



IBM WebSphere Application Server for z/OS , V8.5 is enhanced with additional Liberty profile programming models, security, management, and extensibility

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At a glance

WebSphere® Application Server for z/OS® , V8.5 is enhanced with significant updates to the Liberty profile, a highly composable, fast to start, and ultra lightweight profile of the application server that is optimized for developer productivity and web application deployment.

Enhancements to the Liberty profile are as follows:

- Certification to the Java™ EE 6 Web Profile, providing the assurance that applications leverage standards-compliant programming models
- Additional programming models such as web services that enable the expansion of Liberty profile applications beyond web applications
- New messaging capabilities, including support for Java Message Service (JMS) and message-driven beans, and a new single server message provider
- Ability to add Liberty features through a new system programming interface, enabling the customization of Liberty profile capabilities to meet your business needs through insertion of custom Liberty features
- Liberty support for the NoSQL database MongoDB, a scalable, well-performing, and easy-to-use document-style NoSQL database
- Enhancement to security support, such as federated repositories, custom user registry, trust association interceptor, password hashing, and encryption of passwords in server configurations, which improves security for Liberty application deployments
- High Performance Extensible Logging (HPEL) for Liberty servers, which enables better administration and serviceability
- New Liberty administration features
- Clustering of server instances
- Support for WebSphere Web Cache (DynaCache)
- Easier caching solution with entitlement to WebSphere eXtreme Scale for z/OS , enabling client connectivity to distributed eXtreme Scale servers

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

For ordering, contact your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL (Reference: LE001).

Overview

Your business requires fast, flexible, and efficient application development solutions paired with leading service-oriented architecture (SOA) runtime environments to succeed in today's dynamic and increasingly competitive marketplace. IBM WebSphere Application Server has provided industry-leading solutions for the past 15 years, offering a broad range of application foundation and programming model choices to support applications built for businesses of any size.

WebSphere Application Server for z/OS , V8.5 provided significant enhancements in terms of developer experience and high-end resiliency. For developers requiring a quick and simple development run time, the Liberty profile was introduced as a great option for building web applications that do not require the full Java Platform, Enterprise Edition (Java EE) environment of traditional enterprise application server profiles. For administrators and businesses that strive for operational excellence through management efficiency, responsiveness, and performance, Intelligent Management capabilities were included in the full profile application server, enabling resiliency, virtualization, enterprise-level batch processing, and autonomic responsiveness to problems.

WebSphere Application Server for z/OS , V8.5 continues this focus with key enhancements to Liberty profile capabilities and qualities of service, enabling clients and partners to build a strong foundation and reduce cost through:

- Fit-for-purpose application server solutions
- Rapid development and delivery of new applications and services
- Operational excellence, resiliency, and reliability

Today's rapidly evolving business environment requires that businesses provide applications and services to meet a variety of consumer needs from lightweight and dynamic web applications to resilient and highly scalable mission-critical applications. WebSphere provides a family of fit-for-purpose application servers to meet the application demands at every level.

For developers and businesses that need a lightweight, simple, and powerful application server, WebSphere Application Server for z/OS , V8.5 is enhanced to include key updates to the Liberty profile, further increasing its value for application developers. Optimized for fidelity to full-profile WebSphere Application Server, the enhanced capabilities in version 8.5 broaden the scope of Liberty based applications, extending its reach into more production use cases. Highlights for developers include:

- Extremely lightweight offering, composed of the Liberty profile certified for the Java EE Web Profile
- Liberty profile programming model additions such as EJB-Lite, CDI, web services, Java Message Service (JMS), and message-driven beans
- Ability to extend the Liberty profile capabilities through feature additions
- Developer tool options to match project development needs
- Ability to easily package applications (including configuration) for deployment
- An excellent development and production run time for web applications

For administrators and businesses seeking to grow their Liberty applications into increasingly sophisticated production environments, WebSphere Application Server for z/OS , V8.5 is enhanced to include improved qualities of service for the Liberty profile. Highlights for administrators include:

- New Liberty administrative management model
- Clustering
- Security enhancements
- Integrated elastic caching through WebSphere eXtreme Scale

For businesses needing an end-to-end solution, WebSphere offers multiple tooling bundles that provide developer tools to maximize productivity and flexibility in building new applications. The IBM WebSphere Application Server for Developers - Tools Edition for Eclipse provides users with a lightweight desktop development environment to build applications for WebSphere Application Server. Other bundles include an unlimited number of licenses of IBM Rational® Application Developer, providing organizations with a complete solution to develop, deliver, and manage high-quality enterprise applications.

While delivering the same programming model and standards support as the rest of the WebSphere Application Server family, WebSphere Application Server for z/OS , V8.5 leverages the proven reliability, scalability, and security of the IBM System z® and IBM z/OS platforms to ensure the highest qualities of service. Some of the z/OS specific capabilities include:

- Exploitation of System z Parallel Sysplex® for scalability and availability
- z/OS Workload Management (WLM) integration
- Optimized Local Adapters for efficient access to collocated applications
- Secure cross-memory communications
- Integration with z/OS Secure Access Facility (SAF)
- Use of z/OS Resource Recovery Services (RRS) for transactional integrity
- Optimized processing with System z Application Assist Processor (zAAP)

For businesses that need to build, deploy, and manage secure and portable innovative applications that run on a multitude of mobile, server, and desktop systems, WebSphere Application Server is the flexible and efficient application platform of choice, offering fit-for-purpose application server solutions from lightweight web applications to highly resilient and scalable business-critical applications.

WebSphere Application Server for z/OS is providing enhancements through the service stream to enable capabilities that correspond to those delivered in the distributed WebSphere Application Server V8.5.5, which is described in Software Announcement [213-137](#), dated April 23, 2013 .

For details on WebSphere Application Server for z/OS , V8.5, refer to Software Announcement [212-106](#), dated April 24, 2012 .

Key prerequisites

For WebSphere Application Server for System z/OS , V8.5 prerequisite information, refer to Software Announcement [212-106](#), dated April 24, 2012 .

Planned availability date

June 14, 2013

Description

IBM WebSphere Application Server is a proven, high-performance transaction engine that can help you build, run, integrate, and manage dynamic business applications. WebSphere Application Server for z/OS , V8.5 introduced innovative options with the lightweight Liberty profile, a broad range of development tooling options, as well as improved operations through Intelligent Management capabilities that minimize end-user outages and maximize operations monitoring and control of the production environment.

These foundational capabilities are extended through significant enhancements to the Liberty profile, maintaining the developer-friendly aspects, while growing the capabilities through additional programming models, qualities of service, and extensibility.

The Liberty profile

First introduced in Version 8.5, the Liberty profile provides a simplified and lightweight development and application-serving environment for web, OSGi, and mobile applications. Key benefits include the following capabilities:

- Free and frictionless download for development purposes
- Ultra lightweight modular runtime environment
- Extremely fast startup; Liberty profile is designed to start up in under five seconds
- Simplified configuration for quick time to productivity
- Java and OSGi application deployment support for web applications
- LDAP registry support
- Deployment as a package of an application and configured server
- Managed, centralized deployment to many nodes of a packaged application and server
- Availability of Eclipse plug-ins for broad tooling support
- Platform support for distributed platforms, IBM z/OS , and the Macintosh operating system (development only)
- Inclusion of only those capabilities needed by the application that it serves, keeping each server small and agile

WebSphere Application Server V8.5 extends the Liberty profile capabilities through enhancements in programming models, security, manageability, and extensibility. Key capabilities include:

- Certification to the Java EE 6 Web Profile, which includes new programming models such as EJB-Lite, Managed Beans, and Context and Dependency Injection (CDI)
- Web services support through the JAX-WS Java EE API
- New messaging capabilities, including MQ client support, support for Java Message Service (JMS) and message-driven beans and a new single server message provider
- Ability to add Liberty features through a new system programming interface
- Support for the NoSQL MongoDB client
- Enhanced Liberty profile security capabilities
- High Performance Extensible Logging (HPEL) for Liberty servers
- Encryption of passwords in server configuration
- New Liberty administration features
- Dynamic Web Cache support
- Clustering of server instances
- Asynchronous Work Management

WebSphere Application Server V8.5 also delivers enhancements to the full profile application server. Key capabilities include:

- Easier caching solution with entitlement to WebSphere eXtreme Scale for z/OS , enabling client connectivity to distributed eXtreme Scale servers
- Intelligent Management for Web Servers feature enables On Demand Router (ODR) capabilities integrated in the WebSphere Web Server Plugin
- Integrated Service Mapping, enabling basic service invocation, routing, and transformation
- Session Initiation Protocol (SIP) serviceability improvements

Certification to the Java EE 6 Web Profile, adding new features such as EJB-Lite, Managed Beans, and Context and Dependency Injection

The Java EE 6 Web Profile is a standard specification including a common set of APIs designed to meet the needs of most modern web applications. WebSphere Application Server for z/OS , V8.5 has added several programming models to the Liberty profile to complete the requirements for Web Profile. WebSphere also achieved Web Profile certification, providing you the assurance that Liberty is capable of meeting your web application requirements. Some of the new programming models added in support of the Web Profile include EJB-Lite, Managed Beans, and Context and Dependency Injection (CDI).

Web services support through the JAX-WS Java EE API

WebSphere Application Server for z/OS adds the ability to expose Liberty profile applications as web services. The web services support for the Liberty profile provides both client and server functionality for SOAP-based web services as well as corresponding development and management capabilities. WebSphere Application Server makes the development, deployment, and publishing of web services very simple. Easily create the application as a POJO or EJB, provide the appropriate annotations and drop into WebSphere , and the WSDL is automatically generated and the service published.

New messaging capabilities, including support for Java Message Service (JMS) and message-driven beans and a new single server message provider

WebSphere Application Server for z/OS expands the communication capabilities of the Liberty profile through added support for Java Message Service. JMS provides a common way for Java applications to create, send, receive, and read asynchronous requests as JMS messages. The Liberty profile also includes a lightweight single server message provider and supports configuring connections to alternative message providers such as WebSphere MQ alternative message providers.

Ability to add Liberty features through a new system programming interface

A fundamental characteristic of the Liberty profile is the composable nature in which capabilities are exposed as features or building blocks for the server. While the Liberty profile includes many features out of the box, there is significant value added in being able to extend the capabilities. Clients and partners can extend the Liberty profile through the addition of features using a system programming interface (SPI). The SPI supports the complete feature lifecycle that includes packaging, installing, and servicing third-party features.

Liberty support for the NoSQL MongoDB database

Create applications for mobile and cloud environments using the Liberty profile and new integration with a NoSQL database. An increasingly common data store for new application workloads is the NoSQL database, which is a class of database systems that is focused on storage and retrieval of unstructured documents rather than relational database and structured query languages. Support for the MongoDB NoSQL database is now included with the Liberty profile, including programming model support for application access through resource injection of configured database connections.

DynaCache support in Liberty

The Liberty profile in WebSphere Application Server for z/OS , V8.5 is enhanced to enable you to build more complex and responsive applications with improved performance by supporting WebSphere dynamic web cache, which includes caching of servlet and JSP responses. The Liberty implementation includes API compatibility with full-feature WebSphere Application Server DynaCache. Leverage WebSphere web cache in both development and production scenarios, and as your caching needs grow, take the natural progression towards the adoption of WebSphere eXtreme Scale for enterprise-level application caching.

Asynchronous work management

WebSphere Application Server for z/OS , V8.5 is enhanced to include asynchronous work management for both the full profile and the Liberty profile, allowing applications to use `java.util.concurrent.ExecutorService` instances to perform work asynchronously, while retaining the context of the calling thread. The caller can look up the Executor service through the Java Naming and Directory Interface (JNDI) and resource injection.

Enhanced Liberty profile security capabilities

The Liberty profile in WebSphere Application Server for z/OS , V8.5 is enhanced with significant updates in the area of security, including OAuth, federated repositories, custom user registries, trust association interceptor, password hashing and encryption in server configurations, and web services security. These enhancements enable you to more easily integrate Liberty into your existing environment, taking advantage of capabilities such as user-provided registries installed as an extension to the Liberty run time.

High Performance Extensible Logging (HPEL) for Liberty servers

HPEL support was first introduced in Version V8.5 for full-profile WebSphere Application Server for improved serviceability and operational views into the WebSphere environment. HPEL capabilities include storing log records on disk with improved performance, an ability to expand what data is stored, a common design across platforms, and tools to easily view and search through log records. Administrators can control a number of aspects of the HPEL run time, such as configuring policies to retain log information based on age of log records or total size of log data. WebSphere Application Server for z/OS , V8.5 is enhanced by extending the HPEL capabilities to the Liberty profile, providing developers and administrators with enhanced views into applications running in the Liberty profile.

New Liberty administration through collectives, enabling clustering of servers

WebSphere Application Server for z/OS , V8.5 is enhanced to provide a new administrative model enabling the grouping of Liberty servers into collectives for common management. Lightweight and extremely flexible, the collectives enable highly scalable, available, and dynamic deployments, easily configured and customizable as your environment changes. Management includes notification feedback on collective member activities. All editions of WebSphere Application Server Liberty profile servers are eligible to be members of collectives. However, WebSphere Application Server for z/OS or Network Deployment is required for the Collective Controller. This new administrative model enables the definition of clusters of Liberty servers, including management across the cluster through cluster-centric APIs. Only WebSphere Application Server for z/OS or Network Deployment Liberty servers can be cluster members.

Integrated caching with WebSphere eXtreme Scale

WebSphere eXtreme Scale provides distributed object caching essential for elastic scalability and next-generation cloud environments. It helps applications process massive volumes of transactions with extreme efficiency and linear scalability. The combination of WebSphere Application Server and WebSphere eXtreme Scale enables you to improve the consumer experience through enhanced performance and responsiveness while also improving scalability and fault tolerance. Now included with WebSphere Application Server for z/OS , V8.5 is entitlement to WebSphere eXtreme Scale for z/OS , which provides client APIs for connecting to distributed WebSphere eXtreme Scale servers.

Service Mapping

WebSphere Application Server for z/OS , V8.5 is enhanced to provide a new Service Mapping feature to enable simple service-oriented architecture (SOA) integration and mediation capabilities in WebSphere Application Server. For the application developer, this capability simplifies common integration tasks, including basic

service invocation, routing, and transformation. In addition, the administrator can take control over which service interactions are mediated. Leverage this built-in mediation capability as part of WebSphere Application Server.

Intelligent Management for Web Servers feature enables On Demand Router (ODR) capabilities integrated in the WebSphere Web Server Plugin

WebSphere Application Server for z/OS , V8.5 now provides the Intelligent Management for Web Servers feature. It enables simplified intelligent management capabilities through integration of the On Demand Router (ODR) capability into the WebSphere Web Server plugin. This reduces the need for the separate Java-based proxy server in many scenarios. The ODR is the WebSphere routing function that classifies incoming requests and then dispatches the requests across the application server environment. This integration provides significant value in terms of consolidation and simplification of the topology, resulting in fewer resources to manage and lower total cost of ownership.

Session Initiation Protocol (SIP) serviceability improvements

Several enhancements to WebSphere Session Initiation Protocol (SIP) serviceability are included in the WebSphere Application Server for z/OS , V8.5 update. New PMI counters enable diagnosing issues in the areas of congestion, session replication, network issues, and configuration. In addition, integration with WebSphere HPEL logging results in SIP context being automatically enabled when HPEL is enabled. These capabilities enable improved problem determination and quicker time to resolution for SIP-related issues.

Value Unit-based pricing

Value Unit pricing for eligible IBM System z IBM International Program License Agreement (IPLA) programs enables a lower cost of incremental growth and enterprise aggregation. Each System z IPLA product with Value Unit pricing has a single price per Value Unit and a conversion matrix, called *Value Unit Exhibit* , for converting from some designated measurement to Value Units. Most commonly, Millions of Service Units (MSUs) is the measurement designated by IBM to be converted to Value Units. Some other measurements are engines or messages. Since MSUs are the most common measurement, that measurement will be used for the remainder of this description.

Value Unit pricing offers price benefits for you. For each System z IPLA program with Value Unit pricing, the quantity of that program needed to satisfy applicable IBM terms and conditions is referred to as the *required license capacity* . Each of the various Value Unit Exhibits stipulate that the larger your required license capacity, the fewer Value Units per MSU you will need. Value Unit Exhibits are uniquely identified by a three-digit code and referred to using the nomenclature VUExxx, where xxx is the three-digit code.

Subsequent acquisitions of Value Unit priced programs offer additional price benefits. The quantity of each System z IPLA program that you have acquired is referred to as *entitled license capacity* . If you want to grow your entitled license capacity for a System z IPLA program, the calculation to determine additional needed Value Units is based upon the number of Value Units already acquired.

For each System z IPLA program with Value Unit pricing, you should:

- Determine the required license capacity, in MSUs
- Aggregate the MSUs across the enterprise
- Convert the total MSUs to Value Units, using the applicable Value Unit Exhibit
- Multiply the price per Value Unit by the total number of Value Units to determine the total cost

To simplify conversion from the designated measurement to Value Units or vice-versa, use the Value Unit Converter Tool. For additional information or to obtain a copy of the Value Unit Converter Tool, visit the Value Unit Converter Tool website

<http://ibm.com/zseries/swprice/vuctool>

Note that Value Units of a given product cannot be exchanged, interchanged, or aggregated with Value Units of another product.

To determine the required license capacity for the System z IPLA program you selected, refer to the [Terms and conditions](#) section.

Product positioning

Refer to Software Announcement [213-137](#), dated April 23, 2013 .

Reference information

For information about WebSphere Application Server V8.5.5 for non-System z environments, refer to Software Announcement [213-137](#), dated April 23, 2013 .

For information about WebSphere Application Server for z/OS , V8.5, refer to Software Announcement [212-106](#), dated April 24, 2012 .

For information on the web:

- WebSphere Application Server family, visit
<http://www.ibm.com/software/webservers/appserv>

For specific information about the IBM WebSphere Application Server for z/OS , visit

http://www.ibm.com/software/webservers/appserv/zos_os390/

The WebSphere Application Server zone of Developer Domain has valuable information. Visit

<http://www7b.boulder.ibm.com/wsdd/zones/was/>

- The Washington Systems Center Techdocs site has valuable information. Visit
<http://www.ibm.com/support/techdocs/atmsastr.nsf/Web/Techdocs>
- For the z/OS Internet library, visit
<http://www.ibm.com/servers/eserver/zseries/zos/bkserv/>
- For IBM System z and S/390® e-business that has a wide range of information, including the latest announcements, customer success stories, and technical information, visit
<http://www-03.ibm.com/systems/z/>

Program number

Program number	VRM	Program name
5655-W65	8.5	webSphere Application Server for z/OS
5655-F81	1.1.0	webSphere Application Server for z/OS - Software Subscription and Support

Product identification number

Program PID number	Subscription and Support PID number
5655-W65	5655-F81

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM , you may link directly to Business Partner information for this announcement. A PartnerWorld® ID and password are required (use IBM ID).

<https://www.ibm.com/partnerworld/mem/sla.jsp?num=213-174>

Publications

The primary delivery and latest product documentation for IBM WebSphere Application Server for z/OS , V8.5 can be found in the online information center available from the library web page at

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

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, visit

<http://www.ibm.com/software/sw-services/>

Ordering information

Charge metric

Value Unit exhibit VUE007

	MSUs minimum	MSUs maximum	Value Units/MSU
Base	1	3	1
Tier A	4	45	0.45
Tier B	46	175	0.36
Tier C	176	315	0.27
Tier D	316	+	0.2

Value Units for mainframes without MSU ratings:

Hardware	Value Units/machine
MP3000 H30	6
MP3000 H50	8
MP3000 H70	12
ESL models	2

Ordering example

The total number of Value Units is calculated according to the following example.

If your required license capacity is 1,500 MSUs for your selected System z IPLA product, the applicable Value Units would be:

Translation from MSUs to value Units

	MSUs	*	Value Units/MSU	=	Value Units
Base	3	*	1.00	=	3.00
Tier A	42	*	.45	=	18.90
Tier B	130	*	.36	=	46.80
Tier C	140	*	.27	=	37.80
Tier D	1,185	*	.20	=	237.00
Total	1,500				343.50

When calculating the total number of Value Units, the sum is to be rounded up to the next integer.

Basic license

For ordering information for WebSphere Application Server for z/OS , V8.5, refer to Software Announcement [212-106](#), dated April 24, 2012 .

Customized Offerings

Product deliverables are shipped only via CBPDO and ServerPac. These customized offerings are offered for Internet delivery in countries where ShopzSeries product ordering is available. Internet delivery reduces software delivery time and allows you to install software without the need to handle tapes. For more details on Internet delivery, refer to the Shopz help information at

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

You choose the delivery method when you order the software. IBM recommends Internet delivery. In addition to Internet and DVD, the supported tape delivery options include:

- 3590
- 3592

Most products can be ordered in ServerPac the month following their availability in CBPDO. z/OS can be ordered via CBPDO and ServerPac at general availability. Many products will also be orderable in a Product ServerPac without also having to order the z/OS operating system or subsystem.

Shopz and CFSW will determine the eligibility based on product requisite checking. For more details on the Product ServerPac, visit the Help section on the Shopz website at

<http://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp>

Production of software product orders will begin on the planned general availability date.

- CBPDO shipments will begin one week after general availability.
- ServerPac shipments will begin two weeks after general availability.

The terms and conditions for WebSphere Application Server for z/OS , V8.5, as previously announced in Software Announcement [212-106](#), dated April 24, 2012 , are unchanged.

Terms and conditions

Sub-capacity terms and conditions

IBM Getting Started Sub-capacity Pricing for z/OS IPLA Software applies.

Sub-capacity utilization determination

Sub-capacity utilization is determined based on the product's own execution as reported to IBM in accordance with the requirements for reporting sub-capacity utilization for products.

On/Off Capacity on Demand (CoD)

To be eligible for On/Off CoD pricing, you must be enabled for temporary capacity on the corresponding hardware, and the required contract, Attachment for IBM System z On/Off Capacity on Demand (Z125-7883) must be signed prior to use.

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 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 comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective. IBM does not warrant that systems and products are immune from the malicious or illegal conduct of any party.

Prices

The prices are unchanged by this announcement.

For additional information and current prices, contact your local IBM representative.

Order now

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

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Fax: 800-2IBM-FAX (242-6329)
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Reference: LE001

The Americas Call Centers, our national direct marketing organization, can add your name to the mailing list for catalogs of IBM products.

Note: Shipments will begin after the planned availability date.

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