



# IBM WebSphere Application Server V9.0 delivers the next-generation application infrastructure for modern applications to support seamless portability across hybrid cloud landscapes

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## At a glance

WebSphere<sup>®</sup> Application Server V9.0, with its traditional and Liberty run times, continues to offer industry-leading, production-ready, standards-based Java<sup>™</sup> EE 7 compliant architecture.

Highlights of Version 9.0 include:

- Certification to the Java EE 7 Web Profile and Java EE 7 Full Platform for WebSphere Application Server traditional, which provides assurance that applications leverage standards-compliant programming models. WebSphere Liberty was certified to Java EE 7 Web Profile and Full Platform in June, 2015, with the release of Liberty V8.5.5.6.
- Ease of connecting existing on-premises applications with Bluemix<sup>®</sup> services, which include IBM Watson<sup>™</sup> cognitive for optimal business outcomes.
- Enhanced support for creating, documenting, and discovering APIs, and also integrating with API platforms, such as IBM API Connect<sup>™</sup>.
- Significant improvements in software delivery lifecycle times through seamless integration into DevOps workflows. This enables continuous delivery and removes cross-team dependencies for deployment.
- Accelerated pace of development and deployment by taking advantage of container technology that includes IBM<sup>®</sup> Container Services and Docker container with support for Docker Data Center. This enables seamless deployment of WebSphere applications to best meet business needs.
- Increased flexibility to deploy WebSphere Application Server workloads with speed and agility on Pivotal Cloud Foundry, Amazon Web Services, Microsoft<sup>™</sup> Azure, and Openshift, in addition to IBM Bluemix.
- New WebSphere Application Server on Bluemix, single-tenant offering, which provides an option for deploying WebSphere Application Server applications on an isolated, single-tenant hardware.
- New option to enable VMware customers to quickly provision new or scale existing workloads to the IBM Cloud. This enables clients who start locally and scale globally with cloud capabilities to scale more easily and also comply with data residency and other regulatory mandates.
- Updated WebSphere Extreme Scale that provides ease-of-use enhancements for caching to help improve response times for the most demanding applications and dramatically speed configurations.

- Use of Liberty App Accelerator to provide a quick start development of Java microservices. Spring Boot, Watson™ services, and other technologies can be used with Liberty App Accelerator to easily deploy projects to Bluemix.
- Best practices for creating new Java microservices by using Game On!, an exemplar application, which helps explore microservices concepts.

WebSphere Application Server V9.0 continues to offer the leading, open-standards-based application foundation for traditional workloads and also modern applications that tend to be delivered as services. It enables accelerated delivery of innovative applications with unmatched operational efficiency, reliability, administration, security, and control.

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## Overview

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Social, mobile, analytics, and cloud technologies accelerate the pace of business. Software is now a key driver of differentiation and innovation, and also a gateway to new services; revenue streams; seamless, omni-channel customer experiences; and expansion into new markets. But success in the new era depends on how enterprises transform IT to bring increased agility and speed to their existing business. As enterprise IT is called upon to implement business strategy to enter new markets, reach new customers, and drive competitive differentiation, IT needs a new way to build software that is faster, more flexible, and more composable. It also requires reusable components that allow for rapid assembly of applications in support of dynamic business needs. This approach requires an application platform that offers modular architectures, next-generation integration techniques, a cloud-first, mobile-first mindset and seamless portability across a hybrid landscape.

WebSphere Application Server, with its traditional and Liberty runtimes, offers industry-leading, production-ready, standards-based Java EE 7 compliant architectures that support the API Economy and underpin business transformation. Additional features and enhancements to WebSphere Application Server offer an ideal infrastructure that is well-suited for enterprise IT, upon which businesses can deliver composable applications. This allows secure, flexible, and efficient access to internal or external software components and services. Other enhancements provide ease-of-integrating WebSphere runtimes in the DevOps workflows for continuous integration and continuous delivery. IBM Cloud Services and Docker container support for seamless deployment to hybrid topologies and an ever growing tool chain of eco-system products further accelerate the pace of development and deployment.

- Java EE 7 Web Profile and Full Platform certification of WebSphere Application Server traditional brings the traditional runtime to the same Java EE level as the Liberty runtime. This supports deployment of any Java EE 7 based application that uses the latest industry standards for on-premises or in the cloud. It enables you to easily exploit HTML 5 to:
  - Improve application responsiveness.
  - Increase developer productivity.
  - Help to meet the most demanding enterprise requirements.
- Java Platform, Standard Edition 8 (Java SE 8) support for WebSphere Application Server V9.0 traditional and WebSphere Liberty deliver enhanced developer productivity and significant application performance improvements.
- Docker container and Docker Data Center support accelerate delivery of modern applications with easier integration of WebSphere Application Server into your DevOps tools chain. Use of WebSphere Application Server with Docker Data Center enables seamless portability to deliver applications from development to test to production across a hybrid landscape, and supports the management of WebSphere Application Server Docker containers as part of a broader Docker-centric ecosystem.
- Updated Docker images with the latest WebSphere Application Server Liberty binaries accelerate software deployment in hosts containing Docker engines.

- A new WebSphere Application Server on Bluemix- Single Tenant offering provides deployment flexibility to deploy applications on isolated single-tenant hardware, with an optional dedicated backend database connection to the client's data center. This option is also available for WebSphere Application Server V8.5.5.
- A single management interface for managing and administering WebSphere Application Server Liberty Java and StrongLoop<sup>®</sup> Node.js applications that are deployed across bare-metal, Virtual Machines (VMs), and Docker environments in on-premises, cloud, or hybrid topologies.
- Enhanced WebSphere eXtreme Scale provides an easy-to-configure, easy-to-deploy, distributed caching solution where speed and performance are the main drivers of business success.
- Easy-to-deploy WebSphere Liberty applications to OpenShift and Pivotal Cloud Foundry that run in SoftLayer<sup>®</sup>, Amazon Web Services (AWS), Microsoft Azure, and IBM Bluemix, in addition to on-premises environments and apply sub-capacity charging through suitable configurations.
- Enhanced portability option for VMware clients to take better advantage of the speed of the cloud and economics by enabling them to easily extend their existing workloads, as they are, from their on-premises, software-defined data center (SDDC) to the cloud. The solution takes advantage of jointly designed architecture by VMware and IBM to automatically provision pre-configured VMware SDDC environments, which consist of VMware vSphere, NSX, and Virtual SAN on the IBM Cloud. The VMware SDDC environment allows customers to deploy workloads into this hybrid cloud environment without modification because of common security and networking models that are based on VMware.

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## Key prerequisites

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Runs on various releases of AIX<sup>®</sup>, HP-UX, IBM iOS, Linux<sup>™</sup>, Solaris, Windows<sup>™</sup>, and Ubuntu operating systems. For details, refer to the [Technical information](#) section.

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## Planned availability date

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June 24, 2016

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## Description

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WebSphere Application Server is a proven, high-performance transactional runtime that can help you build, run, integrate, and manage dynamic business applications. WebSphere Application Server V9.0 now brings the latest in Java enterprise standards, Java EE 7 Web Profile and Java EE 7 Full Platform, to WebSphere Application Server traditional. It supports their deployment across the widest spectrum of container, virtualization, and cloud environments. WebSphere Application Server Liberty is already certified to Java EE 7 Web Profile and Java EE7 Full Platform.

With Version 9, you can deliver a broad range of applications, which support traditional workloads that favor Systems of Record (SOR) type applications or the modern workloads (also known as Systems of Engagement (SOE) applications) that are typically delivered as microservices. WebSphere Application Server V9 supports development and delivery of both these styles of applications by offering two standards-based server runtimes and tools in a single Version 9.0.0.0 offering:

- WebSphere Application Server traditional, previously known as full profile
- WebSphere Application Server Liberty V16.0.0.2

WebSphere Application Server Liberty V16.0.0.2 is also referred to as WebSphere Application Server Liberty Base V9.0.0.0. As stated on the [IBM Support](#) website, IBM has changed how it refers to the specific product level for Liberty. The version consists of the last two digits of the year and the number of the delivery

within that year. The next level after Version 8.5.5.9 is Version 16.0.0.2, and not Version 9.0.0.0 as would normally be expected. The next level after Version 16.0.0.2 is Version 16.0.0.3. This clarifies the IBM numbering system for versions of WebSphere Application Server Liberty and is applicable to all past, current, and future releases of WebSphere Application Server Liberty.

These two runtimes help you meet the demands of multi-speed IT. They provide the ability to rapidly develop new client-facing capabilities with Liberty, while maintaining the pace for traditional workloads with WebSphere Application Server traditional.

All WebSphere Application Server editions are built on a common server foundation that is designed to deliver the same Java EE and broad programming model support and transactional runtime. However, WebSphere Liberty is designed and optimized for fast-paced deployments of applications that deliver business value through continuous integration and delivery.

WebSphere Application Server V9.0 now enables applications that are deployed on WebSphere Application Server traditional in an on-premises environment to easily integrate with Watson cognitive cloud services, so every application can benefit from cognitive analytics in support of making optimal business decisions. WebSphere Application Server traditional and WebSphere Liberty continue to deliver the highest level of enterprise qualities of services required for the most demanding workloads, such as rock-solid security, high availability, reliability, and serviceability, a high-performance transaction engine, and intelligent management capabilities that minimize end-user outages and maximize operations.

WebSphere Application Server Liberty, while maintaining developer-friendly aspects, such as light weight, and fast startup, extends these capabilities through additional programming models and ease of integration with DevOps workflows that shorten the delivery lifecycle of modern applications.

### **Java EE 7 Web Profile and Full Platform certified runtime for WebSphere Application Server traditional**

Java EE 7 certification provides the following advantages to businesses:

- Extends the set of applications that can be rapidly developed on WebSphere Liberty for deployment to both WebSphere Application Server Liberty and WebSphere Application Server traditional.
- Provides scalable infrastructure that facilitates building HTML5 applications for improved responsiveness through low-latency, bidirectional communication with WebSockets. It simplifies data parsing and exchange by using industry-standard JSON processing and supports many more concurrent users through asynchronous RESTful Web Services with JAX-RS 2.0 client support.
- Increases developer productivity with simplified application architecture, reduced boiler-plate code using dependency injection and default resources, broadened use of annotations to increase efficiency, and enhanced application portability with standard RESTful Web Services client support
- Meets the most demanding enterprise requirements, such as:
  - Breaking down batch jobs into manageable chunks for uninterrupted OLTP performance
  - Defining multithreaded concurrent tasks easily for improved scalability
  - Improving Managed Beans alignment (including transactional interceptors)
  - Delivering transactional applications with choice and flexibility
- Improves usability through annotations and Contexts and Dependency Injection (CDI) Beans support and significantly reduces the code required to send and receive messages.

### **Accelerated development and deployment of Java microservices**

WebSphere Liberty provides starting points, rules of engagement, and tools to help users create net new Java microservices applications. Enhancements to WebSphere Liberty microservices offerings include:

- **Liberty App Accelerator.** Liberty App Accelerator is a service that is hosted on Bluemix that gives users a starting point to build java microservices applications by using WebSphere Liberty. It now has a fresh, new interface and provides developers with a menu-driven approach to create Java-based microservices by using different technologies. Liberty App Accelerator includes technology types, such as Spring Boot and Watson. The resultant project can be deployed locally or on Bluemix.
- **Game On!,** a microservices app from scratch. IBM provides best practices and methodologies for creating a brand new microservices application. Game On! is an exemplar application that helps users explore basic and advanced microservices concepts. Game On! now includes support for Logmet, LogStash, and apiDiscovery functions.
- **New microservice section on IBM Cloud Architecture Center.** The microservice section in the IBM Cloud Architecture Center, which is dedicated to exploring microservices, serves as a reference for users to leverage the IBM cloud that provides the runtime and services for deploying microservices applications that are resilient, agile, and scalable. In this site, users can explore and experiment with microservices architecture patterns and technologies by building services to extend Game On!

### **WebSphere Application Server Developer Tools enhancement**

The WebSphere Application Server Developer Tools are enhanced to support Java 8 and the full range of programming models that are available on WebSphere traditional, which include the Java EE 7 Web profile and Full Platform.

### **No-charge and no-support option for WebSphere Application Server traditional and WebSphere Liberty**

Liberty WebSphere Application Server traditional and WebSphere have provided a no-charge entitlement to developers for use on a development desktop. WebSphere Application Server traditional now adds a no-charge and no-support option for web-centric applications for usage in test and production environments, which is limited to a combined 2 GB of memory across all instances of application servers for the licensee. Production use beyond a combined 2 GB of heap size requires purchase of license entitlements. This option is available for WebSphere Liberty since June 2015.

### **Ease of adoption of Docker and Docker Data Center to support modern development application lifecycle**

As enterprises continue to adopt DevOps strategies to enable continuous integration and continuous delivery, they also adopt container technologies to support seamless portability for deployment across hybrid environments. Organizations rapidly standardize on Docker as the primary container and explore the use of Docker Data Center as a container service to enable self-service capabilities. WebSphere Liberty leads the next-generation, application lifecycle by bringing developer machines, data centers, and cloud environments together so that applications are seamlessly portable from development to test, to production, and across hybrid landscapes.

Enhancements to Docker and Docker Data Center include:

- **Deploy WebSphere Application Server inside Docker containers** to accelerate application development by utilizing Docker at every stage of application development, test, and deployment. By taking advantage of the portability of Docker between development, test, and production, you can:
  - Take images from development and test.
  - Make minimal changes to your WebSphere server configuration.
  - Deploy to production quickly and easily.

- WebSphere Application Server Development Tools support enables developers to natively code and test their applications locally in Docker while they develop in their Eclipse environment.
- Include easy-to-deploy Dockerized images to cloud-based Docker environments, such as IBM Containers for running your web applications in the cloud, and also running them on-premises in self-service cloud environments, such as Docker Data Center.
- Rapidly build Docker containers that run on WebSphere Application Server by using the official Docker images on Docker Hub or IBM Containers. The images come preconfigured with WebSphere Application Server Liberty for development and small-scale production use. Docker files available on GitHub also can be used to build custom images that run WebSphere Application Server with customized license entitlements.

## **WebSphere Application Server for Bluemix- Single Tenant**

One of the popular scenarios for organizations to capitalize on the benefits of cloud, such as scalability and agility, is to shift the workloads to cloud. WebSphere Application Server for Bluemix provides several approaches to adopt a lift-and-shift approach to replicate in-house WebSphere Application Server environment in the cloud without re-designing the entire application. WebSphere Application Server for Bluemix- Single Tenant adds a new option for organizations to deploy a single tenant environment that is isolated to that client. It allows the organization to satisfy regulatory and legal compliance as they directly provision WebSphere Application Server workloads in a secure environment.

### **Isolation of WebSphere workload**

All of the supporting infrastructure that runs WebSphere Application Server serves a single client. With single tenancy, each client has its own independent hardware and instances of WebSphere Application Server. With this option, there is essentially no sharing going on. Every client has its own, which is separate from everyone else.

### **Fully integrated hybrid environment**

Blur the lines between on-premises and off-premises resources. With a high-speed, direct network link between Bluemix data centers and clients' data centers, you can move data between servers (literally) at the speed of light.

### **Super secure data**

You can move sensitive financial, health, or government-regulated data to and from WebSphere Application Server for Bluemix and further ensure its security by completely avoiding exposure to the public internet.

WebSphere Application Server for Bluemix- Single Tenant offers the following advantages:

- Physically isolated hardware that meets the needs of demanding security requirements
- Same WebSphere Application Server for Bluemix User Experience and User Management
- Optional High Speed (up to 10GB) direct data center link that provides true hybrid cloud capability
- Broader data center location placement to enable the selection of a SoftLayer data center around the globe, which is closer to where the WebSphere Application Server for Bluemix workloads would yield the most benefit
- All pricing that is based on allocated reserved capacity, which is optimized to run WebSphere Application Server workloads

### **Introduction of WebSphere Connect capabilities for easy adoption of API economy**

WebSphere Connect is a collection of capabilities provided by WebSphere Application Server traditional and WebSphere Liberty that helps you turn your WebSphere

business assets into APIs. These capabilities enable you to easily produce and consume APIs and connect to and from the hybrid cloud to rapidly extend the value of your application investments.

Building on the API and hybrid cloud capabilities delivered in the previous WebSphere Application Server Continuous Delivery, now adds to WebSphere Connect with:

- Expanded WebSphere Application Server Developer Tools support for creating Swagger API documentation with further JSON validation and improvements to the generation of client-side code to consume APIs
- Seamless integration between your on-premises WebSphere Liberty applications and IBM dashDB™, a fully-managed cloud data warehouse, which is purposely built for analytics

The latest versions of WebSphere Application Server now include IBM API Connect Essentials, with IBM Support and increased API call limits. Now it is easy to create, discover, and publish APIs and also, WebSphere provides an end-to-end API Management solution that is easy to install. It delivers a turnkey solution for entering the new API economy.

### **WebSphere eXtreme Scale V8.6.1**

WebSphere eXtreme Scale V8.6.1 improves ease of use in managing elastic, scalable, in-memory data grids (IMDG), and caching scenarios to handle exponential growth of transactions for high-performance WebSphere Application Server computing environments. WebSphere eXtreme Scale V8.6.1 introduces a feature to deploy WebSphere eXtreme Scale on the latest WebSphere Liberty technology, where users can easily configure Liberty-based WebSphere eXtreme Scale V8.6.1 grid by using a GUI and Rest APIs. These new features accelerate business value by utilizing a much more visually intuitive interface and scripting capability to create and access grids, monitor usage of grids, add and remove capacity of grids, manage grids, and monitor cache member group.

Enhanced benefits of WebSphere eXtreme Scale V8.6.1:

- Support for WebSphere Application Server V9 traditional and Liberty
- Easy-to-deploy, easy-to-configure, distributed caching solution that is based on WebSphere eXtreme Scale technology
- Provides full customization to support all WebSphere eXtreme Scale caching use cases

Several WebSphere Application Server editions include entitlement to WebSphere eXtreme Scale capabilities for both Liberty profile and full profile WebSphere Application Server. The extent of entitled WebSphere eXtreme Scale capabilities varies depending on the WebSphere Application Server edition:

- WebSphere Application Server includes entitlement to session caching and DynaCache and can be used only in support of WebSphere Application Server.
- WebSphere Application Server for z/OS® includes full entitlement to WebSphere eXtreme Scale for z/OS, which provides client APIs for connecting to distributed WebSphere eXtreme Scale servers.
- WebSphere Application Server Network Deployment includes full entitlement to WebSphere eXtreme Scale.

### **Flexibility to deploy WebSphere Liberty applications on cloud**

WebSphere Application Server Liberty can be deployed across a broad spectrum of public and private cloud environments. WebSphere Liberty applications can now be deployed on Open Shift, Pivotal Cloud Foundry that runs on SoftLayer, Amazon Web Services, and Microsoft Azure, in addition to Bluemix. Also, you can use your on-premises license to install and run in virtual machines on any private or dedicated cloud.

WebSphere Liberty applications can be easily deployed to private Open Shift V2 environments using the provided Liberty Open Shift V2 Cartridge, and to private Pivotal Cloud Foundry clouds using the provided Liberty Cloud Foundry Buildpack. WebSphere Liberty applications can also be deployed to Open Shift V3 using Docker images. Instances of WebSphere Application Server can be obtained under pay-as-you-go models in IBM Bluemix, IBM Softlayer, Amazon Web Services, and Microsoft Azure. Sub-capacity charging can be exploited in all these environments when suitable configuration is applied.

### **IBM HTTP Server enhancements**

IBM HTTP Server (IHS) is a web server that is based on the Apache Software Foundation's Apache HTTP Server. It is included in the WebSphere Application Server distribution packages. The core runtime is now based on Apache HTTP Server 2.4, which provides:

- Improved vertical scalability on Linux
- Advanced authorization logic for enhanced security
- Fine-grained logging and tracing for easy problem determination
- Improved FastCGI support for externally managed FastCGI applications

Additional enhancements include:

- Improved support for Transport Layer Security (TLS), a cryptographic protocol that provides communications security over a computer network. This feature adds support for name-based TLS virtual hosts via TLS Server Name Indication and TLS certificate monitoring for upcoming expiration.
- Support for scripts that are written in the [Lua](#) programming language for easy working with HTTP requests.
- Support for regular expression based manipulation of the HTTP responses.

### **Migration enhancements**

The WebSphere Migration Toolkit is enhanced to migrate applications from previous versions of WebSphere to WebSphere Application Server V9 through both source and binary scanning. It helps detect and mitigate issues related to:

- WebSphere API removals
- WebSphere API deprecations
- API behavior changes when moving to the latest Java EE 7 support. Java EE 7 migration is optional for JPA and JAX-RS
- Java 8 migration support

Source scanning tool enhancements include:

- Migration of applications from competitive application servers to WebSphere Application Server V9
- Support for Maven Eclipse projects

The design and usability of the binary scanner's reports also are enhanced.

WebSphere Application Server configuration migration tools move the traditional configuration from Version 7.0, Version 8.0, and Version 8.5.5 to Version 9.0. Enhancements include:

- Simplified migration support for WebSphere Virtual Enterprise and Compute Grid. Supports these features as integrated components of V8.5.5 to V9, or as installed stack projects on V7 and V8.
- New supported clone migration strategy.
- New AppInstaller migration tool to replace `install_all_apps.jy`.
- Improved port assignment support for z/OS migrations.



- New migration properties file to control migration options.

**IBM UrbanCode™ Deploy**, a separately available product from IBM, provides additional capability for automating configuration and application deployments in your environments. UrbanCode™ Deploy's WebSphere Application Server **Configure plugin** also supports migration scenarios for WebSphere Application Server V7.0 and V8.0. This plug-in captures configuration of WebSphere Application Server cells and provides the automation needed to migrate configurations to newer versions of WebSphere Application Server running on premises or on <https://console.ng.bluemix.net/catalog/services/websphere-application-server/>. In addition to providing configuration migration capabilities for WebSphere, UrbanCode Deploy also makes it easy to deploy WebSphere Application Server instances with configuration and applications. UrbanCode Deploy stores configurations as code, which can then be stored as a version for later retrieval, comparison, and reuse.

To learn more about UrbanCode Deploy, refer to Software Announcement [216-046](#), dated January 5, 2016.

### **Enhancements to WebSphere Application Server Liberty include:**

- Single management interface for both Java and Node.js across a hybrid topology  
As businesses demand that IT supports modern applications at a faster pace to meet the requirements of engaging applications for social and mobile, developer increasingly adopt a DevOps mindset. They turn to composing applications from multiple languages, such as Java and Node.js, and use container technologies to gain freedom from being tied to a single vendor, platform, or enterprise environment. These modern application workloads are typically characterized by unpredictable demand surges and require sub-second response times that in turn requires IT to provide additional capacity on demand.

To meet these demands, IT increasingly turns to extending their on-premises capacity with an on-demand capacity that is available from cloud vendors. This creates a hybrid topology of polyglot applications and servers across a hybrid environment. Managing these polyglot applications securely and intelligently in production requires sophisticated tools. WebSphere Application Server provides a single, integrated interface for polyglot applications and servers. Now, with the combination of WebSphere Liberty's Collective feature and WebSphere Administration Center, IT administrators can easily manage large scale topology that comprises of WebSphere Java and Node.js applications and servers, deployed across bare-metal, Docker container, or virtual machine (VM), on-premises or in the cloud, through a single interface.

The key features include:

- An administration center for visualization and operational control over both Java and Node.js applications
- Scalable clustering for Java applications
- Dynamic routing support (through a WebSphere Application Server plug-in) for Java and Node.js applications
- Scriptable deployment for both Java and Node.js applications
- Security enhancements

WebSphere Application Server traditional and WebSphere Liberty both support security enhancements defined in the Java EE7 specification. Additionally, WebSphere Liberty Repository contains several security features beyond Java EE7. New enhancements include:

- Oauth bearer token propagation: This enhancement enables a client to pass Oauth token when calling a downstream service through HTTP.
- Security Assertion Markup Language (SAML) support for token propagation to Java API for RESTful Services (JAX-RS) endpoints. This enhancement allows an external authentication proxy to pass SAML tokens directly to a JAX-RS endpoint, or for a client to pass SAML token directly to a downstream JAX-RS endpoint.
- Usability improvements include:

- Java EE application roles are automatically mapped to a group of the same name in the user registry if no binding is present. This eliminates the requirement to specify bindings when role names are the same as group names.
- User registry configuration is now optional when not needed: for example, when custom or external authentication is configured.
- Custom password encryption enhancements include:
  - Support for custom encryption in the security utility command line tool
  - New API for password encryption and decryption

### **Features available for WebSphere Liberty beta offering**

*Enhancement to Cloud Based Log Analytics Service from IBM Bluemix for on-premises applications*

This feature continues to be available as a beta offering. It provides an easy-to-integrate, cloud-based log analytics with your on-premises WebSphere servers and applications. It helps to quickly find errors in application logs, resolve problems, and intelligently search through logs to find the answers to your application problems. With the new enhancements set up of the Bluemix log collector feature in Liberty can be accomplished in minutes for your first server and seconds for subsequent servers.

### **Accessibility by people with disabilities**

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A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be found on the [IBM Accessibility](#) website.

### **Section 508 of the US Rehabilitation Act**

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WebSphere Application Server V9.0, WebSphere Application Server Liberty Core V9.0, WebSphere Application Server Network Deployment V9.0, and WebSphere Application Server Family Edition V9.0 are capable as of June 24, 2016, when used in accordance with associated IBM 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 several configuration options and support for multiple business models and deployment platforms. It also supports a wide range of scenarios:

- Open-source-based projects and projects with no readily available budget
- Simple administration of a single server environment
- A clustered, highly available, high-volume environment with edge-of-network services

WebSphere Application Server V9.0 configurations are built on a common server foundation that delivers the same Java EE 7 and broad programming model support. Its proven transactional engine delivers increasingly higher qualities of service 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 for Java EE 7 compliant WebSphere Application Server include:

### **No-charge and no-support option**

WebSphere Application Server traditional and Liberty provide a no-charge and no-support option for web-centric applications for use in test and production environments. Usage in test and production environments is restricted to a maximum of 2 GB of JVM heap size across all instances of application servers for the licensee. IBM provides an in-place option to upgrade from a no-charge, no-support to other WebSphere Application Server editions.

### **WebSphere Application Server Liberty Core V9.0**

WebSphere Application Server Liberty Core V9.0, a lightweight and dynamic offering of WebSphere Application Server, that is Java EE 7 Web Profile compliant. Composed entirely of the developer-friendly Liberty profile, the WebSphere Application Server Liberty Core edition enables rapid development and deployment of web-centric and mobile-centric applications. It allows businesses to quickly respond to enterprise and market needs. Liberty profile servers can be members of collectives that enables them to be managed by a collective controller from a Network Deployment installation. The capabilities that are provided in the Liberty Core edition are a subset of the capabilities provided in the WebSphere Application Server and Network Deployment editions.

Highlights of the new Liberty Core offering include:

- Extremely lightweight offering that is composed of a subset of the Liberty profile that is certified for the Java EE 7 Web Profile
- An excellent development and production runtime for web applications
- Fast time-to-value
- Small download, small footprint, and fast startup easily packaged applications (includes configuration) for deployment, extensible through Liberty features SPI
- Support for IBM API Connect Essentials to easily create, discover, and publish APIs, as well as integrating with API Management solution right out of the box delivering a turnkey solution for entering the new API economy

### **WebSphere Application Server V9.0**

WebSphere Application Server, which includes traditional and Liberty, is now Java EE 7 Full Platform compliant. It is tailored for a single server to moderately-sized configurations of departmental or large-scale, dynamic web applications that require web tier clustering and failover across application server instances, and a variety of pricing alternatives. The Liberty capabilities include a superset of those found in WebSphere Application Server Liberty Core. They provide additional programming models, such as Web Services, full EJB, and Java Message Service. Liberty profile can be members of collectives, that enable it to be managed by a collective controller from a Network Deployment installation. It enables load balancing across servers, and includes WebSphere eXtreme Scale with support for session caching and DynaCache.

### **WebSphere Application Server Network Deployment V9.0**

WebSphere Application Server Network Deployment edition offers enterprises near-continuous availability, advanced management, and automated performance optimization for their mission-critical applications. WebSphere Application Server Network Deployment capabilities include a superset of those found in WebSphere Application Server Liberty Core, and WebSphere Application Server configuration. It offers:

- World-class, clustering and high-availability management to help eliminate the cost of system downtime
- Auto-scaling, auto-routing, and Internet-scale clustering for intelligent and efficient management of compute resources
- Enterprise-level, Java batch capabilities, such as parallel job processing, job checkpoints and restart, workload management, and shared OLTP and batch processing, to support batch modernization and modern batch projects
- 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
- High performance that maximizes business competitiveness while minimizing total cost of ownership
- Liberty profile collective cluster administration that improves resiliency of server and provides high availability for mission-critical application
- Distributed caching through WebSphere eXtreme Scale that provides responsiveness to enterprise, cloud, and mobile application

### **WebSphere Application Server Family Edition V9.0**

The WebSphere Application Server Family Edition brings together the following key WebSphere Application Server products that are bundled under a common license entitlement.

- WebSphere Application Server Network Deployment, which includes the Network Deployment editions of both the full profile and Liberty profile application servers
- WebSphere Application Server, which includes the single server editions of both the traditional and Liberty application servers
- WebSphere Application Server Liberty Core

WebSphere Application Server Family Edition gives you the flexibility to deploy the application server edition that is specific to your business needs. It also allows you to easily adjust the mix of products deployed from the bundle as the needs of your business change.

### **WebSphere Application Server for z/OS<sup>(R)</sup>, V9.0**

WebSphere Application Server for z/OS offers all the capabilities that are available in the WebSphere Application Server Network Deployment. In addition, it takes advantage of the unique qualities of service of IBM z Systems<sup>TM</sup> hardware and the z/OS operating system, such as policy-driven workload management, advanced transactional integrity, unsurpassed scalability and availability, built-in enterprise security capabilities, and more. Also, WebSphere Application Server for z/OS includes z/OS-specific features that large enterprise customers can appreciate, such as z/OS Connect and WebSphere optimized local adapters .

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## **Statement of general direction**

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IBM intends to provide future general availability releases of the following products and utilities that will include development tools and code analysis support for WebSphere Application Server V9.0.

The IBM expectation is that delivery of this tooling and code analysis support will be after the general availability of WebSphere Application Server V9.0. The offerings will provide the development tools and code analysis support:

- Rational<sup>(R)</sup> Application Developer for WebSphere Software is an Eclipse-based Integrated Development Environment (IDE) that provides developers with many integrated capabilities that can enable faster application development and maintenance, and higher initial code quality.
- Rational Software Architect Designer is a modeling tool that provides many capabilities for modeling with Unified Modeling Language (UML), Business Process Modeling and Notation (BPMN), and various other domain-specific modeling languages, and also capabilities for transforming between such models and various types of application source code. It provides both an Eclipse-based interface and a web-based interface to its collaborative server-based "design management" capabilities that complement the modeling tools.
- Rational Software Architect Designer Extension for SOA and WebSphere, an offering that extends Rational Software Architect Designer, adds a subset of the capabilities of Rational Application Developer for WebSphere Software, and also

adds specific additional domain modeling and transformation capabilities, most notably for Enterprise Java and Service Oriented Architectures.

- Rational Software Architect Designer for WebSphere Software is a modeling tool and a complete IDE. This offering includes the full capabilities of both Rational Application Developer for WebSphere Software and the full capabilities of Rational Software Architect Designer, and also many additional modeling and transformation capabilities that are not available in those products.
- Rational Agent Controller is not a product, but instead a utility that is delivered as part of Rational Application Developer for WebSphere Software and as part of Rational Software Architect Designer for WebSphere Software and as part of WebSphere Application Server offerings. It enables developers to connect to remote instances of WebSphere Application Server and perform runtime code analysis on applications that are running on those remote WebSphere Application Server instances.

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 our products remain at our sole discretion.

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## Reference information

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For information about WebSphere Application Server for z/OS, V9.0, refer to Software Announcement [216-263](#), dated June 7, 2016.

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## Availability of national languages

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All supported languages are available.

Translation information, if available, can be found at the [Translation Reports](#) website.

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## Program number

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Program number	VRM	Program name
5724-J08	9.0.0	WebSphere Application Server
5725-L29	9.0.0	WebSphere Application Server Liberty Core
5724-H88	9.0.0	WebSphere Application Server Network Deployment
5725-Y70	9.0.0	WebSphere Application Server Family Edition

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## Offering Information

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Product information is available on the [IBM Offering Information](#) website.

More information is also available on the [Passport Advantage<sup>\(R\)</sup>](#) and [Passport Advantage Express<sup>\(R\)</sup>](#) website.

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## Publications

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The latest product documentation for WebSphere Application Server V9.0 is found in [IBM Knowledge Center](#)

IBM Knowledge Center is the new home for IBM product documentation. It brings IBM's technical publications together in a single location, and replaces over 800 individual product Information Centers. IBM Knowledge Center simplifies the user experience, improves search, and refines the overall experience with other enhancements. Locate the desired WebSphere Application Server offering from the product list to obtain the product documentation.

You can find information on installing the continuous delivery features in the WebSphere Application Server product documentation. No hardcopy publications are shipped with this product. Using IBM Knowledge Center, users can define collections and produce custom PDF documents for their collections.

For optimal viewing of this documentation, browser support for JavaScript™ and related technologies is required.

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## Services

### Software Services

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.

To learn more about IBM Software Services or to contact a Software Services sales specialist, go to the [IBM Software Services](#) website.

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## Technical information

### Specified operating environment

#### Software requirements

Minimum WebSphere Application Server operating systems:

- AIX V7.1 TL4 (64 bit)
- AIX V7.2
- HPUX 11i V3 IA64
- IBM iOS 7.1 (64)
- IBM iOS 7.2 (64)
- IBM iOS 7.3 (64)
- Red Hat Enterprise Linux (RHEL) 7.0
- Red Hat Enterprise Linux (RHEL) POWER<sup>(R)</sup> 7.0 BE
- Red Hat Enterprise Linux (RHEL) POWER 7.1 LE
- Red Hat Enterprise Linux (RHEL) System z<sup>(R)</sup> 7.0
- Red Hat Enterprise Linux (RHEL) 6.0 update 6
- Red Hat Enterprise Linux (RHEL) POWER 6.0 update 6
- Red Hat Enterprise Linux (RHEL) System z 6.0 update 6
- SUSE Linux Enterprise Server (SLES) 11 SP 2
- SUSE Linux Enterprise Server (SLES) POWER 11 SP 2

- SUSE Linux Enterprise Server (SLES) System z 11 SP 2
- SUSE Linux Enterprise Server (SLES) 12
- SUSE Linux Enterprise Server (SLES) POWER 12 LE
- SUSE Linux Enterprise Server (SLES) System z 12
- Solaris 11.1 x86-64
- Solaris 11.1 SPARC
- Ubuntu 14.04 LTS x86-64
- Ubuntu 14.04 LTS PPC64 Little Endian
- Ubuntu 16.04 LTS x86-64
- Ubuntu 16.04 LTS PPC64 Little Endian
- Ubuntu 16.04 LTS System z
- Windows Server 2012
- Windows Server 2012 R2

For complete details, refer to WebSphere Application Server [detailed system requirements](#).

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.

### ***Limitations***

Additional information can be found on the [License Information documents](#) found on the IBM Software License Agreement website.

## **Planning information**

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### **IBM API Connect Essentials**

IBM API Connect Essentials is included as a supporting program within WebSphere Application Server and counts towards the number of entitlements required. Usage of the API Connect Essentials server is unrestricted, and entitlement provides for up to 500 Monthly API Calls per WebSphere Application Server Processor Value Unit (PVU) purchased.

### **WebSphere Application Server for Developers**

WebSphere Application Server for Developers is not be offered in Version 9.0. It provided a WebSphere Application Server runtime for use in a development environment only, in order to effectively develop and test applications locally and deploy with complete fidelity to a WebSphere Application Server production environment. It made development to production migration a non-issue. WebSphere Application Server entitlement now includes a no-charge entitlement for developers developing on their desktops, making this edition obsolete for Version 9.

### **WebSphere Application Server Express**

WebSphere Application Server Express edition is not offered for Version 9.0. Clients have the option to trade up to WebSphere Application Server V9.0.

### **WebSphere Application Server Liberty Core**

#### ***20 Intranet User licenses***

Intranet User licenses are acquired in packs of 20 Authorized (named) users, and those users are authorized for that specific WebSphere Application Server Liberty Core server. 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 Liberty Core server acquired through the Intranet User option per client location

### **WebSphere Application Server Hypervisor Edition**

WebSphere Application Server Hypervisor edition will not be offered for Version 9.0 and clients with current S&S will be entitled to WebSphere Application Server Network Deployment V9.0 for migration. IBM already delivered WebSphere Application Server Patterns, a single "plug-in" to create system and application virtualization patterns directly from WebSphere Application Server Network Deployment component binaries that are available in the Install Manager Repository. IBM does not expect any additional enhancements will be applied to the WebSphere Application Server Hypervisor Edition V8.0.x and V8.5.x. IBM will continue to deliver periodic fixpacks to customers deploying IBM WebSphere Application Server Hypervisor Edition V7.0.

The following programs were withdrawn, effective April 12, 2016. Entitlements to the bundles will be replaced by entitlements to individual products that were included in the bundles or that otherwise provide identical functional capabilities.

- WebSphere Application Server Tools Edition
- WebSphere Application Server Network Deployment Tools Edition
- IBM WebSphere Application Server for Developers Tools Edition for Eclipse

For details, refer to Software Announcement [916-043](#), dated January 12, 2016.

### **The following features are removed from WebSphere Application Server V9.0**

- Web 2.0 and Mobile Toolkit
- IBM Assembly and Deploy Tools for WebSphere Administration

Previously, IBM Assembly and Deploy Tools were provided for administrators to package and publish applications and test wsadmin scripts. Those tools will not be included in WebSphere Application Server V9 because the majority of this function, along with additional tools for application development, newer programming models, updated Eclipse support, support for multiple WebSphere versions, are all available through the WebSphere Application Server Developer Tools on the Eclipse Marketplace.

### ***Packaging***

#### **WebSphere Application Server Liberty Core**

WebSphere Application Server Liberty Core offering includes:

- IBM WebSphere Application Server Liberty
- IBM WebSphere Application Server Supplements (IBM HTTP Server, WebSphere Customization Toolkit, and Web Server Plugins)
- IBM SDK Java Technology Edition Version 8.0
- IBM Installation Manager V1.8.5
- IBM DB2<sup>(R)</sup> Workgroup Server Edition - Restricted Use V10.5
- IBM API Connect Essentials V5.0
- Firefox Version 3.6.25.2

#### **WebSphere Application Server**

WebSphere Application Server offering includes:

- WebSphere Application Server
- WebSphere Application Server Liberty



- WebSphere Application Server Supplements ( Application Client, IBM HTTP Server, WebSphere Customization Toolkit, and Web Server Plugins)
- IBM SDK Java Technology Edition V8.0
- IBM Installation Manager V1.8.5
- IBM DB2 Workgroup Server Edition - Restricted Use V10.5 IBM
- WebSphere Adapters V7.5.0.3
- IBM Security Directory Server V6.4
- IBM Security Directory Suite Limited Edition V8.0
- IBM API Connect Essentials V5.0
- Firefox Version 3.6.25.2

### **WebSphere Application Server Network Deployment**

WebSphere Application Server Network Deployment offering includes:

- WebSphere Application Server
- WebSphere Application Server Liberty
- WebSphere Application Server Supplements (Application Client, IBM HTTP Server, WebSphere Customization Toolkit, and Web Server Plugins)
- IBM SDK Java Technology Edition V8.0
- IBM Installation Manager V1.8.5
- IBM DMZ Secure Proxy Server
- WebSphere Edge Components: Load Balancer for IPv4 and IPv6
- WebSphere Edge Components: Caching Proxy
- DB2 Workgroup Server Edition - Restricted Use V10.5
- WebSphere Adapters V7.5.0.3
- API Connect Essentials V5.0
- IBM Security Directory Server V6.4
- IBM Security Directory Suite Limited Edition V8.0
- IBM Security Access Manager Virtual Edition V9.0
- IBM Security Access Manager Virtual Edition Federation Module V9.0
- Firefox Version 3.6.25.2

This program, when downloaded from a website, 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.

### **Direct customer support**

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Software Subscription and Support (also referred to as Software Maintenance) is included with licenses purchased through Passport Advantage and Passport Advantage Express. Product upgrades and technical support are provided by the Software Subscription and Support (Software Maintenance) offering as described in the Agreements. Product upgrades provide the latest versions and releases to entitled software, and technical support provides voice and electronic access to IBM support organizations, worldwide.

IBM includes one year of Software Subscription and Support (also referred to as Software Maintenance) with each program license acquired. The initial period of Software Subscription and Support (Software Maintenance) can be extended by the purchase of a renewal option, if available.

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### **Ordering information**

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

These products may only be sold directly by IBM or by authorized IBM Business Partners for Software Value Plus.

More information can be found on the [IBM Software Value Plus](#) website.

To locate IBM Business Partners for Software Value Plus in your geography for a specific Software Value Plus portfolio, go to the [Find a Business Partner](#) page.

Product group: WebSphere

Product:

<b>Product Identifier Description</b>	<b>PID</b>
WebSphere Application Server	5724-J08
WebSphere Application Server Liberty Core	5725-L29
WebSphere Application Server Network Deployment	5724-H88
WebSphere Application Server Family Edition	5725-Y70

Product category: Application Infrastructure

### Passport Advantage

#### WebSphere Application Server

<b>Program name/Description</b>	<b>Part number</b>
WebSphere Application Server Per Processor Value Unit (PVU)	
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 Liberty Core

WebSphere Application Server Liberty Core Per Processor Value Unit (PVU)	
License + SW Subscription & Support 12 Months	D0ZDZLL
Annual SW Subscription & Support Renewal	E0HGKLL
SW Subscription & Support Reinstatement 12 Months	D0ZE0LL
WebSphere Application Server Liberty Core Per 20 Authorized User Single Install	
License + Subscription & Support 12 Months	D0ZE2LL
Annual SW Subscription & Support Renewal	E0HGLLL
SW Subscription & Support Reinstatement 12 Months	D0ZE3LL

## WebSphere Application Server Network Deployment

WebSphere Application Server Network Deployment Per Processor Value Unit (PVU)	
License + SW Subscription & Support 12 Months	D55WJLL
Annual SW Subscription & Support Renewal	E025SLL
SW Subscription & Support Reinstatement 12 Months	D55WKLL

## WebSphere Application Server Family Edition

WebSphere Application Server Family Edition Per Processor Value Unit (PVU)	
License + SW Subscription & Support 12 Months	D1KI6LL
Annual SW Subscription & Support Renewal	E0M8FLL
SW Subscription & Support Reinstatement 12 Months	D1KI7LL

## Passport Advantage trade-up

You must have previously acquired licenses for the following precursor products to be eligible to acquire equivalent licenses of the trade-up products.

Precursor product	Trade-up product	Trade-up part number
WebSphere Application Server -Express	WebSphere Application Server Processor Value Unit Trade-up License + S&S 12months	D55WBLL
Qualified competitor	WebSphere Application Server Processor Value Unit for Linux on z Systems™ Trade-up License + S&S 12months	D55WILL

Clients must have current active Software Subscription and Support in place for all of the licenses that will be given up by the use of the trade-up parts. Those customers with lapsed support need to reinstate their S&S contracts to be eligible for trade-ups.

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 V9.0 for Multiplatforms Multilingual DVD Media Pack	BA1AFML
WebSphere Application Server Liberty Core V9.0 for Multiplatforms Multilingual DVD Media Pack	BA1AHML
WebSphere Application Server Network Deployment V9.0 for Multiplatforms Multilingual DVD Media Pack	BA1AGML
WebSphere Application Server Family Edition V9.0 for Multiplatforms Multilingual DVD Media Pack	BA1AIML

## Cross-platform product for use on z Systems Integrated Facility for Linux (IFL) engines or zEnterprise® BladeCenter Extension

Order the part numbers that follow when the product is intended to run on zEnterprise BladeCenter Extension or the Linux operating system on z Systems IFL engines. If the product is not intended to run in these environments, 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.

### WebSphere Application Server

Program name/Description	Part number
WebSphere Application Server for Linux on z Systems Per Limited User Socket	
License + Software S&S 12 Months	D0GUTLL
Annual Software S&S Renewal	E0AT4LL
Software S&S Reinstatement 12 Months	D0GUVLL

### WebSphere Application Server

Program name/Description	Part number
WebSphere Application Server for Linux on z Systems Per Processor Value Unit (PVU)	
License + Software S&S 12 Months	D55WELL
Annual Software S&S Renewal	E025RLL
Software S&S Reinstatement 12 Months	D55WFLL

### WebSphere Application Server Liberty Core

Program name/Description	Part number
WebSphere Application Server Liberty Core for Linux on z Systems Per Processor Value Unit (PVU)	
License + Software S&S 12 Months	D0ZDXLL
Annual Software S&S Renewal	E0HGJLL
Software S&S Reinstatement 12 Months	D0ZDYLL

### WebSphere Application Server Liberty Core

Program name/Description	Part number
WebSphere Application Server Liberty Core for Linux on z Systems Per 20 Authorized User Single Install	
License + Software S&S 12 Months	D0ZE4LL
Annual Software S&S Renewal	E0HGMLL
Software S&S Reinstatement 12 Months	D0ZE5LL

### WebSphere Application Server Network Deployment

Program name/Description	Part number
WebSphere Application Server Network Deployment for Linux on z Systems Per Processor Value Unit (PVU)	
License + Software S&S 12 Months	D55WQLL
Annual Software S&S Renewal	E025TLL
Software S&S Reinstatement 12 Months	D55WRLL

### WebSphere Application Server Family Edition

Program name/Description	Part number
WebSphere Application Server Family Edition for Linux on z Systems Per Processor Value Unit (PVU)	
License + Software S&S 12 Months	D1KICLL
Annual Software S&S Renewal	E0M8GLL
Software S&S Reinstatement 12 Months	D1KIDLL

## Charge metric

Program name	Part number or PID number	Charge metric
WebSphere Application Server	5724-J08	Processor Value Unit
WebSphere Application Server Liberty Core	5725-L29	Limited Use Socket Processor Value Unit
WebSphere Application Server Network Deployment	5724-H88	20 Authorized Users Processor Value Unit
WebSphere Application Server Family Edition	5725-Y70	Processor Value Unit

## 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 given access to the program in any manner directly or indirectly (for example, through 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 (PVU)

PVU is a unit of measure by which the program can be licensed. The number of PVU entitlements required is based on the processor technology (defined within the PVU table by processor value, brand, type, and model number at the website below) and the number of processors made available to the program. IBM continues to define a processor, for the purpose of PVU-based licensing, to be each processor core on a chip (socket). A dual-core processor chip, for example, has two processor cores. The PVU table can be found on the [PVU licensing for Distributed Software](#) page. 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 found on the [Virtualization Capacity License Counting Rules](#) page. 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 that can be found on the [Virtualization Capacity License Counting Rules](#) page.

\* 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.

### **Limited Use Socket**

Limited Use Socket is a unit of measure by which the Program can be licensed. A socket is electronic circuitry that accepts a processor chip. A server is a physical computer that is comprised of processing units, memory, and input/output capabilities and that executes requested procedures, commands, or applications for one or more users or client devices. Where racks, blade enclosures, or other similar equipment is being employed, each separable physical device (for example, a blade or a rack-mounted device) that has the required components is considered itself a separate server. A virtual server is either a virtual computer created by partitioning the resources available to a physical server that complies with the requirements of the [Sub-capacity Guide](#) or the unpartitioned physical server. If Licensee's virtualization environment does not comply with the requirements of the [Sub-capacity Guide](#), the entire physical server must meet all requirements in this license. Licensee must obtain Limited Use Socket entitlements for each socket on the virtual servers made available to the Program. The total number of sockets on any virtual server made available to the Program cannot exceed 4.

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## **Terms and conditions**

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The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

This product is only available through Passport Advantage.

### **Licensing**

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IBM International Program License Agreement including the License Information document and Proof of Entitlement (PoE) govern your use of the program. 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.

This software license includes Software Subscription and Support (also referred to as Software Maintenance).

### **Agreement for Acquisition of Software Maintenance**

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These programs are licensed under the IBM Program License Agreement (IPLA) and the associated Agreement for Acquisition of Software Maintenance, which provide for support with ongoing access to releases and versions of the program. IBM includes one year of Software Subscription and Support (also referred to as Software Maintenance) with the initial license acquisition of each program acquired. The initial period of Software Subscription and Support (also referred to as Software Maintenance) can be extended by the purchase of a renewal option, if available. These programs have a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours), as well as

access to updates, releases, and versions of the program as long as support is in effect.

### **License Information number**

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<b>Program name</b>	<b>License number</b>
IBM WebSphere Application Server V9.0	L-SWIS-9YUK88
IBM WebSphere Application Server Liberty Core V9.0	L-SWIS-9YUK3D
IBM WebSphere Application Server Network Deployment V9.0	L-SWIS-9YUKMV
IBM WebSphere Application Server Family Edition V9.0	L-SWIS-A9LJWD

See the [License Information documents](#) page on the IBM Software License Agreement website for more information.

### **Limited warranty applies**

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Yes

### **Limited warranty**

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IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program or that IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information on known program defects, defect corrections, restrictions, and bypasses at no additional charge. For further information, see the [IBM Software Support Handbook](#).

IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

### **Program technical support**

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Technical support of a program product version or release will be available for a minimum of five years from the general availability date, as long as your Software Subscription and Support (also referred to as Software Maintenance) is in effect.

This technical support allows you to obtain assistance (by telephone or electronic means) from IBM for product-specific, task-oriented questions regarding the installation and operation of the program product. Software Subscription and Support (Software Maintenance) also provides you with access to updates (modifications or fixes), releases, and versions of the program. You will be notified, through an announcement letter, of discontinuance of support with 12 months' notice. If you require additional technical support from IBM, including an extension of support beyond the discontinuance date, contact your IBM representative or IBM Business Partner. This extension may be available for a fee.

### **Money-back guarantee**

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If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that (1) for programs acquired under the IBM International Passport Advantage offering, this term applies only to your first acquisition of the program and (2) for programs acquired under any of IBM's On/Off Capacity on

Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

### **Volume orders (IVO)**

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No

### **Passport Advantage applies**

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Yes, information is available on the [Passport Advantage and Passport Advantage Express](#) website.

### **Software Subscription and Support applies**

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Yes. Software Subscription and Support, also referred to as Software Maintenance, is included with licenses purchased through Passport Advantage and Passport Advantage Express. Product upgrades and Technical Support are provided by the Software Subscription and Support offering as described in the Agreements. Product upgrades provide the latest versions and releases to entitled software, and Technical Support provides voice and electronic access to IBM support organizations, worldwide.

IBM includes one year of Software Subscription and Support with each program license acquired. The initial period of Software Subscription and Support can be extended by the purchase of a renewal option, if available.

While your Software Subscription and Support is in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions, and code-related questions. IBM provides assistance by 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 users.) IBM provides Severity 1 assistance 24 hours a day, 7 days a week. For additional details, see the [IBM Software Support Handbook](#). Software Subscription and Support does not include assistance for the design and development of applications, your use of programs in other than their specified operating environment, or failures caused by products for which IBM is not responsible under the applicable agreements.

For additional information about the International Passport Advantage Agreement and the IBM International Passport Advantage Express Agreement, go to the [Passport Advantage and Passport Advantage Express](#) website.

### **Other support**

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Passport Advantage

### **System i Software Maintenance applies**

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No

### **Variable charges apply**

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No

### **Educational allowance available**

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Not applicable.

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## **Statement of good security practices**

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IT system security involves protecting systems and information through prevention, detection, and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, or misappropriated or can result in misuse of your systems to attack others. Without a comprehensive approach to security, no IT system or product should be considered completely secure and no single product or security measure can be completely effective in preventing improper access. IBM systems and products are designed to be part of a lawful, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective.

**Important:** IBM does not warrant that any systems, products, or services are immune from, or will make your enterprise immune from, the malicious or illegal conduct of any party.

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## Prices

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### **Business Partner information**

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## **Corrections**

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**(Corrected on February 8, 2017)**

The At a glance and Description sections are revised.

**(Corrected on July 27, 2016)**

The Description and Ordering information sections are revised.