IBM WebSphere Application Server V8.5.5 drives innovation for hybrid applications through ease of connecting and integrating cloud services

Overview

As organizations move to cloud computing as a means to help create more efficient and cost-effective data centers, they recognize that it is impossible and impractical to quickly accommodate all business needs at the same speed and with the same priority. The emerging application workloads that consist of cloud, mobile, and social applications require much greater speed and agility to keep pace with the evolving landscape than the traditional enterprise workloads. CIOs must balance the needs of mission-critical systems and fast-paced new development of cloud and mobile applications. This drives the requirement for IT to support multispeed capabilities that enable the delivery of diverse business requirements at speeds that offer optimal business outcome. Hybrid enterprise applications, which strive to deliver a considerable competitive advantage for the businesses in the API economy, place new requirements on IT to support environments that enable on-premises applications to securely and easily connect to and from hosted, value-added cloud services.

IBM® WebSphere® Application Server Liberty V8.5.5, with its lightweight and composable characteristics, delivers several new features to simplify your organization’s movement to the cloud:

- Liberty quick start tool that helps accelerate development of new applications to support new architectures, such as microservices, and eases deployment to Bluemix®
- Best practices and methodologies to refactor Java™ app components into microservices to meet requirements of cloud, mobile, and social workloads
- Tools to enable publishing, consuming, and managing APIs that use integrated API Connect services to allow participation in the API economy to reach new clients
- Ease of integrating Watson™ cognitive capabilities to Java apps to help make better business decisions
- Ease of enhancing existing applications through the use of rich features and fully managed cloud data services without the cost, complexity, and risk of managing your own infrastructure
- Ease of optimizing existing Java applications that allow adoption of a pay-as-you-go model to optimize cost by moving applications to cloud without changes

WebSphere Application Server V8.5.5 traditional, also known as WebSphere full profile, is now enhanced to support Java Platform, Standard Edition 8 (Java SE 8). Java SE 8 is already supported for WebSphere Application Server Liberty. Delivery
of this feature fulfils the previously announced Statement of general direction in Software Announcement 215-417, dated September 1, 2015.

The WebSphere Application Server V9.0 beta is updated for download and testing. This is in addition to the existing preconfigured service hosted on IBM Bluemix. The beta is also refreshed with additional Java EE 7 features.

Key prerequisites

For details, refer to the Technical information section.

Planned availability date

March 18, 2016

Description

Reduce complexity and achieve richer engagement experiences with Microservices Architecture

WebSphere Application Server Liberty is a world-class platform for creating new applications and microservices to help you respond to your business needs. Microservices are a software architectural style in which complex applications are made up of small, loosely coupled services that communicate with each other using simple application-programming interfaces (APIs). Building cloud-native applications as microservices eliminates long-term commitments to a technology stack, ensures faster time to market, and provides efficient DevOps integration. In Microservices Architecture, applications are organized around business capabilities that help make it easy to measure return on investment. Applications are aligned more closely with consumer needs, which results in improved customer service.

Accelerate development and deployment of microservices

WebSphere Application Server Liberty delivers guidance on starting points, rules of engagement, and decomposition best practices to support microservices application development and deployment.

- Guidance on getting started.
  
  Introduction of WebSphere Liberty quick start tool. The WebSphere Liberty quick start tool is a service hosted on IBM Bluemix that gives the user a starting point to build a WebSphere Liberty application. It provides developers with a menu-driven approach to create Java-based microservices using different technologies. Included for each is a self-contained, runnable sample, complete with maven build files that can build the application, run tests on WebSphere Liberty, and pull in the correct dependencies and features. Running Spring Boot applications on WebSphere Liberty is included.

- Best practices.
  
  A factor-by-factor guide to creating a 12-factor application on WebSphere Liberty. Following the 12-factors methodology enables you to build a portable application that is ideal for running on the cloud and can be maintained easily in a continuous delivery pipeline. This helps provide a smoother transition to a Microservices Architecture.

- A pathway to refactor existing Java application code.
  
  Refactor components of Java EE applications to meet new needs. When weighing the benefits versus the challenges of moving to Microservices Architecture, the monolith does not necessarily need to be thrown away. Instead, you can start slowly, and extend your monolith by building new features as microservices around it. Using WebSphere Liberty, a Java developer can transform an existing,
large, monolithic JEE business application to microservices and make it usable by
new mobile, social, and cognitive applications.

- Guidance on how to create new cloud-native applications and methodologies.
  IBM provides an example application, Game On!, to help you quickly get
  started writing a new microservices application.

- A new landing page dedicated to microservices provides a one-stop shop for all
  the WebSphere Liberty microservices code samples, best practices, and getting
  started guides. This page serves as a collection of all the resources described
  above, and explains the value of using a microservices-based architecture.

Microservices offer the following benefits:

- Better collaboration with Business Partners and consumers
- Richer systems of engagement experiences (mobile, and more)
- Capability to introduce new products quickly to market that easily move to new
  geographic markets and acquire new clients
- Potential for top line growth due to faster time to market, improved products and
  services, and bottom line improvements due to capital and operational savings

Enable the API economy (create new and connect to existing APIs)

In addition to the pre-existing support for calling RESTful Java EE APIs (for example,
using JAX-RS), WebSphere Liberty provides you with the capability to generate
(manually, automatically, or a combination of both) Swagger 2.0 documentation
that supports the discovery of these APIs. Together, these enable you to publish,
discover, and consume Java Enterprise APIs, either directly or through the use of an
API framework such as IBM API Connect.

API Discovery is a new WebSphere Liberty server feature that:

- Enables the discovery of REST APIs from a single RESTful endpoint.
- Enables WebSphere Liberty to produce Swagger 2.0 documentation, which is the
  industry-leading specification for documenting REST APIs, using either JSON or
  YAML formats.
- Includes support for collectives, and the aggregation of API Swagger
documentation from members of the collective.
- Can turn any cloud-deployed WebSphere Liberty server package into a container
  that automatically discovers and exposes new available services.
- Offers WebSphere Developer Tools support for authoring Swagger documents
  through provided templates or samples. It also provides support for auto-
generating JAX-RS 2.0 clients from either a Swagger document or a URL, which
  generates a client that can be used to connect to any of the exposed APIs.

Enhance existing applications with cloud services from IBM Bluemix

Enterprise IT needs the ability to smartly consume and analyze data quickly, and
then make decisions based on informed analytics. As the computing industry
advances and new cloud-only services become increasingly expensive and complex
to develop in house, the ability to connect to off-premises cloud services is becoming
more appealing. Such services offer convenience without the cost of traditional
procurement and up-front expenses. It is one of the core reasons organizations are
exploring a hybrid approach to develop and manage applications, in which value-
added services, regardless of physical location, can be seamlessly integrated and
consumed by any on-premises application and paid for as they are used.

Enhancements to WebSphere Liberty include:

- Ease of discovering and binding to various services from Bluemix within on-
  premises enterprise applications
- Ease of integrating with enterprise on-premises storage with cloud-based storage
  for unstructured data
Optimize your IT environment by shifting to cloud

Cloud technologies are making it possible for companies to innovate and modernize. They open up numerous possibilities to reduce costs and to implement agile processes to deliver better client value faster. WebSphere Application Server for Bluemix is designed to reduce costs by helping you to implement agile DevOps processes to rapidly prototype and deliver new cloud-based mobile, web, and Internet of Things (IoT) applications. It also provides access to innovative cloud services, such as IBM Watson™, so you can create new applications and enhance existing ones that deliver additional client value with speed and efficiency. Additionally, http://www.ibm.com/cloud-computing/bluemix/ provides pay-as-you-go pricing for a potential cost savings of up to 30% while reducing capital and operating expenses.

WebSphere Application Server on Cloud offers single and multi-tenant options, with high performance and security. Moving applications to the cloud without disrupting your applications or processes has several benefits:

- Optimize Capital Expenditure (CAPEX) versus Operating Expenditure (OPEX) budgets through hourly, monthly, and BYOL pricing options and pay-as-you-go pricing.
- Gain capability to use existing applications, skills, and resources to reduce risk.
- Access to hundreds of cloud services to enrich new and existing applications.
- Reduce total cost of ownership by offloading operational expenses for infrastructure and middleware tier.
- Prepare for client datacenter capacity limitations with elastic growth in the cloud.

WebSphere Application Server for Bluemix now provides a WebSphere Network Deployment plan, which delivers an advanced, flexible runtime environment for large-scale application deployments and advanced performance and management capabilities for mission-critical applications. New features include:

- Intelligent management and routing features to help deliver reliability and better business results
- Improved operations and resiliency through advanced application availability, elasticity, and quality of service
- Enhanced security and control using integrated management and administrative tools

Benefit from additional features delivered through continuous delivery in the WebSphere Liberty Repository

Continuing the iterative delivery of new capabilities that build upon WebSphere Application Server V8.5.5, the new features offer enhancements to the WebSphere Application Server Liberty profile for development and production environments. The enhanced features are optionally installable and are available from the WebSphere Liberty Repository. These new features can be used along with those previously available through WebSphere Liberty Repository.

New packages and features available in the WebSphere Liberty Repository:

- WebSphere ND Controller Bundle: A single package that includes all the features required for a server to manage Liberty collectives
- WebSphere ND Member Bundle: A single bundle that includes all the features required for a server to be clustered and auto-scaled in a Liberty collective

WebSphere Developer tools are enhanced to easily connect and debug applications running on WebSphere Liberty inside of Docker.

Migration Discovery tools now support clients who want to do configuration and application migration from noncloud environments (WebSphere Application Server traditional, JBoss, Tomcat, and WebLogic) to IBM Cloud with guidance of cloud options and insight of migration estimation.
Migration Toolkit is enhanced for improved rule selection and to include application connectivity analysis to assist in moving to IBM Cloud.

Logstash collector

This feature provides ease of integration of WebSphere Liberty servers and applications with Elasticsearch’s Logstash product to monitor and quickly find errors in application logs, resolve problems, and intelligently search through logs to find the answers to your application problems.

Security enhancements

WebSphere Liberty Repository currently contains several additional security features beyond Java EE7. New enhancements include:

- The Simple and Protected GSSAPI Negotiation Mechanism (SPNEGO) outbound token support to enable Single Sign-on (SSO) mechanism for WebSphere Liberty profile in Kerberos environments. This feature provides capabilities similar to those available for the WebSphere Application Server traditional, also known as full profile.
- Security Assertion Markup Language (SAML) enhancements for SSO for web services.
- OpenID and OpenID Connect enhancements to help simplify the task of authenticating and authorizing mobile and cloud centric applications.
- Enhancements for Java Authentication and Authorization Service:
  - File-based configuration of custom login modules can be portably included with your application rather than configured through server configuration.
  - Custom login modules enable your code to perform programmatic login to Java 2 connectors. This removes the need to store your user id and password in the server configuration.
  - Support for getting the user credentials (id and password) programmatically to simplify authentication to back-end systems.
- Support for hardware PKCS11 cryptographic keystore enables you to leverage externally managed secure hardware keystores.
- Custom password encryption System Programming Interface (SPI) enables you to provide your own password encryption/decryption algorithm, which offers use cases requiring special algorithm, use of external hardware, or storing the cryptographic keys at different locations.

Java batch enhancement

The Parallel Job Management feature identifies and runs partitioned Java batch job steps in parallel across multiple servers to improve batch job performance supporting JSR 352. This feature is similar to Parallel Job Management features supported in WebSphere Compute Grid and WebSphere Application Server V8.5.5 traditional.

Auto extract war/ear files

WebSphere Liberty now automatically extracts application archives on first deploy. This simplifies the experience when using applications that rely on calling applications that can use a third-party framework, such as Spring Framework.

Plug-in configuration tool

This tool is provided through GitHub and can merge multiple plug-in configuration files together. This tool helps simplify building topologies of multiple servers fronted by a web server.

WebRTC and SIP enhancements

WebSphere Liberty now provides the ability to easily install their third-party media server drivers that support the JSR 309 standard (such as Dialogic and Radisys) to enable rapid development of real-time media applications. Capabilities enabled with
JSR 309 include record and playback of audio and video media streams, multiway audio mixing, continuous presence multiway video, transcoding, and many other media-related features.

**Features available for WebSphere Liberty beta**

WebSphere Liberty, which already provides a fast, lightweight, modular Java application server that supports the latest web and open standards, now introduces additional management features through the Liberty Repository. The latest beta drivers include following features:

**A single management interface for both Java and Node.js**

This provides more efficient DevOps and deployment that creates even greater value from the IBM cloud application development platform. It includes:

- An admin center for visualization and operational control over both Java and Node.js applications
- Scalable clustering for both Java and Node.js 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

**Docker deployment enhancements and ease of managing hybrid topology**

WebSphere Liberty now provides the flexibility to package and deploy a Java application as a Docker image. It delivers the application as a self-contained Docker container on either

- On-premises, intelligently managed by the Liberty Collective Controller
- Bluemix, by exploiting Bluemix Container server or Bluemix VM service
- Any other cloud provider that supports Docker VMs

**Cloud-based log analytics service from IBM Bluemix for on-premises applications**

This feature provides ease of integrating cloud-based log analytics with your on-premises WebSphere servers and applications to quickly find errors in application logs, resolve problems, and intelligently search through logs to find the answers to your application problems

**WebSphere Application Server V9.0 beta**

The WebSphere Application Server V9.0 beta debuted late in 2015 as a preconfigured runtime for WebSphere Application Server traditional (also known as WebSphere full profile) and is hosted on IBM Bluemix. It now offers the following enhancements:

- Capability to download and test on your premises in addition to the existing preconfigured service hosted on IBM Bluemix. Additionally, the following components are also available for download and test:
  - IBM HTTP Server for WebSphere Application Server
  - Web Server Plug-ins for IBM WebSphere Application Server
  - WebSphere Customization Toolbox
  - WebSphere Developer Tools that support Java EE 7 components
  - WebSphere Application Client
- Updated driver for clients who prefer the convenience and experience of cloud -- no download, no installation, and no tuning of application server environment.
- Additional Java EE 7 Web Profile and Full Platform APIs which help to optimize developer and operational productivity.
For more information, visit the WebSphere Application Server V9.0 Beta page.

**Accessibility by people with disabilities**

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at the Product accessibility information website.

**Section 508 of the US Rehabilitation Act**

WebSphere Application Server V8.5.5 is capable as of March 18, 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.

**Statement of general direction**

Consistent with the previously announced statement of direction, it remains the intent of IBM to certify WebSphere Application Server traditional, also known as WebSphere full profile, to Java EE 7 Full Platform. For details, refer to Software Announcement 215-084, dated February 17, 2015.

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.

**Reference information**

For information about the current WebSphere Application Server V8.5.5 continuous delivery offering, refer to Software Announcement 215-417, dated September 1, 2015.

For information about WebSphere Application Server for z/OS(R), V8.5 continuous delivery, refer to Software Announcement 215-420, dated September 1, 2015.


**Availability of national languages**

All supported languages are available.

Translation information, if available, can be found at the Translation Reports website.

**Program number**
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<th>Program name</th>
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<td>WebSphere Application Server</td>
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<td>WebSphere Application Server for Developers - Tools Edition for Eclipse</td>
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**Publications**

The latest product documentation for WebSphere Application Server V8.5.5 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 about 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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**Technical information**

**Specified operating environment**
Software requirements
For details, refer to the System Requirements for WebSphere Application Server V8.5.5.

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
For additional information, refer to Terms and conditions section of this announcement, or to the license information document that is available on the IBM Software License Agreement website.

Planning information

Packaging
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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.

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For WebSphere Application Server V8.5.5 ordering information, refer to Software Announcement 213-137, dated April 23, 2013.

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Charge metric
- For WebSphere Application Server V8.5.5 ordering information, refer to Software Announcement 213-137, dated April 23, 2013.

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.

1 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.
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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.

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License Information number

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Limited warranty applies

Yes

Limited warranty

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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.

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Money-back guarantee

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)

No

Passport Advantage applies

Yes, information is available on the Passport Advantage and Passport Advantage Express website.

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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

Passport Advantage.

System i Software Maintenance applies

No

Variable charges apply

No

Educational allowance available

Not applicable.

Statement of good security practices

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
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### Prices

The prices are unchanged by this announcement.

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