Fusion Middleware Administering JDBC Data Sources for Oracle WebLogic Server 12.1.3

1 Introduction and Roadmap

This chapter describes the contents and organization of this guide—*Administering JDBC Data Sources for Oracle WebLogic Server 12.1.3*.

This chapter includes the following sections:

Document Scope and Audience

This document is a resource for software developers and system administrators who develop and support applications that use the Java Database Connectivity (JDBC) API. It also contains information that is useful for business analysts and system architects who are evaluating WebLogic Server. The topics in this document are relevant during the evaluation, design, development, pre-production, and production phases of a software project.

This document does not address specific JDBC programming topics. For links to WebLogic Server documentation and resources for this topic, see Related Documentation. (#i1047452)

It is assumed that the reader is familiar with Java EE and JDBC concepts. This document emphasizes the value-added features provided by WebLogic Server.

Guide to this Document

- This chapter, Chapter 1, "Introduction and Roadmap," (#i1059542) introduces the organization of this guide and lists new features in the current release.
- Chapter 2, "Configuring WebLogic JDBC Resources," (config.htm#g1076334) provides an overview of WebLogic JDBC resources.

- Chapter 3, "Configuring JDBC Data Sources," (jdbc_datasources.htm#g1218593) describes WebLogic JDBC data source configuration.
- Chapter 4, "Configuring JDBC Multi Data Sources," (jdbc_multidatasources.htm#g1119277) describes WebLogic JDBC multi data source configuration.
- Chapter 5, "Using Active GridLink Data Sources," (gridlink_datasources.htm#CHDIAGEF) describes WebLogic Active GridLink Data Source configuration.
- Chapter 6, "Advanced Configurations for Oracle Drivers and Databases," (ds_oracledriver.htm#CCHHGCBE) provides advanced configuration options that can provide improved data source and driver performance when using Oracle drivers and databases.
- Chapter 7, "Connection Harvesting," (ds_harvesting.htm#CHDJIAIC) describes how to configure and use connection harvesting in your applications.
- Chapter 8, "Labeling Connections," (ds_labeling.htm#BCGFADIH) provides information on how to label connections to increase performance.
- Chapter 9, "JDBC Data Source Transaction Options," (transactions.htm#CHDEIJDE) provides information on XA, non-XA, and Global Transaction options for WebLogic data sources.
- Chapter 10, "Understanding Data Source Security," (ds_security.htm#BGBHAGCJ) provides information on how WebLogic Server uses configuration options to secure JDBC data sources.
- Chapter 11, "Creating and Managing Oracle Wallet," (oraclewallet.htm#BABBDGBB) provides information on how to create and manage an Oracle Wallet to store database credentials for WebLogic Server datasource definitions.
- Chapter 12, "Deploying Data Sources on Servers and Clusters," (ds_deploy.htm#BABJFGDF) provides information on how to deploy data sources on servers and clusters.
- Chapter 13, "Using WebLogic Server with Oracle RAC," (oracle_rac.htm#CHDHHCAJ) describes how to configure WebLogic Server for use with Oracle Real Application Clusters.
- Chapter 14, "Using JDBC Drivers with WebLogic Server," (third_party_drivers.htm#g1054553) describes how to use JDBC drivers from other sources in your WebLogic JDBC data source configuration.
- Chapter 15, "Monitoring WebLogic JDBC Resources," (monitor.htm#g1063697) describes how to monitor JDBC resources, gather profile information about database connection usage, and enable JDBC debugging.
- Chapter 16, "Managing WebLogic JDBC Resources," (manage.htm#g1055860) describes how to administer data sources.
- Chapter 17, "Tuning Data Source Connection Pools," (ds_tuning.htm#CHDGIIJF) provides information on how to properly tune the connection pool attributes in JDBC data sources in your WebLogic Server domain to improve application and system performance.
- Appendix A, "Using an Oracle 12c Database," (ds_12cdriver.htm#g1067628) provides information on how to configure WebLogic Server Release 12.1.2 and higher to interoperate with an Oracle 12c database.
- Appendix B, "Configuring JDBC Application Modules for Deployment," (packagedjdbc.htm#BABEFFAH) describes how to package a WebLogic JDBC module with your enterprise application.

- Appendix C, "Using Multi Data Sources with Oracle RAC," (generic_oracle_rac.htm#BHCBHFCC) describes how to configure multi data sources for use with Oracle Real Application Clusters.
- Appendix D, "Using Fast Connection Failover with Oracle RAC," (fastconnect.htm#BHAIGEAD) describes how to use WebLogic server with Oracle Fast Connection Failover.
- Appendix E, "Smart Upgrade Support for JDBC," (smart_upgrade.htm#BABBJACG) describes WebLogic Server SmartUpgrade support for JDBC.

Related Documentation

This document contains JDBC data source configuration and administration information.

For comprehensive guidelines for developing, deploying, and monitoring WebLogic Server applications, see the following documents:

- *Developing JDBC Applications for Oracle WebLogic Server* (../JDBCP/toc.htm) is a guide to JDBC API programming with WebLogic Server.
- *Developing Applications for Oracle WebLogic Server* (../WLPRG/toc.htm) is a guide to developing WebLogic Server applications.
- *Deploying Applications to Oracle WebLogic Server* (../DEPGD/toc.htm) is the primary source of information about deploying WebLogic Server applications in development and production environments.

JDBC Samples and Tutorials

In addition to this document, Oracle provides a variety of JDBC code samples and tutorials that show configuration and API use, and provide practical instructions on how to perform key JDBC development tasks.

Avitek Medical Records Application (MedRec) and Tutorials

MedRec is an end-to-end sample Java EE application shipped with WebLogic Server that simulates an independent, centralized medical record management system. The MedRec application provides a framework for patients, doctors, and administrators to manage patient data using a variety of different clients.

MedRec demonstrates WebLogic Server and Java EE features, and highlights Oracle-recommended best practices. MedRec is optionally installed with the WebLogic Server installation. You can start MedRec from the *ORACLE_HOME*\user_projects\domains\medrec directory, where *ORACLE_HOME* is the directory you specified as the Oracle Home when you installed Oracle WebLogic Server.

JDBC Examples in the WebLogic Server Distribution

WebLogic Server optionally installs API code examples in *EXAMPLES_HOME*\wl_server\examples\src\examples, where *EXAMPLES_HOME* represents the directory in which the WebLogic Server code examples are configured. For more information, see "Sample Applications and Code Examples (../INTRO/examples.htm#INTRO299) " in *Understanding Oracle WebLogic Server*.

New and Changed JDBC Data Source Features in This Release

This release includes the following new and changed features:

- Oracle 12c Driver Support (#CEGEBGIF)
- Derby Database Driver Support (#BABHCFBH)
- Encrypted Connection Properties (#BABFADFA)
- Connection Labeling Enhancements to Avoid Connection Costs (#CEGIHICG)
- Connection Labeling with Packaged Applications (#BABBDBEF)
- oracle.jdbc.enableJavaNetFastPath Disabled (#BABIIAJD)
- Oracle Data Base Testing Using SQL ISVALID (#BHCBACAG)
- CountOfTestFailuresTillFlush and CountOfRefreshFailuresTillDisable (#BABEIIEJ)
- securityCacheTimeoutSeconds Default Value (#BABEBFEC)

For a comprehensive listing of the new WebLogic Server features introduced in this release, see *What's New in Oracle WebLogic Server* (../NOTES/toc.htm) .

Oracle 12c Driver Support

WebLogic Server 12.1.3.0 includes Oracle 12c JDBC drivers and is certified to operate with the Oracle 12c database. For details, see "Supported Configurations" (../NOTES/whatsnew.htm#NOTES193) in *What's New in Oracle WebLogic Server*.

For information on limitations when using Application Continuity, see Limitations with Application Continuity with Oracle 12c Database. (ds_oracledriver.htm#CHDGICBE)

Derby Database Driver Support

The Derby Database driver has been updated to version 10.10.1.1.

Encrypted Connection Properties

As part of a secure configuration, it may be necessary to provide one or more connection property values that should not appear as clear text in the Data Source descriptor file. Update existing Data Source configurations using the `Encrypted Properties` attribute. See Using Encrypted Connection Properties.
(ds_security.htm#CHDGCDIB)

Connection Labeling Enhancements to Avoid Connection Costs

WebLogic Server provides two new connection pool properties, `ConnectionLabelingHighCost` and `HighCostConnectionReuseThreshold`, to allow a connection pool to use brand-new physical connections to serve connection requests from different tenants without incurring re-initialization overhead on other tenant connections already in the pool. See Using Initialization and Reinitialization Costs to Select Connections.
(ds_labeling.htm#CHDJCFHH)

Connection Labeling with Packaged Applications

WebLogic Server supports callbacks, such as labeling and connection initialization, in EAR or WAR files used by packaged applications. See Using Connection Labeling with Packaged Applications.
(ds_labeling.htm#CHDEAAAJ)

oracle.jdbc.enableJavaNetFastPath Disabled

`weblogic.j2ee.descriptor.wl.JDBCOracleParamsBean.OracleEnableJavaNetFastPath` is not supported in WebLogic Server 12.1.3. This functionality is always enabled by default for Oracle Exalogic environments.

Oracle Data Base Testing Using SQL ISVALID

A new Test Table name value of `SQL ISVALID` is now supported for Oracle databases. To improve connection testing performance of your Oracle data source, the default setting of the `Test Table Name` attribute of the connection pool is now `SQL ISVALID`. See Database Connection Testing Options. (ds_tuning.htm#BABJBEFC)

CountOfTestFailuresTillFlush and CountOfRefreshFailuresTillDisable

As of this release, the `CountOfTestFailuresTillFlush` and `CountOfRefreshFailuresTillDisable` attributes are disabled when their value is set to 0. In prior releases, the value was 2147483647. See "JDBCConnectionPoolParamsBean" (../WLMBR/mbeans/JDBCConnectionPoolParamsBean.html) in the *MBean Reference for Oracle WebLogic Server*.

securityCacheTimeoutSeconds Default Value

A default value of 10 minutes has been implemented for the `weblogic.jdbc.securityCacheTimoutSeconds` parameter. See Tuning Maintenance Timers (ds_tuning.htm#BABIIFDI)

JDBC 4.0 setPoolable(false) Removes Statement

When the JDBC 4.0 `setPoolable(false)` method is called for a WebLogic data source that has prepared statement caching enabled, the statement is removed from the cache in addition to calling the method on the driver object. See Managing the Statement Cache for a Data Source. (manage.htm#i1048072)