Oracle® Fusion Middleware

What's New in Oracle WebLogic Server

15c (15.1.1.0.0)
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Oracle Fusion Middleware What's New in Oracle WebLogic Server, 15c (15.1.1.0.0)

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Contents

Preface

This document describes new features for all components of Oracle WebLogic Server 15c (15.1.1.0.0).

Audience

System administrators and operators responsible for monitoring and managing a WebLogic Server installation should use this document as a resource for understanding new features for all components of Oracle WebLogic Server 15c (15.1.1.0.0).

This document is relevant to all phases of a software project, from development through test and production phases.

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Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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What's New in Oracle WebLogic Server 15.1.1.0.0

This document describes the new features and changed functionality in the Oracle WebLogic Server 15.1.1.0.0 release.
This chapter includes the following topics:

Jakarta EE 9.1 Support

Oracle WebLogic Server 15c (15.1.1.0.0) is a fully compatible implementation of the Jakarta Platform, Enterprise Edition (Jakarta EE) Version 9.1.

To understand what's new in WebLogic Server 15.1.1.0.0 compared with WebLogic Server 14.1.2.0.0, it is important to understand the differences in the Jakarta EE specifications that these versions support.

WebLogic Server 15.1.1.0.0 supports the Jakarta EE 9.1 Platform specification, whereas WebLogic Server 14.1.2.0.0 supports the Jakarta EE 8 Platform specification. The following provides a summary of the changes introduced in the Jakarta EE 9.1 Platform specification, relative to the Jakarta EE 8 Platform specification.

The Jakarta EE specifications are successor specifications to the Java Platform, Enterprise Edition (Java EE) specifications, defined through the open Java Community Process. The Jakarta EE specifications are defined through an open community process managed by the Jakarta EE Working Group at the Eclipse Foundation. The Jakarta EE Platform specification is an umbrella specification comprising individual specifications - in technical areas such as, servlet processing, REST services, messaging, database connectivity, and other areas - that together define a platform for hosting Jakarta EE applications. The Jakarta EE 8 Platform specification (Jakarta EE 8) was the first platform specification delivered by the Jakarta EE Working Group. Jakarta EE 8 is fully compatible with Java EE 8 on a technical level, despite the difference in specification names, the processes used to publish specifications, and the specification licensing terms. The primary purpose of Jakarta EE 8 was to establish a well-known and well-defined foundation from which future Jakarta EE specifications could evolve.

The Jakarta EE 9 Platform specification was the next version release of the Jakarta EE Platform specification. The primary goal of the Jakarta EE 9 Platform (Jakarta EE 9) specification was to deliver a platform specification that was functionally equivalent to Jakarta EE 8, but that used a different naming convention, or namespace, for the package names used in defining Jakarta EE APIs. Where Jakarta EE 8 specifications use the `javax.*` namespace for API package names, Jakarta EE 9 specifications use the `jakarta.*` namespace for API package names. For example, `javax.servlet` in Jakarta EE 8 was renamed to `jakarta.servlet` in Jakarta EE 9. Other changes to Jakarta EE 8 were minor, such as the inclusion of certain specifications formerly delivered in Java SE, identification of optional specifications, and removal of legacy specifications that were rarely used or no longer strategic to the Jakarta EE Platform.

The specifications removed in Jakarta EE 9 are:

- Jakarta XML Registries (JAXR; formerly Java API for XML Registries) 1.0
- XML RPC 1.1

- Deployment 1.7
- Management 1.1
- Distributed Interoperability (EJB 3.2 Core Specification)

Jakarta EE 9.1 is a minor maintenance release of Jakarta EE 9, adding support for the Java SE 11 runtime to the Java SE 8 support provided in Jakarta EE 9.

Therefore, the primary change from Jakarta EE 8 to Jakarta EE 9.1 is the change in the Jakarta EE API namespace from `javax.*` to `jakarta.*`, with the other changes listed previously, having a relatively minor impact. Otherwise, the Jakarta EE 8 and Jakarta EE 9.1 specifications provide nearly equivalent functionality and are highly compatible. However, an important characteristic of Jakarta EE 9.1 support in WebLogic Server 15.1.1.0.0 is that the use of the `jakarta.*` namespace enables the use of more current, third-party libraries, that also use the `jakarta.*` namespace, in WebLogic Server applications.

JDK 17 and 21 Certification

Oracle WebLogic Server 15c (15.1.1.0.0) is certified for use with JDK 17, in addition to JDK 21. Supported Oracle WebLogic Server 15c (15.1.1.0.0) clients are certified for use with JDK 17 and JDK 21. A certified JDK is required for running the WebLogic Server installation program.

JDK 17 introduces many new features, optimizations, and bug fixes that can enhance the performance and stability of your applications. These enhancements stem from a better garbage collector, enhancements to the JIT compiler, and improved class data sharing, leading to faster startup times and better overall performance. JDK 21 ushers in 15 features, including a key encapsulation mechanism API, and previews of string templates and structured concurrency. JDK 21 is the latest long-term support release of Java SE Platform.

See the following topics:

- The Oracle Fusion Middleware Supported System Configurations page on Oracle Technology Network.
- The Java Downloads page on Oracle Technology Network from which Oracle JDK 17 and JDK 21 are available, including release notes and installation instructions: `https://www.oracle.com/java/technologies/downloads/`.

  See also the Java Platform Group Product Management blog, Understanding the Server JRE.
- Roadmap for Verifying Your System Environment in *Installing and Configuring Oracle WebLogic Server and Coherence*.

Certificate Management Service

Oracle WebLogic Server 15c (15.1.1.0.0) introduces a new way to manage certificates in your domain.

> **Note**
>
> The Certificate Management Service is available as a Technical Preview in this release of WebLogic Server *for testing purposes only*. Do not use it in production environments. For more information, see Using the Certificate Management Service in *What's New in Oracle WebLogic Server*.

The Certificate Management Service sends requests to supported Certificate Issuers to obtain certificates. It stores these certificates into the Domain Keystores, which are available to any server configured to use the Certificate Management Service, making it simple to distribute and refresh certificates as needed.

For more information, see Using the Certificate Management Service in *Administering Security for Oracle WebLogic Server*.

Upgrade Improvements

Oracle WebLogic Server 15c (15.1.1.0.0) provides a new upgrade tool that simplifies and automates the upgrade of WebLogic applications.

This feature is described in the following section:

OpenRewrite Recipes

Existing WebLogic Server applications must be modified to run in the new WebLogic Server 15.1.1.0.0 application environment. WebLogic Server application upgrade tooling employs OpenRewrite recipes for upgrading applications to newer versions of WebLogic Server, Java, Jakarta EE, and related versions of Jakarta Server Faces and Spring Framework.

Use Rewrite WebLogic recipes to apply the changes required to upgrade your applications to WebLogic Server 15.1.1.0.0, Jakarta EE 9.1, and Java 17 or Java 21, such as to:

- Transform applications from `javax` to the `jakarta` namespace.
- Transform deployment descriptors with Jakarta schema.
- Upgrade applications from Java 8 or 11 to Java 17 or 21.
- Identify deprecated or removed WebLogic Server and Java APIs.
- Upgrade WebLogic Maven properties versions.
- Upgrade Spring 5.x applications to Spring Framework 6.2.x.

For more information about using WebLogic OpenRewrite recipes for your WebLogic applications, see the WebLogic Server application upgrade tooling **Documentation**. To jump start your hands-on learning, see the **Examples and Tutorials**.

Separate data base credentials for XA recovery processing

An XA data source DB user requires certain DBA table grants in order to recover pending transaction branches from the Oracle database. We now provide the ability to use two different DB credentials one for XA recover processing (with DBA privileges) and different DB credentials for application processing (no DBA privileges).

Data Source configuration allows specification of a database user and password that are used to create JDBC connections for XA recover processing. These credentials can be different from the database user and password used for JDBC application data. Configuration of separate XA recover credentials is optional and existing data source configurations will continue to support XA recovery as long as the database user is granted the appropriate permissions.

The XA recover credentials will be specified in a XA data source configuration using the WLS-internal driver properties weblogic.jdbc.xaRecoverUser and weblogic.jdbc.xaRecoverPassword. If XA recover credential properties are defined in a non-XA data source configuration they are ignored.

Application Handling of OIDC Tokens Through WLS OpenID Connect Provider

Allow the application relying on OIDC (Open ID Connect) to access and handle the tokens and claims used during the authentication process.

Filter to block specific users' access to the WebLogic Management APIs

The filter will block users from accessing WebLogic management applications (e.g. WebLogic Remote Console, REST APIs) and terminate the user session as well as logging the event in the server log.

JDBC Data Source and Connection Pool tuning enhancements

New configuration parameters to optimize Connection Pool shrinking operations which improves performance.

Control if to remove or replace a connection in the Connection Pool when the test of idle connections fails due to a DB session being closed.

Reliable recovery of AQJMS messages when the DB instance that hosts the AQJMS queues is taken down for maintenance

For applications that cannot use Container-Managed transactions with MDBs to process messages in an AQJMS queue, WebLogic Server Message-Driven Beans (MDBs) container provides an advanced message recovery capability to help the applications recover from a situation where the underlying AQ sessions may be closed due to database maintenance, while the MDBs are in the middle of completing a long running message processing task.

Runtime Improvements

Oracle WebLogic Server 15c (15.1.1.0.0) builds on support from prior WebLogic Server versions to improve the reliability, availability, scalability, and performance of WebLogic Server applications with regard to the use of clustered environments, Oracle database features, and multi data center architectures.

These improvements are described in the following section:

Advanced Message Recovery for MDBs

When integrating with Oracle AQ JMS using WebLogic Server MDBs, with certain AQ JMS and MDB configurations, applications may run into a situation where the same message is picked up and processed by two different MDB threads concurrently, which in turn leads to unpredictable behaviors. Oracle WebLogic Server 15c (15.1.1.0.0) provides an advanced message recovery capability, to help applications to avoid running into or to recover from this situation.

For more information on the advanced message recovery functionality, see Advanced Message Recovery for MDBs in *Oracle Fusion Middleware Administering JMS Resources for Oracle WebLogic Server*.

Manageability Improvements

Oracle WebLogic Server 15c (15.1.1.0.0) continues to provide new management features that simplify the configuration, monitoring, and ongoing management of WebLogic Server domains and applications.

These features are described in the following section:

Documentation Update History

The update history of the Oracle WebLogic Server documentation library summarizes the updates that have been made to various user and reference guides, as well as online help, for 15c (15.1.1.0.0).

The following table summarizes updates made to the Oracle WebLogic Server documentation library for its initial 15.1.1.0.0 release:

Date	Description of Updates
September 2025	Initial release. Library changes include: • Added the topic Advanced Message Recovery for MDBs in *Oracle Fusion Middleware Administering JMS Resources for Oracle WebLogic Server*, which describes the advanced message recovery capability. • Renamed *Developing Enterprise JavaBeans for Oracle WebLogic Server* to *Developing Jakarta Enterprise Beans for Oracle WebLogic Server*. • Renamed *Developing Enterprise JavaBeans Version 3.2 for Oracle WebLogic Server* to *Developing Jakarta Enterprise Beans Using Deployment Descriptors*.

Standards Support, Supported Configurations, and WebLogic Server Compatibility

Oracle WebLogic Server 15c (15.1.1.0.0) provides Jakarta EE 9.1 full platform support, Java SE 17 and 21 certification, support for web services standards, support on multiple operating system and JVM platforms, and support for several security standards.

The following sections describe WebLogic Server standards support, supported system configuration, WebLogic Server compatibility, WebLogic Server installation support:

Standards Support

WebLogic Server 15c (15.1.1.0.0) supports the following standards and versions:

Jakarta Standards

Table 1-1 lists currently supported Jakarta EE 9.1 standards.

> **Note**
>
> See WebLogic Server Security Standards in *Administering Security for Oracle WebLogic Server* for the currently supported security standards, such as JAAS, JCE, Jakarta Authentication, Jakarta Authorization, Jakarta Security, and so forth.

Table 1-1 Jakarta EE 9.1 Standards Support

Standard	Version
Jakarta Activation	2.0
Jakarta Annotations	2.0
Jakarta Batch	2.0
Jakarta Bean Validation	3.0
Jakarta Concurrency	2.0
Jakarta Connectors	2.0
Jakarta Contexts and Dependency Injection	3.0
Jakarta Dependency Injection	3.0
Jakarta EE	9.1
Jakarta Enterprise Beans (EJB)	4.0
Jakarta Enterprise Web Services (JAX-WS)	2.0
Jakarta Expression Language (EL)	4.0
Jakarta Interceptors	2.0
Jakarta JSON Binding	2.0
Jakarta JSON Processing	2.0
Jakarta Mail	2.0
Jakarta Managed Beans	2.0
Jakarta Messaging (JMS)	3.0
Jakarta Persistence (JPA)	3.1, 3.0[1]
Jakarta RESTful Web Services (JAX-RS)	3.0
Jakarta Security	2.0
Jakarta Server Faces (JSF)	3.0
Jakarta Server Pages (JSP)	3.0
Jakarta Servlet	5.0
Jakarta SOAP with Attachments (SAAJ)	2.0
Jakarta Standard Tag Library (JSTL)	2.0
Jakarta Transaction (JTA)	2.0
Jakarta Web Services Metadata for the Java Platform	3.0
Jakarta WebSocket	2.0
Jakarta XML Web Services (JAX-WS)	3.0
OTS/JTA	OTS 1.2 and JTA 1.3
RMI	1.0

Table 1-1 (Cont.) Jakarta EE 9.1 Standards Support

Standard	Version
RMI/IIOP	1.0

[1] By default, WebLogic Server 15.1.1.0.0 implements JPA 3.1 but you can set WebLogic Server to use JPA 3.0 instead. See Changing the Jakarta Persistence Version in *Administering Server Startup and Shutdown for Oracle WebLogic Server*.

Other Java Standards

Table 1-2 lists other currently supported Java and related standards.

Table 1-2 Java and Related Standards Support

Standard	Version
Jakarta Deployment	1.7
Jakarta Management	1.1
Java API for XML Processing (JAXP)	1.4.4
Java Naming and Directory Interface (JNDI)	1.3
JDBC	4.3
JDKs	17.0 and 21.0 See JDK 17 and 21 Certification for details.
JMX	1.2
Streaming API for XML (StAX)	1.0

Web Services Standards

For the current list of standards supported for WebLogic web services, see Features and Standards Supported by WebLogic Web Services in *Understanding WebLogic Web Services for Oracle WebLogic Server*.

Other Standards

Table 1-3 lists other standards that are supported in WebLogic Server 15c (15.1.1.0.0).

> **Note**
>
> See WebLogic Server Security Standards in *Administering Security for Oracle WebLogic Server* for additional information on standards relating to security, such as SSL, TLS, and XACML, and so forth.

Table 1-3 Other Standards

Standard	Version
X.509	v3
LDAP	v3

Table 1-3 (Cont.) Other Standards

Standard	Version
TLS	v1.1, v1.2
HTTP	2.0, 1.1
SNMP	SNMPv3
xTensible Access Control Markup Language (XACML)	2.0
Partial implementation of Core and Hierarchical Role Based Access Control (RABC) Profile of XACML	2.0
Internet Protocol (IP)	Versions: • v6 • v4

For more information about IPv6 support for all Fusion Middleware products, see the Oracle Fusion Middleware Supported System Configurations page on Oracle Technology Network.

Jython Version

WLST supports Jython. As of Oracle WebLogic Server 14.1.1.0.0, the Jython version has been upgraded from version 2.2.1 to the current version 2.7.1. See Behavior Changes in Jython version 2.7 in *Release Notes for Oracle WebLogic Server* for issues caused by the Jython version upgrade and their workarounds.

Supported Configurations

For the most current information on supported configurations, see the Oracle Fusion Middleware Supported System Configurations page on Oracle Technology Network.

Licensing Information

For the most current information on Oracle Fusion Middleware Licensing, see *Licensing Information User Manual*.

WebLogic Server Compatibility

For the most current information on compatibility between the current version of WebLogic Server and previous releases, see WebLogic Server Compatibility in *Understanding Oracle WebLogic Server*.

Database Interoperability

The certification matrices and My Oracle Support Certifications define the following terms to differentiate between types of database support:

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Deprecated and Removed Functionality

These sections describe the deprecated and removed functionality in 15c (15.1.1.0.0) .

Deprecated Functionality in Oracle WebLogic Server 15c (15.1.1.0.0)

The following functionality and components have been deprecated in WebLogic Server 15c (15.1.1.0.0).

For the functionality and components deprecated in WebLogic Server 14c (14.1.x), see Deprecated Functionality in Oracle WebLogic Server 14c (14.1.x) in *What's New in Oracle WebLogic Server*.

Removed Functionality and Components

Several components, deprecated in previous versions of WebLogic Server, are removed from Oracle WebLogic Server 15c (15.1.1.0.0).

JAX-RPC

JAX-RPC has been removed from WebLogic Server in version 15.1.1.0.0.

SAML 1.1

The SAML 1.1 Identity Assertion provider, the SAML 1.1 Credential Mapping provider, and related configuration and services for SAML 1.1 federation services, are removed in WebLogic Server 15.1.1.0.0. Oracle recommends using SAML 2.0.