Oracle® Fusion Middleware

What's New in Oracle WebLogic Server 10.3.6

11*g* Release 1 (10.3.6)

E13852-11

July 2015

This document describes new features for all components of Oracle WebLogic Server in 10.3.6.

ORACLE®

Oracle Fusion Middleware What's New in Oracle WebLogic Server 10.3.6, 11*g* Release 1 (10.3.6)

E13852-11

Contents

Preface

This preface describes the document accessibility features and conventions used in this guide—*What's New in Oracle WebLogic Server*.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

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

1

Introduction and Roadmap

This chapter describes the contents and audience for this guide—*What's New in Oracle WebLogic Server 10.3.6*.

This chapter includes the following sections:

- Section 1.1, "Document Scope and Audience"
- Section 1.2, "Guide to This Document"

1.1 Document Scope and Audience

This document is a resource for system administrators and operators responsible for monitoring and managing a WebLogic Server installation. It is relevant to all phases of a software project, from development through test and production phases.

1.2 Guide to This Document

This document is organized as follows:

- This chapter, Chapter 1, "Introduction and Roadmap," provides a roadmap for this guide and describes the audience for this guide.
- Chapter 2, "What's New in Oracle WebLogic Server," describes new features for all components of Oracle WebLogic Server in the current release.

2

What's New in Oracle WebLogic Server

Welcome to Oracle WebLogic Server. The following sections describe new and changed functionality in WebLogic Server 10.3.6. For a list of bugs that are fixed in this release, refer to the following file in your WebLogic Server installation directory:

WL_HOME/bugsfixed/bugsfixed.htm

The list of fixed bugs is also available on My Oracle Support at https://support.oracle.com/. Enter the following document ID in the **Knowledge Base Search** field:

1376604.1

> **Note:** Oracle Fusion Middleware 11*g* contains Oracle WebLogic Server 11*g*. The current version number of Oracle WebLogic Server is 10.3.6.

- Section 2.1, "Configuration"
- Section 2.2, "Deployment"
- Section 2.3, "JDBC"
- Section 2.4, "Java SE 7 Support"
- Section 2.5, "JMS"
- Section 2.6, "JTA"
- Section 2.7, "Messaging"
- Section 2.8, "Security"
- Section 2.9, "Spring"
- Section 2.10, "TopLink"
- Section 2.11, "Web Applications, Servlets, and JSPs"
- Section 2.12, "Web Services"
- Section 2.13, "WebLogic Tuxedo Connector"
- Section 2.14, "Deprecated Functionality (WebLogic Server 11g Release 1)"
- Section 2.15, "Standards Support"
- Section 2.16, "Supported Configurations"
- Section 2.17, "WebLogic Server Compatibility"

2.1 Configuration

In this release of WebLogic Server, support for configuration of WebLogic domains with GridLink data sources and schemas has been added to the Fusion Middleware Wizard, using the following drivers:

- Oracle Driver (Thin) for GridLink Connections

  This is the GridLink Type 4 non-XA driver.

- Oracle Driver (Thin XA) for GridLink Connections

  This is the GridLink Type 4 XA driver.

A GridLink data source is a single data source that represents a service that responds to Fast Application Notification (FAN) events.

2.2 Deployment

Now you can execute `weblogic-maven-plugin` goals outside of a Maven project. For example, you can use the `weblogic:deploy` goal as a standalone operation to deploy a WAR file from any directory; the directory need not contain a Maven `pom.xml` file. This feature is useful for developers who have installed the plug-in and want to use it for general deployment purposes.

In order to connect to the WebLogic Server domain to perform deployment operations, the `weblogic-maven-plugin` must supply valid user credentials. To avoid password exposure in the `pom.xml` file or by supplying credentials on the command line, you can now use a secure configuration authentication mechanism which stores the user name and password in encrypted form in an external file, and then uses it to supply the user credentials with which to connect to the WebLogic Server domain, along with the key that was used to encrypt the file.

For more information, see "Using the WebLogic Maven Plug-In for Deployment" in *Deploying Applications to Oracle WebLogic Server*.

2.3 JDBC

This section describes the new data source features and changes in this release of WebLogic Server:

- Section 2.3.1, "CapacityIncrement Attribute"
- Section 2.3.2, "MinCapacity Attribute"
- Section 2.3.3, "Define Fatal Error Codes"
- Section 2.3.4, "Data Source Profile Logging"
- Section 2.3.5, "Application-scoped Drivers"
- Section 2.3.6, "Oracle BI Server Support"
- Section 2.3.7, "Keep Connection After Global Transaction"
- Section 2.3.8, "Session Affinity Policy"
- Section 2.3.9, "Secure RMI Driver Communication"
- Section 2.3.10, "Proxy Authentication"
- Section 2.3.11, "Set Database Credentials on a Connection""
- Section 2.3.12, "Connection Harvesting"

2.3.1 CapacityIncrement Attribute

In WebLogic Server 10.3.6 and higher releases, the `capacityIncrement` attribute is no longer configurable and is set to a value of 1.

2.3.2 MinCapacity Attribute

The `MinCapacity` attribute sets the minimum number of physical connections that a connection pool can contain after it is initialized. See "Shrinking a Connection Pool" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.3 Define Fatal Error Codes

For each data source, you can define fatal error codes that indicate that the back-end database with which the data source communicates is no longer accessible. See "Define Fatal Error Codes" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.4 Data Source Profile Logging

Prior to WebLogic Server 10.3.6, data source profile records were recorded as WLDF events. To provide better usability and performance, WebLogic Server now uses a data source profile log to store events. See "Monitoring WebLogic JDBC Resources" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.5 Application-scoped Drivers

You can include a database driver in the EAR/WAR file that contains an application--scoped data source. This allows you to deploy a self-contained EAR file that has both the data source and driver required for an application. See "Including Drivers in EAR/WAR Files" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.6 Oracle BI Server Support

WebLogic Server 10.3.6.0 and higher supports the Oracle BI Server. Select **Oracle BI Server** as the database type when creating a new generic data source to interoperate with the Oracle BI Server. See "Creating a JDBC Data Source" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.7 Keep Connection After Global Transaction

This release provides a new attribute, `Keep Connection After Global Transaction`, that enables WebLogic Server to keep a physical database connection associated with a logical connection when committing or rolling back a global transaction. See "KeepConnAfterGlobalTx" in the *Oracle WebLogic Server MBean Reference*.

2.3.8 Session Affinity Policy

WebLogic Server GridLink data sources use the session affinity policy to improve performance by directing the database operations of a servlet session to the same RAC instance in a RAC cluster. See "GridLink Affinity" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.9 Secure RMI Driver Communication

Secure RMI driver client communication with data source objects at the server level by setting the RMI JDBC Security parameter, see "Security Considerations for WebLogic RMI Drivers" in *Programming JDBC for Oracle WebLogic Server*.

2.3.10 Proxy Authentication

You can configure a WebLogic data source to allow a client to connect to an Oracle database through an application server as a proxy user. See "Proxy Authentication for Oracle Databases" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.11 Set Database Credentials on a Connection

You can configure a WebLogic data source to allow a connection to set database credentials when connecting to an Oracle database. See "Setting Database Credentials on a Connection" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.12 Connection Harvesting

You can specify a number of reserved connections to be released when a data source reaches a specified number of available connections. Harvesting helps to ensure that a specified number of connections are always available in the pool and improves performance by minimizing connection initialization. See in "Configuring Connection Harvesting" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.13 Connection Labeling

Labeling allows an application to attach arbitrary name/value pairs (labels) to a connection that has a particular initialization state. This allows the application to improve performance by minimizing the time and cost of re-initializing a connection. See Labeling Connections in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.14 New Debug Scopes

This release provides the following new debug scopes:

- weblogic.jdbc.rac.DebugJDBCONS - low-level ONS debug
- weblogic.jdbc.rac.DebugJDBCRAC - RAC debugging
- weblogic.jdbc.rac.DebugJDBCUCP - low-level UCP debugging
- weblogic.jdbc.rac.DebugJDBCREPLAY - REPLAY debugging
- weblogic.jdbc.transaction.DebugJTAJDBC - transaction debugging

See "JDBC Debugging Scopes" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.15 ONS Debugging

For WebLogic Server releases 10.3.6.0 and higher, UCP and ONS are no longer included in your installation. For information on how to set UPC and ONS debugging, see "Setting Debugging for UCP/ONS" in *Configuring and Managing JDBC for Oracle WebLogic Server*.

2.3.16 Oracle Type 4 JDBC drivers from DataDirect

Oracle Type 4 JDBC drivers from DataDirect are now referred to as WebLogic-branded DataDirect drivers. Oracle has retired the documentation in *Type 4 JDBC Drivers for Oracle WebLogic Server* and no longer provides detailed information on DataDirect drivers. Oracle continues to provide information on how WebLogic-branded drivers are configured and used in WebLogic Server environments at "Using WebLogic-branded DataDirect Drivers" in *Programming JDBC for Oracle WebLogic Server*. Oracle recommends reviewing DataDirect documentation for detailed information on driver behavior, see "Progress DataDirect for JDBC User's Guide Release 4.2" and "Progress DataDirect for JDBC Reference Release 4.2" at http://www.datadirect.com/index.html.

2.3.17 Wrap Data Types

By default, data type objects for Array, Blob, Clob, NClob, Ref, SQLXML, and Struct, plus ParameterMetaData and ResultSetMetaData objects are wrapped with a WebLogic wrapper. The wrapping can be turned off by setting this value to false. This improves performance, in some cases significantly, and allows for the application to use the native driver objects directly. See "Wrap Data Types" in *Oracle WebLogic Server MBean Reference*.

2.4 Java SE 7 Support

This release of WebLogic Server adds support for Java SE 7. Refer to the *Oracle Fusion Middleware 11g Release 1 (11.1.1.x) Certification Matrix* for more information:

http://www.oracle.com/technetwork/middleware/downloads/fmw-11gr1certmatrix
.xls

2.5 JMS

This section describes the new persistent store features for WebLogic Server 10.3.6.

- You can configure a JDBC TLOG store to persist transaction logs to a database, which allows you to leverage replication and high-availability characteristics of the underlying database, simplify disaster recovery, and improve transaction recovery service migration. See "Using a JDBC TLog Store" in *Configuring Server Environments for Oracle WebLogic Server*.

- Under heavy JDBC store I/O loads, you can improve performance by configuring a JDBC store to use multiple JDBC connections to concurrently process I/O operations. See "Enabling I/O Multithreading for JDBC Stores" in *Configuring Server Environments for Oracle WebLogic Server*.

- When using Oracle BLOBS, you may be able to improve performance by tuning the `ThreeStepThreshold` value. See "Enabling Oracle BLOB Record Columns" in *Configuring Server Environments for Oracle WebLogic Server*.

2.6 JTA

You can configure a JDBC TLOG store to persist transaction logs to a database, which allows you to leverage replication and HA characteristics of the underlying database, simplify disaster recovery, and improve Transaction Recovery service migration. See "Using a JDBC TLog Store" in *Configuring Server Environments for Oracle WebLogic Server*.

2.7 Messaging

This release supports use of flash drive devices to improve performance for message paging and when using a file store with a `Direct-Write-With-Cache Policy`. See "Using Flash Storage to Page Non-Persistent Messages" and "Tuning a File Store Direct-Write-With-Cache Policy" in *Performance and Tuning for Oracle WebLogic Server*.

2.8 Security

This section describes the following security changes in this release of WebLogic Server:

- Section 2.8.1, "X.509 Certificate Revocation Checking"

- Section 2.8.2, "Wildcarded Host Name Verifier"

- Section 2.8.3, "SAML for Web Single Sign-On API Example"

- Section 2.8.4, "Specifying a Client Certificate for an Outbound SSL Connection"

- Section 2.8.5, "Transport Layer Security (TLS) 1.2 Support"

2.8.1 X.509 Certificate Revocation Checking

WebLogic Server's JSSE implementation now supports X.509 certificate revocation (CR) checking, which checks a certificate's revocation status as part of the SSL certificate path validation process. CR checking improves the security of certificate usage by ensuring that received certificates have not been revoked by the issuing certificate authority.

WebLogic Server's CR checking mechanism can be used for both inbound and outbound SSL and includes the following features:

- Support for the Online Certificate Status Protocol (OCSP) and certificate revocation lists (CRLs)

- The ability to configure overrides for specific certificate authorities (CAs)

By default, CR checking is disabled in WebLogic Server. For information about enabling and configuring CR checking, see "X.509 Certificate Revocation Checking" in *Securing Oracle WebLogic Server*.

2.8.2 Wildcarded Host Name Verifier

In addition to the default WebLogic Server host name verifier, WebLogic Server now includes the wildcarded host name verifier that can be used as an alternative. The wildcarded host name verifier works the same as the default WebLogic Server host name verifier. However, the wildcarded host name verifier also accepts the following additional SSL session certificates:

- Certificates that contain the asterisk wildcard character (*) in the host name that is obtained from the certificate's Subject CommonName attribute (that is, the CN domain)

- SubjectAlternativeName dnsName (SAN) certificates

For more information about the wildcarded host name verifier, including how to configure it in WebLogic Server, see "Using Host Name Verification" in *Securing Oracle WebLogic Server*.

2.8.3 SAML for Web Single Sign-On API Example

The WebLogic Server security API code examples, which are available when you install the Server Examples component, now includes the SAML for Web Single Sign-On Scenario example. This example shows how to set up single sign-on (SSO) for your applications with WebLogic Server and the Security Assertion Markup Language (SAML).

All files needed to build, deploy, and run the example are included. For more information, see "Sample Application and Code Examples" in *Information Roadmap for Oracle WebLogic Server* .

2.8.4 Specifying a Client Certificate for an Outbound SSL Connection

WebLogic Server allows you to specify one of two types of identities associated with the identity keystore when making an outbound SSL connection. By default, when making an outbound SSL connection, WebLogic Server uses the server certificate to present its identity to a client. However, when WebLogic Server is a client in an outbound, two-way SSL connection, this release of WebLogic Server can present an alternative client identity certificate from the keystore instead.

For more information, see "Specifying a Client Certificate for an Outbound SSL Connection" in *Securing Oracle WebLogic Server*.

2.8.5 Transport Layer Security (TLS) 1.2 Support

WebLogic Server supports the use of TLS 1.2 when using the JSSE provider in JDK 7 update1 (or later JDK 7 releases).

2.9 Spring

In this release of WebLogic Server, the MedRec-Spring sample application has been updated to build against, embed and use the latest certified Spring 3.0.x release. MedRec-Spring now demonstrates the following new features using Spring 3.0.5:

- Standardized dependency injection annotations

- Spring expression language (SpEL)

- Powerful stereotype model

- Extended support for annotation-based components

For more information on Spring development, see "Developing Spring-Based Applications" in *Spring Support in Oracle WebLogic Server*.

2.10 TopLink

TopLink version 11.1.1.6 is included in this release of WebLogic Server. Please refer to the TopLink documentation for a description of new features supported in TopLink 11.1.1.6. See http://download.oracle.com/docs/cd/E23943_01/astools.htm#toplink.

2.11 Web Applications, Servlets, and JSPs

WebLogic Server supports a subset of GlassFish deployment descriptors so that basic Web applications which deploy and run on GlassFish Server can be deployed on WebLogic Server. If the GlassFish element is on the list of supported deployment descriptors, WebLogic Server will use the settings of its counterpart element in weblogic.xml. If the element is not on the list, WebLogic Server will ignore the element.

For more information and to see the list of supported deployment descriptors, see "Support for GlassFish Deployment Descriptors" in *Developing Web Applications, Servlets, and JSPs for Oracle WebLogic Server*.

2.12 Web Services

This section describes new and changed WebLogic Web Services features in this release of WebLogic Server.

2.12.1 Web Services Reliable, Secure Messaging Examples

The WebLogic Server Examples Server includes three reliable messaging examples:

- Configuring Reliable Messaging for JAX-WS Web Services
- Using Make Connection and Reliable Messaging for JAX-WS Web Services
- Configuring Secure and Reliable Messaging for JAX-WS Web Services

For more information, see "Web Services Samples in the WebLogic Serer Distribution" in *Getting Started With JAX-WS Web Services for Oracle WebLogic Server*.

2.12.2 Support for Jersey JAX-RS RI Version 1.9

The Jersey JAX-RS Reference Implementation (RI) Version 1.9 is now delivered as a shared library with WebLogic Server. For more information about using Jersey JAX-RS RI Version 1.9, see "Programming RESTful Web Services" in *Programming Advanced Features of JAX-WS Web Services for Oracle WebLogic Server*.

2.13 WebLogic Tuxedo Connector

This release provides support for Socket Direct Protocol (SDP) when interoperating with Tuxedo. For configuration information, see "Enable IPv4 for SDP transport" in *WebLogic Tuxedo Connector Administration Guide for Oracle WebLogic Server*.

2.14 Deprecated Functionality (WebLogic Server 11*g* Release 1)

Information about deprecated functionality for WebLogic Server 11*g* Release 1 can be found on My Oracle Support at https://support.oracle.com/. Enter the following document ID in the **Search Knowledge Base** field:

888028.1

2.15 Standards Support

This release of WebLogic Server supports the following standards and versions.

2.15.1 Java Standards

Table 2–1 lists currently supported Java standards.

Table 2–1   Java Standards Support

Standard	Version
JAAS	1.0 Full
Java API for XML-Based Web Services (JAX-WS)	2.1, 2.0
Java Authorization Contract for Containers (JACC)	1.1
Java EE	5.0
Java EE Application Deployment	1.2
Java EE Connector Architecture	1.5, 1.0
Java EE EJB	3.0, 2.1, 2.0, and 1.1
Java EE Enterprise Web Services	1.2, 1.1
Java EE JDBC	4.0, 3.0
Java EE JMS	1.1, 1.0.2b
Java EE JNDI	1.2
Java EE JSF	2.0, 1.2, 1.1
Java EE JSP	2.1, 2.0, 1.2, and 1.1
Java EE Servlet	2.5, 2.4, 2.3, and 2.2
Java RMI	1.0
JavaMail	1.4
JAX-B	2.1, 2.0
JAX-P	1.2, 1.1
JAX-R	1.0
JAX-RPC	1.1, 1.0 (deprecated)
JCE	1.4
JDKs	7.0 (1.7), 6.0 (1.6)
JMX	1.2, 1.0
JPA	1.0, 2.0
	For information on JPA 2.0 support, see Section 2.1, "Support for JPA 2.0 Providers," in *What's New in Oracle WebLogic Server 10.3.5*.
JSR 77: Java EE Management	1.1
JSTL	1.2
OTS/JTA	1.2 and 1.1
RMI/IIOP	1.0

Table 2–1 (Cont.) Java Standards Support

Standard	Version
SOAP Attachments for Java (SAAJ)	1.3, 1.2
Streaming API for XML (StAX)	1.0
Web Services Metadata for the Java Platform	2.0, 1.1

2.15.2 Web Services Standards

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

2.15.3 Other Standards

Table 2–2 lists other standards that are supported in this release of WebLogic Server.

Table 2–2 Other Standards

Standard	Version
SSL	v3
X.509	v3
LDAP	v3
TLS	v1
HTTP	1.1
SNMP	SNMPv1, SNMPv2, 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, refer to the IPv6 Certification worksheet in the *Oracle Fusion Middleware 11g Release 1 (11.1.1.x) Certification Matrix* at http://www.oracle.com/technetwork/middleware/downloads/fmw-11gr1certmatrix.xls.

2.16 Supported Configurations

For the most current information on supported configurations, refer to the Oracle Fusion Middleware Supported Configurations Central Hub at http://www.oracle.com/technology/software/products/ias/files/fusion_certification.html. The direct link to the *Oracle Fusion Middleware 11g Release 1 (11.1.1.x) Certification Matrix* is http://www.oracle.com/technetwork/middleware/downloads/fmw-11gr1certmatrix.xls.

2.16.1 Database Interoperability

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

- Application Data Access
- Database Dependent Features

2.16.1.1 Application Data Access

Application Data Access refers to those applications that use the database for data access only and do not take advantage of WebLogic Server features that are Database dependant. WebLogic Server support of databases used for application data access only are less restrictive than for database dependent features.

WebLogic Server provides support for application data access to databases using JDBC drivers that meet the following requirements:

- The driver must be thread safe.
- The driver must implement standard JDBC transactional calls, such as `setAutoCommit()` and `setTransactionIsolation()`, when used in transactional aware environments.

Note the following restrictions:

- JDBC drivers that do not implement serializable or remote interfaces cannot pass objects to an RMI client application.
- Simultaneous use of automatic database connection failover and load balancing and global transactions (XA) with a highly-available (HA) DBMS architecture is supported with Oracle DB RAC only, and only for the Oracle DB RAC versions indicated on the **System** worksheet. These HA capabilities are only supported by Active GridLink for RAC and Multi Data Sources with RAC. These HA capabilities are not supported on other Oracle DB RAC versions or with other HA DBMS technologies on other non-Oracle DB products. Multi Data Sources are supported on other Oracle DB versions, and with non-Oracle DB technologies, but not with simultaneous use of automatic failover and load balancing and global transactions.
- Application data access to databases meeting the restrictions articulated above is supported on other Oracle DB versions, in addition to those documented in the certification matrix.

2.16.1.2 Database Dependent Features

When WebLogic Server features use a database for internal data storage, database support is more restrictive than for application data access. The following WebLogic Server features require internal data storage:

- Container Managed Persistence (CMP)
- Rowsets
- JMS/JDBC Persistence and use of a WebLogic JDBC Store
- JDBC Session Persistence
- RDBMS Security Providers
- Database Leasing (for singleton services and server migration)
- JTA Logging Last Resource optimization

- JDBC TLog

2.17 WebLogic Server Compatibility

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