



# IBM WebSphere Application Server V8.0 enables intelligent management of application environments and helps deliver rich user experiences faster

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## At a glance

WebSphere® Application Server is the leading open standards-based application foundation offering accelerated delivery of innovative applications and unmatched operational efficiency, reliability, administration, security, and control.

Enhancements in V8.0 include:

- Java™ Platform, Enterprise Edition (Java EE) 6 compliance, including Enterprise JavaBeans™ (EJB) 3.1, Java Persistence API (JPA) 2.0 and Servlet 3.0, and support for Java Platform Standard Edition 6.0, including the latest performance, security, and reliability enhancements delivered by the IBM® Java SDK 6.0 (J9 2.6) to accelerate Java application innovation
- Broad programming model support including Java EE 6, OSGi Applications, Web 2.0 and Mobile, Java Batch, XML, Dynamic Scripting, Service Component Architecture (SCA), Communications Enabled Applications (CEA), and Session Initiation Protocol (SIP)
- New monitored directory-based application install, update, and uninstall of Java EE applications
- Develop, manage, and maintain modular, versioned, and isolated OSGi Applications to improve developer productivity, business agility, and total cost of ownership
- New High Performance Extensible Logging (HPEL) problem determination tools and enhanced security and administration features to improve administrator productivity and control
- New simplified install and maintenance through IBM Installation Manager to improve efficiency and control

For ordering, contact Your IBM representative or an IBM Business Partner. For more information contact the Americas Call Centers at 800-IBM-CALL. Reference: YE001

## Overview

Your business requires a flexible, efficient, and strong foundation for service-oriented architecture (SOA) to align the advancements of business and IT towards improved business agility and reduced costs. WebSphere Application Server technology enables reuse and rapid creation of innovative applications and services

that promote business agility - anticipating and adjusting to the mission-critical issues that help businesses win in the marketplace.

WebSphere Application Server offers a broad range of application foundation and programming model choice to support businesses of every size and includes advanced management to help decrease costs and grow your business. WebSphere Application Server enables clients and partners to build a strong foundation and reduce cost through:

- Capabilities to speed the delivery of new applications and services
- Operational efficiency and reliability
- Integrated management that provides security and control

WebSphere Application Server V8.0 builds on over a decade of leadership to offer Java EE 6 and broad programming model support, enhanced developer and administrator productivity, and improved security, installation, and maintenance. New and enhanced features in WebSphere Application Server V8.0 can help companies:

- Improve end-user experiences through rapid delivery of innovative applications
- Utilize diverse developer skills using comprehensive open standards-based programming models
- Achieve higher application security with flexible and granular control
- Manage geographically dispersed applications centrally to cut the cost of administration
- Leverage high performance to consolidate workloads, thereby reducing costs
- Maintain transaction integrity, overall reliability and scalability, and reduce downtime with industry leading quality of service
- Reuse and extend legacy and packaged applications to reduce costs, which can be further accelerated using the optional WebSphere Adapters V7.5
- Maximize developer productivity and project delivery speed by using the separately licensed IBM Rational® Application Developer for WebSphere Software or IBM Rational Application Developer Standard Edition for WebSphere Software to help deliver higher quality departmental to mission-critical applications for WebSphere Application Server.

For more information on IBM Rational Application Developer support for IBM WebSphere software, refer to Software Announcement [211-174](#), dated April 5, 2011.

For clients who need to build, deploy, and manage secure and portable innovative applications that run on a multitude of mobile, server, and desktop systems, WebSphere Application Server is the flexible and efficient SOA application platform of choice.

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## Key prerequisites

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Software prerequisites

Java Technology - IBM Java SDK 6.0 (J9 2.6)

Web browsers

- Microsoft® Internet Explorer 9.0
- Mozilla Firefox 1.7.8
- Mozilla Firefox 2.0
- Mozilla Firefox 3.0

## Web servers

- Microsoft Internet Information Services 7.5 and future fix packs
- IBM HTTP Server V8.0

## Web servers on 32-bit kernel

- Apache Server 2.2
- Domino® 8.0 and future releases, modification levels, and fix packs
- Microsoft Internet Information Services 6.0
- Microsoft Internet Information Services 7.0
- Sun Java System Web Server 6.1 SP12
- Sun Java System Web Server 7.0 Update 1

## Web servers on 64-bit kernel

- Apache Server 2.2
- Domino 8.0
- IBM HTTP Server for i5/OS® any
- Microsoft Internet Information Services 6.0
- Microsoft Internet Information Services 7.0
- Sun Java System Web Server 6.1 SP12
- Sun Java System Web Server 7.0 Update 1

For details, refer to the [Hardware requirements](#) and [Software requirements](#) sections.

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## Planned availability date

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- June 17, 2011 - electronic delivery
- July 22, 2011 - media packs

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## Description

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Your business requires a flexible, efficient, and strong foundation for SOA to align the advancements of business and IT towards improved business agility and reduced costs. WebSphere Application Server meets your business needs by enabling rapid reuse and creation of innovative applications and services that promote business agility - anticipating and adjusting to the mission-critical issues that help businesses win in the marketplace. WebSphere Application Server offers a broad range of application foundation and programming model choice to support businesses of every size and includes advanced management to help decrease costs and grow your businesses.

WebSphere Application Server for V8.0 builds on over a decade of leadership to offer:

### **Enhanced capabilities to speed the delivery of new applications and services**

WebSphere Application Server V8.0 can help businesses offer richer user experiences through the rapid delivery of innovative applications. Developers can jumpstart their development efforts and leverage existing skills by selecting from the comprehensive set of open-standards-based programming models WebSphere Application Server V8.0 supports.

This allows developers to better align project needs with programming model capabilities and developer skills. WebSphere Application Server V8.0 can also speed

application delivery through encouraging reuse and extending the life of existing application assets.

New and improved capabilities include

- Faster time to application development completion by enabling developers and architects to select the best programming model for the project at hand
- Java EE 6 programming model: Compliance with the latest Java EE specification which delivers ease of use and productivity enhancements and improves iterative development cycles for testing applications over previous version of the specification. Key enhancements include:

- Enterprise JavaBeans (EJB) 3.1 adds singleton EJBs for easier creation and management of caches, simple beans with no interfaces, and allows EJBs to be packaged in web application archive (WAR) files to simplify application packaging.

The new embeddable EJB container can be used to unit test EJBs outside of the application server to improve iterative development cycles. EJB 3.1 also adds async-method invocations for handling long running requests and improvements to timers for calendar-based events and non-persistent timers.

- Contexts and Dependency Injection for Java (CDI) 1.0 frees developers from having to write logic to maintain objects within a context and provides new integration between web application expression language beans and EJBs.
- Java Persistence API (JPA) 2.0 includes improvements in mapping support to handle embedded collections and ordered lists. Pessimistic locking is now standardized to support write-mostly application performance. The new dynamic Criteria API allows dynamic construction of queries without requiring an in-depth knowledge of SQL.
- Java API for RESTful Web Services (JAX-RS) 1.1 is added to the platform in support of Web 2.0 programming and allows applications to easily and quickly expose resources to the web in a controlled fashion.
- JavaServer Faces (JSF) 2.0 includes support for Facelets, a much tighter integrated page description format that improves performance and UI composition capabilities. It also includes support for AJAX life cycles for better UI interaction, UI look and feel, customization through skins, and extensive use of annotations for improved developer productivity.
- Java Servlet 3.0 adds asynchronous protocol support for SIP and COMET as well as others. Servlet programming is simplified through the extensive use of annotations for declaring metadata. Automatic metadata discovery and integration provided by the web fragment support helps speed and simplify the integration of third-party presentation frameworks.
- Bean Validation 1.0 provides a declarative means for describing validation constraints for data. Developer efficiency is improved by not having to write and maintain validation logic multiple times in multiple places within the application.

Additionally, Bean Validation is integrated with JSF to ensure form data is automatically validated to be correct, with JPA to ensure incorrect data is not persisted, and with Java EE Connector architecture (JCA) to ensure Connectors are correctly configured.

- WebSphere Application Server provides high-performance, reliable, and scalable implementations of Java EE 6 specifications along with integration value add, such as Dynacache Servlet caching support for Servlet 3.0, security integration and support for a variety of application topologies.
- Support for Java Platform, Standard Edition 6.0, including the latest performance, security, and reliability enhancements delivered by the IBM Java SDK 6.0 (J9 2.6) to accelerate Java application innovation.
- OSGi Applications programming model: Rapidly build, deploy, manage, and maintain modular applications using Java EE and OSGi technologies through versioned, isolated, and reusable OSGi bundles. Key capabilities include:
  - OSGi Enterprise Specification 4.2 Blueprint Container support for declarative assembly of components, which simplifies unit test outside of the application server

- Ability to compose isolated enterprise applications using multiple multi-version bundles with dynamic lifecycles
- Ability to deploy applications in archives containing only application-specific content, along with metadata referencing any shared bundles, resulting in lightweight memory requirements as only single copies of common bundles are loaded into memory
- Extended application asset life and improved reuse by deploying existing web application archives (WAR files) as OSGi web application bundles (WAB) in order to use existing assets within an OSGi application
- Support for applications to use versions of common utility classes, distinct from the versions used internally by WebSphere Application Server, without needing to configure Java EE application class loader policies
- Improved modularity and simpler application maintenance and upgrading through simultaneously loading multiple versions of classes in the same application, using standard OSGi mechanisms
- An integrated bundle repository and ability to configure external repositories, to support reuse through the provisioning of bundles to applications
- Administration enhancements to update deployed applications in a modular way, at the bundle level
- Extensions to the Blueprint component model for declarative transactions and container-managed JPA
- Web 2.0 Mobile and programming model: Deliver richer user experiences and extend the reach of enterprise applications to desktop web and mobile web applications to improve customer satisfaction. Key capabilities include:
  - Available as an optionally installable Feature Pack for WebSphere Application Server V8.0
  - Based on open source Apache Wink and Dojo projects, with IBM value add to simplify working with different protocols, data formats, and connectivity options
  - Faster delivery of richer user interfaces and user experiences to mobile and desktop browser based applications through support for Dojo 1.6 widget library
  - Enhanced developer productivity through new and improved rich Internet application (RIA) and mobile application building blocks, including Directory Listing Service, File Upload Service, Graphics Conversion Service, Logging, Debug and Analytics Capture Service, and Device/browser Detection Service
  - Ability to deliver rich enterprise user interfaces, including graphs and diagramming, through the new Dojo Diagrammer widget, based on technology from IBM ILOG® Visualization offerings
  - Faster delivery of rich client-side applications that integrate with server-side Java applications and services through a JAX-RS standalone client API, with the option of using Apache HttpClient 4.0
  - Developer productivity enhancements through built-in support for JavaScript™ Object Notation library (JSON4J) to simplify working with JavaScript objects within Java environments
  - Faster time to value and increased reuse of existing application assets through supported web remoting via simple configuration versus having to rewrite the original Java objects, EJBs, or web services to expose methods and map via HTTP GET/POST requests
  - ATOM and RSS libraries for exposing Java EE resources as Web 2.0 style "data feeds" to speed data integration within applications
  - Enhanced security and integration capabilities through Ajax Proxy support to securely allow browser access to cross-site services.
  - Richer, real-time application experiences through AJAX Messaging support to simplify pushing server-side events to client-side browser applications
- XML programming model: Enable application developers to simply and rapidly process XML data and documents using World Wide Web Consortium (W3C) open-standards-based XML technologies. Key capabilities include:
  - Extensible Stylesheet Language Transformations (XSLT) 2.0: A programming language used to transform XML data into a new XML format or into another presentation-oriented format such as HTML, XHTML, or SVG

- XML Path Language (XPath) 2.0: A programming language designed to allow developers to select nodes from an XML document to accelerate processing performance and ease of use
- XML Query Language (XQuery) 1.0: A query language optimized for retrieval of both structured and unstructured data
- Improved XML-application reliability with new support for XML schema-aware processing and validation
- IBM Thin Client for XML support to accelerate the delivery of client-side applications that utilize XSLT 2.0, XPath 2.0, and XQuery 1.0 through WebSphere Application Server
- Service Component ;Architecture (SCA) programming model: Increase reuse and accelerate innovative application delivery and management in a SOA. Key capabilities include:
  - Open SOA Collaboration (osoa.org) SCA 1.0 standards support
  - Design that is based on open source Apache Tuscany project with IBM value add including integration and ease of use
  - Extended existing application asset life and speed application delivery by creating service compositions using POJOs, EJB 2.1, EJB 3.0, EJB 3.1, OSGi Applications and Spring components, Java Servlets, and AJAX/JavaScript
  - Speed application integration efforts through binding support for Web Services, JMS, SCA and EJB 2.0, EJB 2.1, EJB 3.0, EJB 3.1 and OSGi Applications components
  - Ability to expose business logic to Web 2.0 applications through JSON-RPC and ATOM Web feeds
  - Ability to speed the integration of data across disparate systems through Java Architecture for XML Binding (JAXB) or Service Data Objects (SDO) 2.1.1 data representation
  - Ability to improve deployment productivity through flexible service deployment as a standard Java Archive (JAR)
- Communications Enabled Applications (CEA) programming model: Simply and rapidly deliver rich and interactive user experiences by adding communications capabilities, like click to call and cobrowsing, to web applications. Key capabilities include:
  - Lower barrier to end user adoption through no client-side software or plug-in installations required.
  - Pre-built, customizable, and extensible Web 2.0 widgets, including support for the iWidget specification to seamlessly integrate CEA widgets into WebSphere Portal applications.
  - Click to Call widget: To create a multi-modal session between two parties which consists of a joint phone call and a joint web browsing session.
  - Call Notifications widget: To receive notification of an incoming call.
  - Collaboration Dialog widget: A data channel to share data between parties in a joint session.
  - Contact Center Cobrowsing widget: To enable each party to control web browser navigation of the other party, with their permission, and highlight information for the other party to see, in a usage scenario between a user and a contact center representative.
  - Peer-to-Peer Cobrowsing widget: To enable each party to control web browser navigation of the other party, with their permission, and highlight information for the other part to see, in a usage scenario between a two users.
  - Two-way Synchronized Forms widget: An extension to the Contact Center Cobrowsing widget to enable real-time visual confirmation of form data that a contact center representative is entering into a web application.
  - CEA widgets supported on WebKit-based mobile web browsers to extend reach to mobile applications
  - Using as little as three lines of code to enable any CEA widget onto an existing or new web application for unmatched simplicity and time to value
  - RESTful and XML Web service interfaces to programmatically add call control capabilities, such as make call, end call, and receive call notification, to new or existing applications

- Accelerated proof of concepts through included telephony unit test environment and pre-testing with Avaya, Cisco, and Nortel unified communications systems
- Session Initiation Protocol (SIP) programming model: Develop, deliver, and manage powerful large-scale mission-critical converged communications services and applications. Key capabilities include:
  - Unmatched high availability, reliability, and scalability to meet the unique needs of network operators, network equipment providers, and independent software vendors delivering real time converged communications services
  - Support for the latest SIP Servlet specification (JSR 289) including annotation support to reduce complexity and improve productivity
  - Simplified control over routing SIP requests between multiple applications through business logic to improve developer productivity and ease of use
  - Multihome support to receive and send SIP requests over multiple network interfaces in order to increase security without sacrificing developer productivity
  - Converged web services and SIP container support, adding to the existing converged HTTP and SIP Servlet container, to integrate web services applications and services into a SIP-based communications application for faster time to value and increased business agility o Simplified use of back-to-back user agents (B2BUA) through the new B2BUAHelper class to help increase developer productivity
  - Improved firewall support to simplify the development and configuration of SIP applications that consume or provide services through a secure firewall environment
- Java Batch programming model: Reuse existing skills to quickly and cost effectively develop, deploy and manage batch applications. Key capabilities include:
  - Pre-integrated application framework, Java batch programming model and tools to improve developer productivity during the batch application life cycle
  - Container-managed services for checkpoint and restart capabilities of batch workloads to minimize manual intervention and total cost of ownership
  - Integrated administration of OLTP applications and batch jobs and integration with the WebSphere Administrative Console to reuse administrator skills and lower costs
  - Reduced infrastructure costs through concurrent execution of batch and online transaction processing (OLTP) workloads using shared business logic on a shared WebSphere Application Server infrastructure
  - Higher throughput and lower resource consumption for Java batch processing on IBM z/OS® when collocated with data subsystems
  - Simple and rapid upgrade path to advanced batch capabilities through the separately available IBM WebSphere Extended Deployment Compute Grid product
- Dynamic Scripting programming model: Speed the development and delivery of situational applications using dynamic scripting languages. Available as a separate optionally installable Feature Pack for Dynamic Scripting which supports WebSphere Application Server V8.0, V7.0, and V6.1. Refer to the [Product positioning](#) section under Related products for additional details.
- Enhanced developer productivity during the edit-compile-debug development lifecycle through monitored directory-based application install, uninstall, and update of Java EE applications. Simply add delete or update application files in the monitored directory to install, uninstall, or update an application.
- Rapid development of RESTful web applications through support for RESTful views of EJB applications and support for Contexts and Dependency Injection for Java (CDI) with JAX-RS.
- New and improved online samples to accelerate developers time to value when using new and improved capabilities in the product
- Increased developer and administrator productivity through the use of IBM Assembly and Deploy Tools for WebSphere Administration to rapidly assemble and deploy applications to WebSphere Application Server environments. These tools replace the previously available IBM Rational Application Developer

Assembly and Deploy function and are restricted to assembly and deployment usage only.

- IBM Rational Application Developer for WebSphere Software with integrated programming model support for building and testing applications for WebSphere Application Server V8.0 is included on a trial basis. A full developer license to IBM Rational Application Developer for WebSphere Software can be easily purchased through a downloadable license key.
- Enhanced reuse and extended application asset life when integrating SAP Software, Siebel Business Applications, Oracle E-Business Suite, JD Edwards EnterpriseOne, and PeopleSoft Enterprise packaged applications with a WebSphere Application Server application. A development and unit testing license to WebSphere Adapters V7.5 is provided with WebSphere Application Server to speed application integration and development.

### **Enhanced integrated management that provides security and control**

WebSphere Application Server V8.0 offers world-class security and administrative control to help businesses confidently reduce costs and increase business agility. WebSphere Application Server's rich support for security specifications and granular security controls combined with unmatched centralized administrative capabilities help administrators productively manage and secure application environments their businesses depend on.

New and improved capabilities in WebSphere Application Server V8.0 include:

#### **Installation and maintenance**

- New simplified install, maintenance, and uninstall with automated prerequisite and interdependency checking through IBM Installation Manager to speed time-to-value
  - Support for WebSphere Application Server installations and related components including IBM HTTP Server, web server Plug-ins for WebSphere Application Server, WebSphere Customization Toolbox, WebSphere Edge Components, DMZ Secure Proxy Server for WebSphere Application Server, Application Client for WebSphere Application Server, and Pluggable Application Client for WebSphere Application Server
- Improved administrator productivity, repeatability, and standardization through new and improved Centralized Installation Manager which provides centralized and automated install, maintenance, and uninstall
- Reduced disk footprint requirements through enhanced component install granularity to optionally select whether to install WebSphere Application Server components, such as thin clients, EJB deploy and language packs

#### **Administrator productivity and control**

- Improved standardization and repeatability through new ability to clone a node, along with configuration modifications, such as Java Virtual Machine (JVM) heap size and classpath, within a cluster based on an existing node. This capability can also be used to recover an existing, but damaged node.
- Improved administrator productivity through Centralized Installation Manager enhancements to simplify the creation, augmenting, and deletion of WebSphere Application Server profiles on remote nodes.
- Enhanced operational efficiency and business agility through ability to administratively extend OSGi Applications-based running applications with new functionality without changing the application artifact, to enable independent application extension and evolution as business needs change.
- Enhanced operational efficiency and minimized downtime through ability to update a running OSGi Applications-based application by only impacting those bundles affected by the change, enabling rapid update of deployed OSGi Applications.
- Improved administrative ease of use and productivity through ability to rapidly locate and edit application configuration properties.
- Enhanced problem determination and application manageability using the new High Performance Extensible Logging (HPEL) log and trace framework.



HPEL supports both command line and Administrative Console interactions to accelerate problem determination and uncover potential performance application and configuration bottlenecks.

- Further speed problem determination through the separately available IBM Support Assistant (ISA) which offers a workbench to quickly find key information, automates repetitive steps and includes a variety of serviceability tools.

## **Migration and investment protection**

- Improved time to value and reduced risk of down time through migration support for WebSphere Application Server V6.0, V6.1 and V7.0 configuration information using command-line tools and the GUI-based Configuration Migration Tool.
- Application migration speed and ease of use is further enhanced through the separately available WebSphere Application Server Migration Toolkit. Available via web download, the Application Migration Tool supports upgrades from WebSphere Application Server V5.1, V6.0, V6.1, or V7.0 to WebSphere Application Server V8.0.

IBM has made significant investments in upward compatibility, configuration, and management process upgrades, as well as API preservation and consistency between WebSphere releases. But, with changing industry standard specifications, application changes are sometimes needed in order to support or exploit new levels of the industry standard being delivered. The Application Migration Tool helps customers to quickly and easily identify and implement those application changes as part of an upgrade to WebSphere Application Server V8.0.

- Improved cost of ownership, risk reduction, and increased life for existing application assets through continued mixed version cell support and the ability to utilize older Java EE levels in a modern WebSphere Application Server deployment.

A WebSphere Application Server Network Deployment V8.0 cell can contain and administer V6.1, V7.0, and V8.0 nodes. Additionally, customers can run J2EE 1.2, 1.3, 1.4, and Java EE 5 and Java EE 6 applications on WebSphere Application Server.

## **Security**

- Overall security hardening enhancements including, security updates defined in the Java Servlet 3.0 specification (JSR 315), Java Authentication SPI for Containers (JSR 196), and additional security features enabled by default and enhanced security configuration reporting to achieve a more complete view of server security settings.
- Enhanced security configuration flexibility and ease of use when configuring federated repositories through the addition of multiple security domain support for federated repositories. Administrators can now configure multiple federated repositories with a different repository configuration per application.
- Enhanced security and auditability for applications requiring distributed and z/OS system access through the ability to use z/OS System Authorization Facility (SAF) security to associate a SAF user ID with a distributed identity. When you use this feature, you can maintain the original identity information of a user for audit purposes and have less to configure in WebSphere Application Server.
- Enhanced security and ease of use through the simplified exchange of user identity and attributes in Web Services using Security Assertion Markup Language (SAML) Token through WS-Security SAML Token Profile 1.1. This feature allows customers to securely exchange client identify and other security information across security domains.
- Faster time-to-value when delivering single sign on web services- based applications though ability to generate SAML tokens, request SAML tokens from an external Security Token Service (STS) and propagate SAML tokens in SOAP messages using the web services Security application programming interfaces (WSS API). This is an alternative solution to using policy set attachments with web services clients.
- Improved component reuse and agility through ability to configure a web service application to interoperate with multiple endpoint services, each with potentially

different configuration requirements, through specifying multiple policy sets and bindings specific to each endpoint service.

- Improved security and interoperability through ability to generate and consume tokens using WS-Trust Issue and WS-Trust Validate requests for JAX-WS Web services that use web services Security. As a result of these requests, the login module issues, validates, or exchanges tokens with a WS-Trust Security Token Service, such as the service that is provided with the IBM Tivoli® Federated Identity Manager.
- Enhanced browser attribute for single sign-on applications to prevent client-side applications from accessing cookies to reduce cross-site scripting vulnerabilities using HTTPOnly attribute in the cookie.
- Ease of use, administration, and security enhancements for Java API for XML Web Services (JAX-WS) based applications.

### **Improved operational efficiency and reliability**

WebSphere Application Server V8.0 can help businesses reduce costs through industry leading performance, operational efficiency, and reliability. Companies can take advantage of WebSphere Application Server's high performance to consolidate workloads and administrative overhead to reduce total cost of ownership without sacrificing system reliability. WebSphere Application Server's proven transactional support helps companies maintain transaction integrity and overall reliability to minimize the likelihood of lost business opportunities due to failed transactions or system down time.

New and improved capabilities in WebSphere Application Server V8.0 include:

- End-to-end performance improvements including faster product installations, server startup, application server creation, and application installations for large applications.
- New performance improvements through JPA 2.0 optimizations with DynaCache and JPA Level 2 cache offer total cost of ownership reduction for modern applications.
- Improved transactional integrity through support for shared database locks between transaction branches and integration of new programming models with WebSphere Application Server's proven transaction engine.
- Improved high-availability support when using WebSphere MQ with service integration bus (SIBus), offering the new capability for SIBus to reconnect to a standby gateway queue manager when an active gateway queue manager fails or becomes unavailable.
- Enhanced performance and lower processing requirements by optionally disabling WebSphere MQ functionality within WebSphere Application Server when not being used by the application server or an application client.
- Improved reliability and application performance through support for both client affinity and client reroute for applications that use IBM DB2® databases. Use client affinity functions to control the order of servers that are tried during initial connection processing or the client reroute functions to specify alternate server locations when connections to a database server fail.
- Improved performance and reliability through new location transparency for EJBs using DB2 connections. Multiple EJBs on different servers can share visibility/locks to data within a distributed transaction.
- Improved reliability and performance JCA data source and connection factory failover and subsequent fallback to a predefined alternate resource.
- Enhanced administrator and developer flexibility to select amongst supported Java SDK releases to access new innovations and performance enhancements for use with WebSphere Application Server V8.0.
- Continued support for optionally installable WebSphere Application Server Feature Packs, including the Web 2.0 and Mobile Feature Pack, enable developers to access the latest in technology innovations while providing administrators the ability to maintain stability in their production environments.
- Enhanced deployment efficiency and flexibility through the ability to connect existing and new applications to the latest versions of a wide variety of industry-leading databases and Java Database Connectivity (JDBC) drivers including IBM

DB2, IBM Informix®, Microsoft SQL Server, Oracle Database, Sybase Database, and the DataDirect Connect for JDBC driver.

## **Accessibility by people with disabilities**

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The following features support use by people with disabilities:

- Operation by keyboard alone
- Optional font enlargement and high-contrast display settings
- Screen readers and screen magnifiers tested for use by people with visual impairment

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on the products accessibility compliance can be requested via IBM's website at the following URL

[http://www.ibm.com/able/product\\_accessibility/index.html](http://www.ibm.com/able/product_accessibility/index.html)

## **Section 508 of the U.S. Rehabilitation Act**

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WebSphere Application Server for V8.0 is capable as of June 17, 2011, 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.

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## **Product positioning**

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The WebSphere Application Server family offers multiple configuration options and support for multiple business models and deployment platforms. It also supports a wide range of scenarios, from open source-based projects and projects with no up-front budget, to simple administration of a single server environment, to a clustered, highly available, high-volume environment with edge-of-network services.

WebSphere Application Server V8.0 configurations are built on a common server foundation that delivers the same Java EE 6 and broad programming model support, and proven transactional engine, with increasingly higher qualities of service available across product configurations. This offers unparalleled flexibility to incrementally add higher quality of service to applications as business needs change without the cost of rearchitecting, reprogramming or migrating to different technology bases.

Configuration options include:

### **WebSphere Application Server - Express® V8.0**

An affordable, ready-to-go application foundation for single server, smaller scale deployments of dynamic web applications which can be effortlessly migrated to more advanced versions of the WebSphere Application Server family as business needs change. Centralized administration of WebSphere Application Server - Express is available through the Flexible Management feature of WebSphere Application Server Network Deployment. WebSphere Application Server - Express is limited to single-server implementations and up to a maximum of 480 Processor Value Units per server or virtualized partition.

### **WebSphere Application Server for Developers V8.0**

The optimal development environment for building and testing applications on a developer's desktop which will eventually run on WebSphere Application Server in production. Licensed for development use, WebSphere Application Server for Developers offers functional equivalence to the core WebSphere Application Server configuration to help developers reduce testing effort, develop with confidence and deliver innovative applications faster. This configuration is also available at

no charge, with optional paid support, in order to lower the barrier to entry for developers building for WebSphere Application Server environments.

### **WebSphere Application Server V8.0**

An application foundation tailored for single server to moderately sized configurations of departmental or large-scale, dynamic web applications requiring web tier clustering and failover across up to five application server instances, and a variety of pricing alternatives, including socket-based pricing. Centralized administration of WebSphere Application Server is available through the Flexible Management feature of WebSphere Application Server Network Deployment.

### **WebSphere Application Server Network Deployment V8.0**

For enterprises that need near-continuous availability, advanced management, and automated performance optimization for their mission-critical applications, WebSphere Application Server Network Deployment delivers an environment that is highly available, dynamically scalable, and easily managed. Building on the core WebSphere Application Server configuration, WebSphere Application Server Network Deployment offers:

- World-class clustering and high-availability management to help eliminate the cost of system downtime
- Edge components, which offer sophisticated load balancing, caching, and centralized security for enhanced performance at the edge of the network
- Advanced centralized management and administration to make management of more complex environments less time-consuming and resource-consuming
- Enterprise-proven, leading security capabilities to safeguard your business
- Industry leading performance that maximizes business competitiveness while minimizing total cost of ownership (TCO)

### **WebSphere Application Server for z/OS, V8.0**

An application foundation optimized to take advantage of the unique qualities of service of IBM System z® hardware and the z/OS operating system. WebSphere Application Server for z/OS offers functional equivalence to WebSphere Application Server Network Deployment, along with additional capabilities such as prioritized workload management, advanced transactional integrity, intense scalability, and data and workload collocation, made possible through tight integration with IBM System z and z/OS.

### **Related products**

#### **WebSphere Application Server Hypervisor™ Edition V7.0**

WebSphere Application Server Hypervisor Edition includes all the robust features of WebSphere Application Server and is optimized to run in server virtualized environments. Designed to reduce installation and configuration time, WebSphere Application Server Hypervisor Edition helps reduce time-to-value during development, test and production of WebSphere based applications.

Each WebSphere Application Server Hypervisor Edition offering is a preconfigured package that integrates WebSphere Application Server and associated feature packs, IBM HTTP Server, and an operating system compatible with each supported hypervisor. Enhanced operational cost reduction and business agility can be gained through the use of WebSphere Application Server Hypervisor Edition with IBM Workload Deployer, a cloud computing appliance that manages IBM products in a cloud environment. It dispenses patterns of virtual images into a pool of virtualized resources running a supported hypervisor. The optimization for deployment speed and agility enables an entirely new usage paradigm for WebSphere Application Server built around rapid setup and teardown. Test cases can be based upon a standardized deployment that is destroyed and reinstalled after each execution.

## WebSphere Application Server Community Edition V2.1

Delivers a lightweight Java EE application server built on open-source Apache Geronimo technology. WebSphere Application Server Community Edition is backed by optionally available, world-class support from IBM, ensuring that customers receive assistance and timely problem resolution from the IBM team of expert support professionals and developers. Simple socket-based pricing is also optionally available. For a Statement of Direction (SOD) regarding future content of WebSphere Application Server Community Edition, refer to the [Statement of direction](#) section.

## WebSphere Application Server Feature Pack for Dynamic Scripting V1.0

Speed the development and delivery of situational applications using dynamic scripting languages. Key capabilities include:

- Utilize the PHP and Groovy dynamic scripting languages to quickly address application requirements
- Leverage Web 2.0 technologies, such as Asynchronous JavaScript and XML (AJAX), representational state transfer (REST), Atom, JavaScript object notation (JSON), and Really Simple Syndication (RSS) to unleash and reuse enterprise content
- Develop and deploy application components supporting the iWidget specification that can be incorporated into WebSphere Portal and IBM Mashup Center-based applications
- Run WebSphere sMash V1.1.1 applications unchanged in a WebSphere Application Server deployment
- Provide community-supported browser-based tooling and an Eclipse plug-in for application developers, available at no charge on the Project Zero community website
- Allow community-supported, centralized management and deployment -- sMash Enterprise Packager -- available on the Project Zero community website
- Supports WebSphere Application Server V8.0, V7.0, and V6.1 on hardware and software configurations at:

<http://www.ibm.com/software/webservers/appserv/was/featurepacks/dynamicscripting/reqs/index.html>

## WebSphere Adapters V7.5

WebSphere Adapters help accelerate business integration projects with rapidly deployable, enterprise-ready connections based on best practices. The WebSphere Adapters portfolio provides a comprehensive set of capabilities to reuse and extend your packaged and legacy applications. IBM WebSphere Adapters V7.5 includes enhanced adapters for SAP Software, Siebel Business Applications, Oracle E-Business Suite, JD Edwards EnterpriseOne, and PeopleSoft Enterprise.

The Adapter for Oracle EBS is enhanced to provide support for additional interfaces namely: XML gateway using JMS and Oracle Advanced Queue, thus providing a consistent approach for accessing/storing information in Oracle E-Business Suite. The Adapters for SAP and Siebel are enhanced for additional data type support.

A separate license entitlement for the appropriate WebSphere Adapter must be purchased when deploying WebSphere Adapter components for SAP, Oracle EBS, Siebel, PeopleSoft, or JD Edwards to WebSphere Application Server V8.0 or WebSphere Application Server V7.0 for production use.

## Version-to-version comparison

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### Benefits of migrating to WebSphere Application Server V8.0

WebSphere Application Server V8.0 is designed to deliver significant improvements in performance, usability, and security that reduce risk, total cost of ownership (TCO), and time-to-value enabling businesses to meet their needs quickly and

efficiently. With more than 1,000 companies participating in the early program for WebSphere Application Server V8.0, and concurrent availability of migration tooling, customers can confidently migrate to WebSphere Application Server V8.0 at an accelerated pace.

Key benefits include:

- Lower TCO through end-to-end performance improvements across the development, test, production, and maintenance lifecycle
- New revenue opportunities and rich user experiences enabled by extending enterprise applications to mobile devices
- Faster migrations with less risk of down time through improved automation and tools, including a no-charge Migration Toolkit for migrating version-to-version and from competition
- Improved developer and administrator productivity through new and improved features such as
  - Improved developer productivity through monitored directory install, uninstall, and update of Java EE applications to accelerate the edit-compile-debug development lifecycle
  - Enhanced administrator productivity through automated cloning of nodes within clusters, simpler ability to centrally expand topologies and to locate and edit configuration properties
  - Faster problem determination through new binary log and trace framework
  - Simpler and faster product install and maintenance with new automated prerequisite and interdependency checking across distributed and z/OS environments
- Deliver better user experiences faster by aligning programming model strengths with project needs through WebSphere's leadership in the breadth of programming models supported:
  - Java EE, OSGi Applications, Web 2.0 and Mobile, Java Batch, XML, Service Component Architecture (SCA), Communications Enabled Applications (CEA), Session Initiation Protocol (SIP), and Dynamic Scripting
  - Integration of WebSphere Application Server V7 Feature Packs to simplify access to new programming models
  - Lower risks through end-to-end security hardening enhancements including security updates defined in the Java EE 6 specifications, additional security features enabled by default and improved security configuration reporting
  - Deliver single sign on (SSO) applications faster through new and improved support for SAML, WS Trust, and WSS API specifications

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## Statement of direction

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As part of the family of products, WebSphere Application Server includes a lightweight application server built on open-source Apache Geronimo technology. This part of the portfolio is WebSphere Application Server Community Edition which streamlines the creation of applications on a lower-cost, open source Java EE platform. IBM intends to update WebSphere Application Server Community Edition to support:

- Java EE 6
- OSGi enterprise application programming model based on Apache Aries
- Additional best-of-breed open source technologies from the Apache and
- Eclipse projects
- Custom Assembly improvements
- Usability enhancements

All this while providing continued support for a lightweight, small footprint development and runtime environment. IBM also intends to improve migration

of applications from your open-source environment to the open-standards based WebSphere family.

Socket-based support pricing will continue to be available to meet your deployment and configuration needs.

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM's sole discretion. Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for IBM's products remains at IBM's sole discretion.

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## Reference information

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For information on WebSphere Application Server for z/OS V8.0 environments, refer to Software Announcement [211-117](#), dated April 5, 2011.

For information on WebSphere Application Server Community Edition V2.1, refer to Software Announcement [208-254](#), dated July 29, 2008.

For information on the WebSphere Application Server Family, visit

<http://www.ibm.com/software/info1/websphere/index.jsp?tab=products/appserv>

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## Program number

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Program number	VRM	Program name
5724-J08	8.0.0	webSphere Application Server
5724-I63	8.0.0	webSphere Application Server - Express
5724-H88	8.0.0	webSphere Application Server Network Deployment
5724-H89	8.0.0	webSphere Application Server for Developers

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## Offering Information

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Product information is available via the Offering Information website

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

Also, visit the Passport Advantage® Web site

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

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## Publications

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The primary delivery and latest product documentation for WebSphere Application Server V8.0 can be found in the online information center available from the Library web page at

<http://www.ibm.com/software/webservers/appserv/was/library/>

No hardcopy publications are shipped with this product. You can find links to information on installing and getting started with WebSphere Application Server in the readme file (readme.html) located in the readme directory on the root of the installation image; for example, the readme file is located at /readme/readme.html.

Help for the WebSphere Application Server administrative console is shipped with the product. The total set of product documentation is available in HTML and PDF format from the following web page

<http://www.ibm.com/software/webservers/appserv/library.html>

You can access the information center from the following website

<http://www14.software.ibm.com/webapp/wsbroker/redirect?version=matt>

For optimal viewing of this documentation, browser support for JavaScript and related technologies is required. For more information on compatible browsers, refer to the [Software requirements](#) section of this document.

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## Technical information

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### **Specified operating environment**

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#### ***Hardware requirements***

##### **AIX®**

For AIX (32-bit WebSphere Application Server)

- IBM POWER family of processors supported by the corresponding release of AIX
  - Supported hardware for AIX 6.1
  - Supported hardware for AIX 7.1
- Minimum 2 GB (web installation) to 5 GB (local installation) of available disc space
- Minimum 1 GB of physical memory recommended

##### **HP-UX**

For HP-UX (64-bit WebSphere Application Server)

- Intel® Itanium® 2 processor
- Intel Itanium processor 9300 Series
- Minimum 2 GB (web installation) to 5 GB (local installation) of available disc space
- Minimum 1 GB of physical memory recommended

##### **Linux®**

For Linux (32-bit WebSphere Application Server)

- Intel Pentium® IV or later processor at 1.2 GHz or faster
- Intel x86-64 or AMD x86-64 processor at 1.2 GHz or faster
- IBM POWER family of processors supported by the Linux distribution
- Any zSeries® systems supported by the required Linux operating systems
- Minimum 2 GB (web installation) to 5 GB (local installation) of available disc space
- Minimum 1 GB of physical memory recommended

For Linux (64-bit WebSphere Application Server)

- Intel x86-64 or AMD x86-64 processor (64-bit kernel support only)
- Any zSeries systems supported by the required Linux operating systems
- IBM POWER family of processors supported by the Linux distribution



- Minimum 2 GB (web installation) to 5 GB (local installation) of available disc space
- Minimum 1 GB of physical memory recommended

## **Solaris**

For Solaris (32-bit WebSphere Application Server)

- Oracle Solaris operating environment compatible SPARC workstation at 1.0 GHz, or faster
- Minimum 2 GB (web installation) to 5 GB (local installation) of available disc space
- Minimum 1 GB physical memory

For Solaris (64-bit WebSphere Application Server)

- Oracle Solaris operating environment compatible SPARC workstation at 1.0 GHz, or faster
- Intel x86-64 or AMD x86-64 processor at 1.2 GHz, or faster
- Minimum 2 GB (web installation) to 5 GB (local installation) of available disc space
- Minimum 1 GB of physical memory recommended

## **Windows®**

For Windows (32-bit WebSphere Application Server)

- Intel Pentium IV or later processor at 1.2 GHz, or faster
- Intel x86-64 or AMD x86-64 processor at 1.2 GHz, or faster
- Minimum 2 GB (web installation) to 5 GB (local installation) of available disc space
- Minimum 1 GB of physical memory

For Windows (64-bit WebSphere Application Server)

- Intel x86-64 or AMD x86-64 processor at 1.2 GHz, or faster
- Minimum 2 GB (web installation) to 5 GB (local installation) of available disc space
- Minimum 1 GB of physical memory recommended

## **IBM i**

For IBM i series (32- and 64-bit WebSphere Application Server)

- Minimum 2 GB (web installation) to 5 GB (local installation) of available disc space
- Minimum 1 GB of physical memory recommended

For more information on WebSphere Application Server, visit

<http://www.ibm.com/support/docview.wss?rs=180&uid=swg27007270>

## **Software requirements**

### **Supported operating systems**

- AIX 7.1 POWER System (64-bit)
- AIX 6.1 POWER System (64-bit)
- HP-UX 11i v3 IA64 (64-bit)
- HP-UX 11i v2 IA64 (64-bit)
- IBM i 7.1 POWER System (32- and 64-bit)

- IBM i 6.1 POWER System (32- and 64-bit)
- SUSE Linux Enterprise Desktop (SLED) 10.0 SP3 x86-64 (64-bit) - clients only
- SUSE Linux Enterprise Desktop (SLED) 10.0 SP3 x86-32 (32-bit) - clients only
- Red Hat Enterprise Linux (RHEL) 5.0 Update 6 Advanced Platform POWER System (64-bit)
- Red Hat Enterprise Linux (RHEL) 5.0 Update 6 Desktop editions x86-64 (32-bit)
- SUSE Linux Enterprise Server (SLES) 10.0 SP3 x86-64 (32- and 64-bit)
- Red Hat Enterprise Linux (RHEL) 5.0 Update 6 Advanced Platform x86-64 (32-bit)
- SUSE Linux Enterprise Server (SLES) 10.0 SP3 x86-32 (32-bit)
- Red Hat Enterprise Linux (RHEL) 5.0 Update 6 Advanced Platform System z (31-bit)
- SUSE Linux Enterprise Server (SLES) 10.0 SP3 POWER System (32- and 64-bit)
- Red Hat Enterprise Linux (RHEL) 5.0 Update 6 Advanced Platform x86-32 (32-bit)
- SUSE Linux Enterprise Server (SLES) 10.0 SP3 System z (31- and 64-bit)
- Red Hat Enterprise Linux (RHEL) 5.0 Update 6 Desktop editions x86-32 (32-bit)
- SUSE Linux Enterprise Desktop (SLED) 11.0 x86-32 (32-bit)
- Asianux Linux 3.0 x86-64 (64-bit)
- Asianux Linux 3.0 x86-32 (32-bit)
- SUSE Linux Enterprise Desktop (SLED) 11.0 x86-64 (32-bit) - clients only
- SUSE Linux Enterprise Server (SLES) 11.0 x86-64 (32- and 64-bit)
- SUSE Linux Enterprise Server (SLES) 11.0 x86-32 (32-bit)
- SUSE Linux Enterprise Server (SLES) 11.0 System z (64-bit)
- SUSE Linux Enterprise Server (SLES) 11.0 POWER System (64-bit)
- Red Hat Enterprise Linux (RHEL) 6.0 AS/ES x86-64 (32, 64-bit)
- Red Hat Enterprise Linux (RHEL) 6.0 AS/ES x86-32 (32-bit)
- Red Hat Enterprise Linux (RHEL) 6.0 AS/ES System z (64-bit)
- Red Hat Enterprise Linux (RHEL) 6.0 AS/ES POWER System (64-bit)
- Solaris 10 x86-64 (64-bit)
- Solaris 10 SPARC (32-, 64-bit)
- Windows Server 2008 R2 Standard Edition x86-64 (32- and 64-bit)
- Windows Server 2008 R2 Enterprise Edition x86-64 (32- and 64-bit)
- Windows Server 2008 R2 Datacenter Edition x86-64 (32- and 64-bit)
- Windows 7 Ultimate x86-64 (32-bit)<sup>1</sup>
- Windows 7 Ultimate x86-32 (32-bit)<sup>1</sup>
- Windows 7 Enterprise x86-64 (32-bit)<sup>1</sup>
- Windows 7 Enterprise x86-32 (32-bit)<sup>1</sup>
- Windows 7 Professional x86-64 (32-bit)<sup>1</sup>
- Windows 7 Professional x86-32 (32-bit)<sup>1</sup>
- Windows Server 2003 R2 SP2 Enterprise Edition x86-64 (32- and 64-bit)<sup>2</sup>
- Windows Server 2003 R2 SP2 Standard Edition x86-32 (32-bit)<sup>2</sup>
- Windows Server 2008 Enterprise Edition x86-64 (32- and 64-bit)
- Windows Server 2003 R2 SP2 Standard Edition x86-64 ( 32- and 64-bit)<sup>2</sup>
- Windows Server 2008 Datacenter Edition x86-64 (32- and 64-bit)
- Windows Server 2003 SP2 Datacenter Edition x86-32 (32-bit)<sup>2</sup>
- Windows Server 2008 Standard Edition x86-64 (32-, 64-bit)
- Windows Server 2003 R2 SP2 Datacenter Edition x86-64 (32-and 64-bit)<sup>2</sup>
- Windows Server 2008 Datacenter Edition x86-32 (32-bit)

- Windows XP SP3 Professional x86-64 (32-bit) (3)
- Windows Server 2008 Enterprise Edition x86-32 (32-bit)
- Windows Server 2003 SP2 Enterprise Edition x86-32 (32-bit)<sup>2</sup>
- Windows Server 2008 Standard Edition x86-32 (32-bit)
- Windows XP SP3 Professional x86-32 (32-bit)<sup>3</sup>
- Windows Vista Ultimate x86-32 (32-bit)<sup>1</sup>
- Windows Server 2003 R2 SP2 Datacenter Edition x86-32 (32-bit)<sup>2</sup>
- Windows Vista Enterprise x86-32 (32-bit)<sup>1</sup>
- Windows Server 2003 SP2 Datacenter Edition x86-64 (32- and 64-bit)<sup>2</sup>
- Windows Vista Business x86-32 (32-bit)<sup>1</sup>
- Windows Server 2003 SP2 Standard Edition x86-32 (32-bit)<sup>2</sup>
- Windows Server 2003 SP2 Standard Edition x86-64 (32- and 64-bit)<sup>2</sup>
- Windows Server 2003 R2 SP2 Enterprise Edition x86-32 (32-bit)<sup>2</sup>
- Windows Server 2003 SP2 Enterprise Edition x86-64 (32- and 64-bit)<sup>2</sup>

## Notes

- 1** Supported on Client. Server supported for application design, development and testing; no support for production use.
- 2** Customers are responsible for securing separate support for this operating system from Microsoft should IBM Support believe that the behavior of Microsoft Windows Server 2003 is contributing to the reported problem.
- 3** Supported on Client. Server supported for application design, development and testing; no support for production use. Customers are responsible for securing separate support for this operating system from Microsoft should IBM Support believe that the behavior of Microsoft Windows XP is contributing to the reported problem.
- Supported on Client. Server supported for application design, development and testing; no support for production use.

WebSphere Application Server - Express is only supported on 32-bit systems

## Supported databases

- DB2 Enterprise Server Edition 9.1 and future releases, modification levels, and fix packs
- DB2 for i5/OS V5R4 and future releases, modification levels, and fix packs
- DB2 for i V6.1 and future releases, modification levels, and fix packs
- DB2 UDB for z/OS V8.1 and future releases, modification levels, and fix packs
- IBM Informix Dynamic Server Express Edition V11.10 and future releases, modification levels, and fix packs
- Microsoft SQL Server Enterprise Edition 2005 SP3 and future releases, modification levels, and fix packs
- Sybase Adaptive Server Enterprise 15.0.3 and future releases, modification levels, and fix packs
- Oracle Database 11g Standard/Enterprise Editions Release 1 and future releases, modification levels, and fix packs
- Oracle Database 10g Standard/Enterprise Editions Release 1 and future releases, modification levels, and fix packs
- IBM Derby SDK 10.5 and future releases, modification levels, and fix packs
- Microsoft SQL Server 2008 and future releases, modification levels, and fix packs
- DB2 9 for z/OS V9.1 and future releases, modification levels, and fix packs

## **Supported JDBC drivers**

- IBM Data Server Driver for JDBC and SQL4J 4.1.1 and future fix packs
- DB2 Connect™ Personal Edition 9.1 and future releases, modification levels and fix packs
- DB2 Driver for JDBC and SQLJ (type 2/4) 3.4.65
- IBM OS/400® Native JDBC (XA) Driver any
- IBM Toolbox for Java/JTOpen JDBC Driver 6.0 (Type 4)
- Informix JDBC 3.10.JCL and future modification levels and their fix packs
- Oracle JDBC Driver (XA) 11g 11.1 and future fix packs
- Sybase jConnect (type 4) 6.05 EBF 14466
- DataDirect Connect for JDBC 4.1 and future releases, modification levels, and fix packs
- IBM DB2 Universal JDBC Provider from DB2 z/OS Version and future releases, modification levels, and fix packs
- IBM Derby SDK 10.5 and future releases, modification levels, and fix packs
- Microsoft SQL Server JDBC Driver 2.0 and future releases, modification levels, and fix packs
- Microsoft SQL Server JDBC Driver 3.0 and future releases, modification levels, and fix packs
- IBM Data Server Driver for JDBC and SQLJ 3.51 and future fix packs

## **JMS providers**

- WebSphere MQ for z/OS V6.0
- WebSphere MQ V6.0.2
- WebSphere MQ V7.0
- WebSphere MQ for z/OS V7.0

## **LDAP Servers using Federated Repository Configuration**

- IBM Lotus® Domino LDAP Server V7.0 and future releases, modification levels, and fix packs
- IBM Tivoli Directory Server V6.0 and future releases, modification levels, and fix packs
- Sun Java System Directory Server V6.0
- Microsoft Active Directory 2003 and future releases, modification levels, and fix packs
- Novell eDirectory 8.7.3 SP9 and future releases, modification levels, and fix packs
- IBM z/OS Integrated Security Services V1.8 and future releases, modification levels, and fix packs
- IBM z/OS.e Integrated Security Services V1.8 and future releases, modification levels, and fix packs

## **LDAP Servers using Stand Alone LDAP Registry Configuration**

- Microsoft Active Directory Application Mode (ADAM) 1.0 SP1 and future releases, modification levels, and fix packs
- IBM z/OS.e Integrated Security Services V1.8 and future releases, modification levels, and fix packs
- IBM z/OS Integrated Security Services V1.8 and future releases, modification levels, and fix packs
- Novell eDirectory 8.7.3 SP9 and future releases, modification levels, and fix packs
- Microsoft Active Directory 2003 and future releases, modification levels, and fix packs

- Sun Java System Directory Server 6.0
- IBM Tivoli Directory Server V6.0 and future releases, modification levels, and fix packs
- IBM Lotus Domino LDAP Server V7.0 and future releases, modification levels, and fix packs

## **Security**

- IBM Tivoli Access Manager for e-business V6.0
- IBM Tivoli Access Manager for e-business V6.1

## **Virtualization**

- VMware ESXi V4.0 and future releases, modification levels, and fix packs
- IBM z/VM® Hypervisor V6.1 and future releases, modification levels, and fix packs
- IBM PR/SM™ any version and future releases, modification levels, and fix packs
- IBM PowerVM™ Hypervisor (LPAR, DPAR, Micro-Partition) any supported version
- Live Application Mobility (LAM) for Workload Partition (WPAR) AIX V6.1 and future releases, modification levels, and fix packs
- Application Workload Partition (WPAR) AIX V6.1 and future releases, modification levels, and fix packs
- VMware ESX V4.0 and future releases, modification levels, and fix packs

For more information on WebSphere Application Server V8.0, visit

<http://www.ibm.com/support/docview.wss?rs=180&uid=swg27006921>

The program's specifications and specified operating environment information may be found in documentation accompanying the program, if available, such as a README file, or other information published by IBM, such as an announcement letter. Documentation and other program content may be supplied only in the English language.

## **Planning information**

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### **Standby or backup systems**

For programs running or resident on backup machines, IBM defines three types of situations: cold, warm, and hot. In the cold and warm situations, a separate entitlement for the copy on the backup machine is normally not required and typically no additional charge applies. In a hot backup situation, the customer needs to acquire another license or entitlements sufficient for that server. All programs running in backup mode must be solely under the customer's control, even if they are running at another enterprise's location.

As a practice, the following are definitions and allowable actions concerning the copy of the program used for backup purposes:

#### **Cold**

A copy of the program may reside, for backup purposes, on a machine as long as the program is not started. There is no additional charge for this copy.

#### **Warm**

A copy of the program may reside for backup purposes on a machine and is started, but is idling, and is not doing any work of any kind. There is no additional charge for this copy.

#### **Hot**

A copy of the program may reside for backup purposes on a machine, is started, and is doing work. The customer must acquire a license or entitlements for this copy and there will generally be an additional charge.

Doing work, includes, for example, production, development, program maintenance, and testing. It also could include other activities such as mirroring of transactions, updating of files, synchronization of programs, data or other resources (for example, active linking with another machine, program, database, or other resource, and so on), or any activity or configurations that would allow an active hot switch or other synchronized switch over between programs, databases, or other resources to occur.

In the case of a program or system configuration that is designed to support a high-availability environment by using various techniques (for example, duplexing, mirroring of files or transactions, maintaining a "heartbeat," active linking with another machine, program, database, or other resource, and so on), the program is considered to be doing work in the hot situation and a license or entitlement must be purchased.

### **Non-IBM WebSphere back end servers**

**Edge Components:** Users seeking to use Edge Components with non-IBM WebSphere back-end servers may be entitled to warranty support for such usage, provided the problem is common to both the IBM WebSphere and non-IBM WebSphere back-end servers or, if otherwise, you agree to recreate the problem in an IBM WebSphere Application Server environment.

**Proxy Server Components:** Users seeking to use Proxy Server components and DMZ Secure Proxy Server components with non-IBM WebSphere back-end servers may be entitled to warranty support for such usage provided the problem is common to both the IBM WebSphere and non-IBM WebSphere back-end servers or, if otherwise, you agree to recreate the problem in an IBM WebSphere Application Server environment.

### **WebSphere Application Server Express planning information**

#### **Processor Value Unit (PVU) license**

The maximum allowed PVU capacity on a single server is cited in the URL listed below. At this time the maximum is 480 PVUs. WebSphere Application Server Express is eligible for Virtual Capacity Licensing, so a virtual partition(s) of up to 480 PVUs could be allocated on a physical server with greater than 480 PVU capacity to enable use of WebSphere Application Server Express on that physical server. Server capacity available to WebSphere Application Server Express on any one physical server cannot exceed the PVU maximum cited in the URL below. WebSphere Application Server Express PVU licenses can be utilized on any number of servers.

<ftp://ftp.software.ibm.com/software/smb/pdfs/LicensingGuide.pdf>

#### **Twenty Intranet User License**

Intranet Users licenses are acquired in packs of 20 Authorized (named) users and those users are authorized to that specific WebSphere Application Server Express server. The server maximum PVU capacity considerations above apply to WebSphere Application Server Express implementations acquired via Intranet User licenses. Multiple Intranet User packs can be purchased for a single server to increase the server capacity beyond 20 Authorized Users. However, there is a limitation of a single WebSphere Application Server Express server acquired via the Intranet User option per customer location.

#### **Java Support on IBM i**

The IBM Java Developer Kit for IBM i is no longer supported by IBM i V7.1. It is replaced by IBM Technology for Java Virtual Machine for IBM i V6.1 and IBM i V7.1. As a result, WebSphere Application Server V8.0 will support IBM Technology for Java Virtual Machine for IBM i systems and will no longer support IBM Java Developer Kit for IBM i.

## **Assembly and Deploy Tooling**

IBM Assembly and Deploy Tools for WebSphere Administration is provided with WebSphere Application Server to rapidly assemble and deploy applications to WebSphere Application Server environments. These tools replace the previously available IBM Rational Application Developer Assembly and Deploy function and are restricted to assembly and deployment usage only.

## **World Type Fonts**

The World Type Fonts package has been removed from WebSphere Application Server V8.0 as this font package is no longer required to support a WebSphere Application Server deployment. The World Type Fonts package was initially included with WebSphere Application Server when the administrative console was a thick client application prior to WebSphere Application Server V5.0. The administrative console has been a browser-based web application since WebSphere Application Server V5.0. The font support within a supported web browser renders the World Type Fonts package unnecessary for the administrative console to function as designed.

## ***Direct customer support***

For technical support or assistance, contact your IBM representative or visit

<http://www.ibm.com/support>

or contact your IBM representative for additional assistance at 1-800-IBM-SERV (800-42p.7378), option #2 for software.

The IBM Rational Application Developer Standard Edition (RAD SE) trial product is delivered on DVD. It is intended for deployment on distributed (non-z/OS) systems. This application is provided as a trial program only. The website below describes trial support for RAD SE. Visit

<http://www.ibm.com/developerworks/downloads/r/rad/>

## ***Packaging***

WebSphere Application Server V8.0 contents

- Quick Start
- WebSphere Application Server V8.0
- WebSphere Application Server Supplements V8.0
- IBM Rational Agent Controller V8.3.3
- IBM Tivoli Directory Server V6.3
- IBM Tivoli Access Manager for e-business V6.1.1
- DB2 Workgroup Server Edition Limited Use V9.7
- DB2 Enterprise Server Edition Limited Use for zlinux V9.7
- IBM Rational Application Developer Standard Edition for WebSphere Software V8.0.3 Trial
- IBM Assembly and Deploy Tools for WebSphere Administration V8.0.3
- WebSphere Adapters V7.5
- IBM Installation Manager V1.4.3
- Mozilla Firefox V3.5.8 (AIX 64-bit)

WebSphere Application Server - Express V8.0 contents

- Quick Start
- WebSphere Application Server - Express V8.0
- WebSphere Application Server Supplements V8.0

- IBM Business Solutions V5.2
- IBM Rational Agent Controller V8.3.3
- IBM Tivoli Directory Server V6.3
- DB2 Workgroup Server Edition Limited Use V9.7
- DB2 Enterprise Server Edition Limited Use for zlinux V9.7
- IBM Rational Application Developer Standard Edition for WebSphere Software V8.0.3 Trial
- IBM Assembly and Deploy Tools for WebSphere Administration V8.0.3
- WebSphere Adapters V7.5
- IBM Installation Manager V1.4.3

#### WebSphere Application Server for Developers V8.0 contents

- Quick Start
- WebSphere Application Server for Developers V8.0
- WebSphere Application Server Supplements V8.0
- IBM Rational Agent Controller V8.3.3
- IBM Tivoli Access Manager for e-business V6.1.1
- DB2 Workgroup Server Edition Limited Use V9.7
- DB2 Enterprise Server Edition Limited Use for zlinux V9.7
- IBM Rational Application Developer Standard Edition for WebSphere Software V8.0.3 Trial
- IBM Assembly and Deploy Tools for WebSphere Administration V8.0.3
- WebSphere Adapters V7.5
- IBM Installation Manager V1.4.3
- IBM Tivoli Directory Server V6.3
- Mozilla Firefox V3.5.8 (AIX 64-bit)

#### WebSphere Application Server Network Deployment V8.0 contents

- Quick Start
- WebSphere Application Server Network Deployment V8.0
- WebSphere Application Server Supplements V8.0
- IBM DZM Secure Proxy Server V8.0
- IBM WebSphere Edge Components: Load Balancer for IPv4 and IPv6 V8.0
- IBM Rational Agent Controller V8.3.3
- IBM Tivoli Directory Server V6.3
- IBM Tivoli Access Manager for e-business V6.1.1
- DB2 Workgroup Server Edition Limited Use V9.7
- DB2 Enterprise Server Edition Limited Use for zlinux V9.7
- IBM Rational Application Development Standard Edition for WebSphere Software V8.0.3 Trial
- IBM Assembly and Deploy Tools for WebSphere Administration V8.0.3
- WebSphere Adapters V7.5
- IBM Installation Manager V1.4.3
- Mozilla Firefox V3.5.8 (AIX 64-bit)

This program, when downloaded from a Web site, contains the applicable IBM license agreement and License Information, if appropriate, and will be presented for acceptance at the time of installation of the program. For future reference, the license and License Information will be stored in a directory such as LICENSE.TXT.



## Security, auditability, and control

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WebSphere Application Server V8.0 provides automated authorization checking and a strong security implementation for authentication and authorization. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

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## Software Services

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IBM Software Services has the breadth, depth, and reach to manage your services needs. You can leverage the deep technical skills of our lab-based, software services team and the business consulting, project management, and infrastructure expertise of our IBM Global Services team. Also, we extend our IBM Software Services reach through IBM Business Partners to provide an extensive portfolio of capabilities. Together, we provide the global reach, intellectual capital, industry insight, and technology leadership to support a wide range of critical business needs.

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## Ordering information

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Product name / title	Product group	Product category
WebSphere Application Server	Application Integration Middleware	WebSphere
WebSphere Application Server Network Deployment	Application Integration Middleware other	Application Integration Middleware other
WebSphere Application Server for Developers	Application Integration Middleware other	Application Integration Middleware other
WebSphere Application Server - Express	Application Integration Middleware	WebSphere
WebSphere Application Server - Express Developer	Application Integration Middleware	WebSphere
WebSphere Application Server - Express Intranet Option	Application Integration Middleware	WebSphere

### Charge metric

Program name	PID number	Charge metric
WebSphere Application Server	5724-J08	Processor Value Unit (PVU)
WebSphere Application Server	5724-J08	Limited Use Socket
WebSphere Application Server	5724-J08	Processor Day
WebSphere Application Server Network Deployment	5724-H88	PVU

WebSphere Application Server Network Deployment	5724-H88	Processor Day
WebSphere Application Server for Developers	5724-H89	Authorized User
WebSphere Application Server - Express	5724-I63	PVU
WebSphere Application Server - Express	5724-I63	Processor Day
WebSphere Application Server - Express Developer	5724-I63	Authorized User
WebSphere Application Server - Express Intranet Option	5724-I63	20 Authorized Users

### Authorized User

Authorized User is a unit of measure by which the program can be licensed. An Authorized User is a unique person who is given access to the program. The program may be installed on any number of computers or servers and each Authorized User may have simultaneous access to any number of instances of the program at one time. Licensee must obtain separate, dedicated entitlements for each Authorized User accessing the program in any manner directly or indirectly (for example: via a multiplexing program, device, or application server) through any means. An entitlement for an Authorized User is unique to that Authorized User and may not be shared, nor may it be reassigned other than for the permanent transfer of the Authorized User entitlement to another person.

**Note:** Some programs may be licensed where devices are considered users. In that case the following applies: Any computing device that requests the execution of or receives for execution a set of commands, procedures, or applications from the program or that is otherwise managed by the program is considered a separate User of the program and requires an entitlement as if that device were a person.

### Processor Value Unit

Processor Value Unit (PVU) is a unit of measure by which the program can be licensed. The number of processors made available to the program and the number PVU entitlements required is based on the processor technology (defined within the PVU Table by Processor Value, Brand, Type and Model Number at

[http://www.ibm.com/software/lotus/passportadvantage/pvu\\_licensing\\_for\\_customers.html](http://www.ibm.com/software/lotus/passportadvantage/pvu_licensing_for_customers.html)

IBM continues to define a processor, for the purpose of PVU-based licensing, to be each processor core on a chip. A dual-core processor chip, for example, has two processor cores.

Licensee can deploy the program using either Full Capacity licensing or Virtualization Capacity (Sub-Capacity) licensing according to the Passport Advantage Sub-Capacity Licensing Terms (see webpage below). If using Full Capacity licensing, Licensee must obtain PVU entitlements sufficient to cover all activated processor cores\* in the physical hardware environment made available to or managed by the program, except for those servers from which the program has been permanently removed. If using Virtualization Capacity licensing, Licensee must obtain entitlements sufficient to cover all activated processor cores made available to or managed by the program, as defined according to the Virtualization Capacity License Counting Rules at

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\* An Activated processor core is a processor core that is available for use in a physical or virtual server, regardless of whether the capacity of the processor

core can be or is limited through virtualization technologies, operating system commands, BIOS settings, or similar restrictions.

## Notes

Some programs may require licenses for the program AND what is being managed. In that case, the following applies: In addition to the entitlements required for the program directly, Licensee must obtain PVU entitlements for this program sufficient to cover the processor cores managed by the program.

Some programs may be licensed on a managed basis ONLY. In that case, the following applies: Instead of the entitlements required for the program directly, Licensee must obtain PVU entitlements for this program sufficient to cover the processor cores managed by the program.

A few programs on an exception basis may be licensed on a referenced basis. In that case, the following applies: Rather than obtaining entitlements for the activated processor cores available to the program, Licensee must obtain PVU entitlements for this program sufficient to cover the environment made available to the Referenced program as if the program itself were executing everywhere the Referenced program was executing, independent of the basis on which the Referenced program is licensed.

Express and Workgroup programs may be licensed with maximum use terms. In that case, the following applies: The maximum authorized use terms and conditions for PVU licensed IBM Express and Middleware programs can be found in the *IBM Express and Middleware Licensing Guide*.

## Limited Use Socket

Limited Use Socket (LU Socket) is a unit of measure by which the program can be licensed. A Limited Use Socket is an electronic circuitry that accepts a processor chip that meets the maximum processor cores per socket authorized use terms and conditions in the *IBM Express and Middleware Licensing Guide* at

<ftp://ftp.software.ibm.com/software/smb/pdfs/LicensingGuide.pdf>

If the program is eligible for sub-capacity licensing, Licensee may be permitted to license less than all Sockets on the Server. Sub-capacity licensing terms, conditions and eligibility requirements for LU Socket-licensed programs are described in the *Sub-capacity Guide* at

<ftp://ftp.software.ibm.com/software/smb/pdfs/SubcapacityGuide.pdf>

If Licensee's use of the program is not eligible for sub-capacity licensing based on these terms and conditions, Licensee must acquire LU Socket entitlements for all Sockets on the Server on which the program is installed. The LU Socket entitlements are specific to the program and may not be exchanged, interchanged, or aggregated with LU Socket entitlements of another software program.

## Passport Advantage

Program name/Description	Part number
webSphere Application Server	
Per Processor Value Unit	
License + SW Subscription & Support 12 Months	D55W8LL
Annual SW Subscription & Support Renewal	E025QLL
SW Subscription & Support Reinstatement 12 Months	D55W9LL
webSphere Application Server	
Per Limited Use Socket	
License + SW Subscription & Support 12 Months	D0GUSLL
Annual SW Subscription & Support Renewal	E0AT3LL
SW Subscription & Support Reinstatement 12 Months	D0GUULL

## WebSphere Application Server for Developers

### Per Authorized User

License + SW Subscription & Support 12 Months	D51JXLL
Annual SW Subscription & Support Renewal	E00HHLL
SW Subscription & Support Reinstatement 12 Months	D51JZLL

## WebSphere Application Server Network Deployment

### Per Processor Value Unit

License + SW Subscription & Support 12 Months	D55WJLL
Annual SW Subscription & Support Renewal	E025SLL
SW Subscription & Support Reinstatement 12 Months	D55WKLL

## WebSphere Application Server - Express

### Per Processor Value Unit

License + SW Subscription & Support 12 Months	D582CLL
Annual SW Subscription & Support Renewal	E02HKLL
SW Subscription & Support Reinstatement 12 Months	D582DLL

## WebSphere Application Server - Express Developer

### Per Authorized User

License + SW Subscription & Support 12 Months	D522PLL
Annual SW Subscription & Support Renewal	E00MQLL
SW Subscription & Support Reinstatement 12 Months	D522RLL

## WebSphere Application Server - Express Intranet Option

### Per 20 Authorized Users

License + SW Subscription & Support 12 Months	D522LLL
Annual SW Subscription & Support Renewal	E00MPLL
SW Subscription & Support Reinstatement 12 Months	D522NLL

## Passport Advantage trade-up

Below is a list of precursor products for which you must have already acquired a license, in order to be eligible to acquire equivalent licenses using the trade-up part numbers.

Precursor product	Trade-up product	Trade-up part number
WebSphere Application Server 100 Processor Value Units	WebSphere Application Server per Limited Use Socket Trade-up License + SW S&S 12 Mo	D0GUWLL
WebSphere Application Server 100 Processor Value Units Linux on System z	WebSphere Application Server per Limited Use Socket Linux on System z Trade-up License + SW S&S 12 Mo	D0GUYLL
Qualified Competitor	WebSphere Application Server Processor Value Unit Trade-up License + SW S&S 12 Mo	D55WDLL
WebSphere Application Server - Express	WebSphere Application Server Processor Value Unit Trade-up License + SW S&S 12 Mo	D55WBLL
WebSphere Application Server Standard Server	WebSphere Application Server Processor Value Unit Trade-up License + SW S&S 12 Mo	D55WALL

Qualified Competitor	WebSphere Application Server Processor Value Unit, zEnterprise BladeCenter Extension (zBX) Linux on System z Trade-up License + SW S&S 12 Mo	D55WILL
WebSphere Application Server - Express	WebSphere Application Server Processor Value Unit, zEnterprise BladeCenter Extension (zBX) Linux on System z Trade-up License + SW S&S 12 Mo	D55WHLL
WebSphere Application Server Standard Server	WebSphere Application Server Processor Value Unit, zEnterprise BladeCenter Extension (zBX) Linux on System z Trade-up License + SW S&S 12 Mo	D55WGLL
Qualified Competitor	WebSphere Application Server Network Deployment Processor Value Unit Trade-up License + SW S&S 12 Mo	D55WLLL
WebSphere Application Server Advanced Single Server	WebSphere Application Server Network Deployment Processor Value Unit Trade-up License + SW S&S 12 Mo	D55WMLL
WebSphere Application Server	WebSphere Application Server Network Deployment Processor Value Unit Trade-up License + SW S&S 12 Mo	D55WNLL
WebSphere Application Server Advanced Single Server	WebSphere Application Server Network Deployment Processor Value Unit Linux on System z Trade-up License + SW S&S 12 Mo	D55WSLL
Qualified Competitor	WebSphere Application Server Processor Value Unit, zEnterprise BladeCenter Extension (zBX) Linux on System z Trade-up License + SW S&S 12 Mo	D55WULL
WebSphere Application Server Linux on System z	WebSphere Application Server Processor Value Unit, zEnterprise BladeCenter Extension (zBX) Linux on System z Trade-up License + SW S&S 12 Mo	D55WTLL
Qualified Competitor	WebSphere Application Server - Express Processor Value Unit Trade-up License + SW S&S 12 Mo	D582FLL
WebSphere Application Server - Express 20 Intranet Users	WebSphere Application Server - Express Processor Value Unit Trade-up License + SW S&S 12 Mo	D582ELL

Consult your IBM representative if you have any questions.

## Passport Advantage customer: Media pack entitlement details

Customers with active maintenance or subscription for the products listed are entitled to receive the corresponding media pack.

Media packs description	Part number
WebSphere Application Server V8.0 for Multiplatforms Multilingual DVD Media Pack	BA0ZUML
WebSphere Application Server Network Deployment V8.0 for Multiplatforms Multilingual DVD Media Pack	BA0ZWML
WebSphere Application Server - Express V8.0 for Multiplatforms Multilingual DVD Media Pack	BA0ZVML
WebSphere Application Server for Developers V8.0 for Multiplatforms Multilingual DVD Media Pack	BA112ML

## Cross-platform product for use on System z Integrated Facility for Linux (IFL) engines

Order the part numbers that follow when the product is intended to run on the Linux operating system on System z IFL engines. If the product is not intended to run on the Linux operating system on System z IFL engines, order from the other set of part numbers in this announcement. This set of part numbers provides the identical supply and authorization as the other set in this announcement.

Program name/Description	Part number
WebSphere Application Server	
Per Limited User Socket	
Linux on System z License + SW S&S 12 Months	D0GUTLL
Linux on System z Annual SW S&S Renewal	E0AT4LL
Linux on System z SW S&S Reinstate 12 Months	D0GUVLL
WebSphere Application Server	
Per Processor Value Unit, zEnterprise BladeCenter Extension (zBX)	
Linux on System z License + SW S&S 12 Months	D55WELL
Linux on System z Annual SW S&S Renewal	E025RLL
Linux on System z SW S&S Reinstate 12 Months	D55WFLL
WebSphere Application Server Network Deployment	
Per Processor Value Unit, zEnterprise BladeCenter Extension (zBX)	
Linux on System z License + SW S&S 12 Months	D55WQLL
Linux on System z Annual SW S&S Renewal	E025TLL
Linux on System z SW S&S Reinstate 12 Months	D55WRLL

## On/Off Capacity on Demand (CoD)

Part number	Description
ASQQ3LL	WebSphere Application Server Processor Day On/Off CoD Temporary Use Charge
ASQJ8LL	WebSphere Application Server Network Deployment Processor Day On/Off CoD Temporary Use Charge
ASQR9LL	WebSphere Application Server - Express Processor Day On/Off CoD Temporary Use Charge

## **Processor Value Unit (PVU) sub-capacity licensing**

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For information regarding PVU sub-capacity licensing, including terms and IBM License Metric Tool ordering information, visit

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### ***License Information form number***

License Information form numbers:

- WebSphere Application Server V8.0 L-EBAN-8DDR5N
- WebSphere Application Server Express V8.0 L-EBAN-8DDRSK
- WebSphere Application Server Network Deployment V8.0 L-EBAN-8DDREP
- WebSphere Application Server for Developers V8.0 L-EBAN-8DDR5N

The program's License Information will be available for review on the IBM Software License Agreement website

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***Limited warranty applies***

Yes

***Limited warranty***

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***Volume orders (IVO)***

No

***Passport Advantage applies***

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No

**Other support**

Passport Advantage

**System i Software Maintenance applies**

No

**Variable charges apply**

No

**Educational allowance available**

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- Linux running in an LPAR under AIX 5L V5.1, OS/400 V5R1, or in a partition on an equivalent partition-capable operating system and server

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- Install available updates to the operating system and eligible products such that license use can be accurately managed.
- Determine if the use of sub-capacity pricing terms results in a reduced requirement for entitlements; you can reallocate the entitlement difference by distributing entitlements across a larger or different set of systems, or reserve them for future growth. There will be no refunds for these freed up entitlements. Subscription, Software Maintenance and support volumes, and entitlements for existing contracts will continue at the same levels as the acquired licenses.

### **On/Off Capacity on Demand (CoD)**

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## **Prices**

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