ for iSeries HTTP Server.
  - OS/400 Digital Certificate Manager (5722-SS1 option 34) for protocol for the connection between the Apache HTTP server and the WebSphere Application Server.
  - Cryptographic Access Provider (5722-AC3) for SSL protocol with PTFs SI06962 (V5.1), SI06963 (V5.2).

**Workstation software requirements** for WebSphere Application Server — Express for iSeries:

- Web browser that supports HTML 4 and CSS.
- TCP/IP must be installed and running on your workstation.

**Workstation software requirements** for WebSphere Development Studio Client for iSeries V5.1:

- Windows 2000 Professional, SP2®, or higher.
- Windows XP Professional, SP1, or higher.
- Microsoft™ Internet Explorer 5.5, SP1, or higher.
- If you want to profile your applications, ensure that JRE 1.3.0, or higher, is installed.

**IBM Telephone Directory:** The IBM Telephone Directory is available as an application to demonstrate a browser-based application on iSeries running WebSphere Application Server. This application will only support up to 1,000 entries in the directory. For greater than 1,000 entries contact IBM Global Services to purchase/customize a directory application.

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**Planning information**

**Direct customer support:** Direct customer support is provided by IBM Operational Support Services — Support Line. This fee service enhances customers' productivity by providing voice and electronic access into the IBM support organization. IBM Operational Support Services — Support Line will help answer questions pertaining to usage and suspected software defects for eligible products.

Installation and technical support is provided by Global Services. For more information call 800-IBM-4YOU (426-4968).

Software Maintenance, previously referred to as Subscription and Technical Support, is now included in the Passport Advantage Agreement. Installation and technical support for the products announced in this letter is provided by the Software Maintenance offering of the IBM International Passport Advantage Agreement. This fee service enhances customer productivity by providing voice and/or electronic access into the IBM support organizations.

**Packaging**

WebSphere Application Server — Express, V5.1 and WebSphere Application Server — Express for iSeries, V5.1 are shipped as two separate media packs that contain the following:

The WebSphere Application Server — Express media package (part number BA0C5ML) contains the following items packaged as a single unit:

- Passport Advantage media pack pointer sheet
- IBM WebSphere Application Server — Express CD Information booklet
- IBM WebSphere Application Server — Express V5.1 CDs
- IBM DB2 Universal Database® Express Edition V8.1 CDs

The WebSphere Application Server — Express for iSeries media package (part number BA0C3ML) contains the following items packaged as a single unit:

- IBM International Program License Agreement
- License Information
- Passport Advantage media pack pointer sheet
- IBM WebSphere Application Server — Express for iSeries CD Information booklet
- IBM WebSphere Application Server — Express for iSeries V5.1 CD
- IBM WebSphere Application Server — Express Security Plug-In for Windows, Linux, and UNIX®
- IBM Business Solutions V1.0 CD
- IBM WebSphere Development Studio Client V5.1 CDs
- IBM DB2® Universal Database Enterprise Server Edition V8.1 CD

**Security, auditability, and control**

WebSphere Application Server — Express uses the security and auditability features of the respective operating systems.
The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

### Ordering information

#### Product information

<table>
<thead>
<tr>
<th>Licensed function title</th>
<th>Product group</th>
<th>Product category</th>
</tr>
</thead>
<tbody>
<tr>
<td>WebSphere Application Server-Express Intranet Option</td>
<td>App Integration Middleware</td>
<td>WebSphere</td>
</tr>
<tr>
<td>WebSphere Application Server-Express</td>
<td>App Integration Middleware</td>
<td>WebSphere</td>
</tr>
<tr>
<td>WebSphere Application Server-Express Developer</td>
<td>App Integration Middleware</td>
<td>WebSphere</td>
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</table>

WebSphere Application Server — Express, V5.1 is a stand-alone product with three separate charges units:

- Processor
- 20 intranet users
- Developer

It is available in units of one.

#### Passport Advantage licensing

#### WebSphere Application Server (WAS)-Express

<table>
<thead>
<tr>
<th>Part description</th>
<th>Part number</th>
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<tbody>
<tr>
<td>WebSphere Application Server-Express Processor SW Maint Annual Renewal</td>
<td>E00M6LL</td>
</tr>
<tr>
<td>WAS-Express Proc from WAS-Exp Intranet Opt TradeUp Lic+SW Maint 12 Months</td>
<td>D520HLL</td>
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<tr>
<td>WAS-Express Proc from IBM &amp; Comp Products TradeUp Lic+SW Maint 12 Months</td>
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<td>WebSphere Application Server-Express Processor Lic+SW Maint 12 Months</td>
<td>D520ELL</td>
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<tr>
<td>WebSphere Application Server-Express Proc SW Maint Reinstatement 12 Months</td>
<td>D520GLL</td>
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#### WebSphere Application Server-Express Developer

<table>
<thead>
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<th>Part description</th>
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<td>E00MQLL</td>
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<tr>
<td>WebSphere Application Server-Express Developer Users Lic+SW Maint 12 Months</td>
<td>D522PLL</td>
</tr>
<tr>
<td>WebSphere Application Server-Express Dev Users SW Maint Reinstatement 12 Mo</td>
<td>D522RLL</td>
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</table>

### Product trade-ups:

Valid license holders of WebSphere Application Server — Server Intranet Option are eligible to tradeup to WebSphere Application Server — Express Processor License Option using part number D520HLL by providing one of the following documents:

- A copy of purchase invoice/bill of sale
- The original Proof of Entitlement (PoE)
- The original front cover page of the *Getting Started* publication

Valid license holders of any of the following products by competitors or IBM Business Partners as listed below are eligible for trade-up to WebSphere Application Server — Express Processor License using part number D520ILL by providing one of the following documents:

- A copy of purchase invoice/bill of sale
- The original PoE
- The original front cover page of the *Getting Started* publication

#### Qualified competitive products for part number: D520ILL

- Apple WebObjects Application Server
- ATG Dynamo Application Server
- BEA WebLogic Express
- Cauchio Resin
- Desiderata Software Blazik App Server
- Fujitsu Interstage Application Server
- HHPN XLiRAD
- Hitachi Cosminexus
- IONA Orbix E2A
- Ironflare Orion
- Microsoft Internet Connector
- NEC WebOTX 5
- New Atlanta ServletExec Developer
- Novell exteNd Application Server 5
- Oracle 9i Application Server
- Pramati Technologies Pramati Server Standard Edition
- SeeBeyond ICAN
- Sun Open Net Environment (ONE) App server Standard Edition
- Sybase Small Business Enterprise Server
- Tmax Soft JEUS
- TradeCity Cybersoft Rexip App Server Standard Edition
- Trifork Enterprise Application Server — Web, Linux Deployment, Pro Single CPU
Qualified IBM Business Partner products

- Macromedia ColdFusion Enterprise Server (IBM Business Partner product)
- Macromedia JRun (IBM Business Partner product)

Passport Advantage customer: Media pack entitlement details

Customers with active Maintenance or Subscription for the products listed below are entitled to receive the corresponding media pack.

Application Server — Express V5.1.0

<table>
<thead>
<tr>
<th>Entitled maintenance offerings description</th>
<th>Media packs description</th>
<th>Part number</th>
</tr>
</thead>
</table>

On/Off Capacity on Demand

WebSphere Application Server-Express

<table>
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<tr>
<th>Part description</th>
<th>Part number</th>
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<tr>
<td>WebSphere Application Server-Express Processor Day On/Off Capacity on Demand TEMP USE Charge</td>
<td>ASQR9LL</td>
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</table>

Terms and conditions

This product is only available via Passport Advantage. It is not available as shrinkwrap.

Agreement: IBM International Program License Agreement. PoEs are required for all authorized use.

Part number products only, offered outside of Passport Advantage, where applicable, are license only and do not include Software Maintenance.

License information form numbers

<table>
<thead>
<tr>
<th>Program name</th>
<th>Program number</th>
<th>Form number</th>
</tr>
</thead>
<tbody>
<tr>
<td>WebSphere Application Server — Express V5.1</td>
<td>5724-D06</td>
<td>L-TATN-5RGLCV</td>
</tr>
</tbody>
</table>

Limited warranty applies: Yes

Warranty: This program has warranty for a minimum of one year from acquisition from IBM or authorized Business Partner. The warranty provided to the customer, for at least one year from acquisition, is access to data bases (read Web sites) for program information, FAQs, including any known fixes to defects, which the customer can download or obtain otherwise and install at their leisure.

Money-back guarantee: If for any reason you are dissatisfied with the program, return it within 30 days from the invoice date, to the party (either IBM or its reseller) from whom you acquired it, for a refund. This applies only to your first acquisition of the program.

Copy and use on home/portable computer

Product name Copy and use on home/portable computer?

WebSphere Application Server — Express V5.1 Yes

Volume orders (IVO): No

Passport Advantage applies

Yes, and through the Passport Advantage Web site at:

http://www.ibm.com/software/passportadvantage

Usage restriction: Yes

Multiple WebSphere test environments (WTEs) are shipped with the WebSphere Studio products, which are included in WebSphere Application Server — Express, to support different releases of WebSphere Application Server. These WTEs are made available for testing applications intended to run on older releases of WebSphere Application Server — Express, and for assisting with migration. For example, WebSphere Application Server — Express, V5.1 includes two versions of the WTE (V5.0 and V5.1) in the WebSphere Studio tools that are shipped with it.

The support statement for each WTE is different. For example, the WTE V5.1 will be supported until the end-of-service date for WebSphere Application Server — Express V5.1. However, any older WTEs that are shipped with a product, that is WTE V5.0, will no longer be supported when the corresponding WebSphere Application Server — Express product goes out of support.

For license information, refer to the following Web site:


Software Maintenance applies: Yes

The JSF features are in pre-release (beta) state and should not be used for production applications. It is based upon a draft level of the open standard specification (JSR 127) which will change in future versions of WebSphere Studio. IBM does not assure forward migration, compatibility, or support of JSPs that use these...
JSF features. These features are marked “beta” on the tools palette.

Software Maintenance, previously referred to as Subscript and Technical Support, is now included in the Passport Advantage agreement. Installation and technical support for the products announced in this letter are provided by the Software Maintenance offering of the IBM International Passport Advantage Agreement. This fee service enhances customer productivity by providing voice and/or electronic access into the IBM support organizations.

IBM includes one year of Software Maintenance with the initial license acquisition of each program acquired. The initial period of Software Maintenance can be extended by the purchase of a renewal option that is available.

While your Software Maintenance is in effect: IBM provides you assistance for (1) routine, short duration installation and usage (how-to) questions; and (2) code-related questions. IBM provides assistance via telephone and, if available, electronic access, only to your information systems (IS) technical support personnel during the normal business hours (published prime shift hours) of your IBM support center. (This assistance is not available to your end users.) IBM provides Severity 1 assistance 24 hours a day, every day of the year. For additional details, consult your IBM Software Support Guide at:

http://techsupport.services.ibm.com/guides/handbook.html

Software Maintenance does not include assistance for (1) the design and development of applications, (2) your use of programs in other than their specified operating environment or (3) failures caused by products for which IBM is not responsible under this agreement.

For more information, about the Passport Advantage Agreement refer to the IBM International Passport Advantage Agreement Software Announcement 201-202, dated July 10, 2001, or visit the Passport Advantage Web site at:

http://www.ibm.com/software/passportadvantage

For Passport Advantage information and charges, contact your IBM representative or authorized IBM Business Partner. For additional information about the Passport Advantage offering, visit the following Web site:

http://www.ibm.com/software/passportadvantage

To order, contact the Americas Call Centers, your local IBM representative, or your IBM Business Partner.

To identify your local IBM Business Partner or IBM representative, call 800-IBM-4YOU (426-4968).

**Global financing**

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http://www.ibm.com/financing

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