# Oracle® Retail Bulk Data Integration

Installation Guide Release 16.0.1

E88352-02

November 2017



Oracle® Retail Service Backbone Installation Guide, Release 16.0.1

E88352\_02

Copyright © 2017, Oracle and/or its affiliates. All rights reserved.

Primary Author: Nathan Young

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

## Value-Added Reseller (VAR) Language

## **Oracle Retail VAR Applications**

The following restrictions and provisions only apply to the programs referred to in this section and licensed to you. You acknowledge that the programs may contain third party software (VAR applications) licensed to Oracle. Depending upon your product and its version number, the VAR applications may include:

- (i) the **MicroStrategy** Components developed and licensed by MicroStrategy Services Corporation (MicroStrategy) of McLean, Virginia to Oracle and imbedded in the MicroStrategy for Oracle Retail Data Warehouse and MicroStrategy for Oracle Retail Planning & Optimization applications.
- (ii) the **Wavelink** component developed and licensed by Wavelink Corporation (Wavelink) of Kirkland, Washington, to Oracle and imbedded in Oracle Retail Mobile Store Inventory Management.
- (iii) the software component known as **Access Via** Micensed by Access Via of Seattle, Washington, and imbedded in Oracle Retail Signs and Oracle Retail Labels and Tags.
- (iv) the software component known as  $\mathbf{Adobe\ Flex}^{\text{TM}}$  licensed by Adobe Systems Incorporated of San Jose, California, and imbedded in Oracle Retail Promotion Planning & Optimization application.

You acknowledge and confirm that Oracle grants you use of only the object code of the VAR Applications. Oracle will not deliver source code to the VAR Applications to you. Notwithstanding any other term or condition of the agreement and this ordering document, you shall not cause or permit alteration of any VAR Applications. For purposes of this section, "alteration" refers to all alterations, translations, upgrades, enhancements, customizations or modifications of all or any portion of the VAR Applications including all

reconfigurations, reassembly or reverse assembly, re-engineering or reverse engineering and recompilations or reverse compilations of the VAR Applications or any derivatives of the VAR Applications. You acknowledge that it shall be a breach of the agreement to utilize the relationship, and/or confidential information of the VAR Applications for purposes of competitive discovery.

The VAR Applications contain trade secrets of Oracle and Oracle's licensors and Customer shall not attempt, cause, or permit the alteration, decompilation, reverse engineering, disassembly or other reduction of the VAR Applications to a human perceivable form. Oracle reserves the right to replace, with functional equivalent software, any of the VAR Applications in future releases of the applicable program.

# **Contents**

Se	end Us Your Comments	vii
Pr	eface	ix
	Audience	ix
	Documentation Accessibility	
	Customer Support	
	Review Patch Documentation	
	Improved Process for Oracle Retail Documentation Corrections	
	Oracle Retail Documentation on the Oracle Technology Network	
	Conventions	
1	Introduction	
	BDI Topology	1-1
2	Technical Specifications	
	Requesting Infrastructure Software	2-1
	Server Requirements	
	Installation Notes	2-3
3	BDI Batch Job Admin	
	Installation and Setup Instructions	3-1
	Prerequisites	3-1
	Installing WebLogic	3-1
	Creating the Required Schema Using the Repository Creation Utility	
	Creating a WebLogic Domain with JRF	3-12
4 <b>A</b> p	Deploying BDI Batch Job Admininistration Applications for Edge oplications	
	Deploying BDI Batch Job Admin Applications for a Sender Application	4-1
	Preparing the Database for BDI Batch Job Admin for RMS Installation	4-1
	Preparing the WebLogic Domain for BDI Batch Job Admin for RMS	4-1
	Deploying BDI RMS Batch Job Admin on the WebLogic	4-1
	Testing the Deployment	
	Creating Outbound Interface tables for BDI RMS	
	Deploying BDI Batch Job Admin Application for a Receiver Application	
	Preparing the Database for BDI RXM Batch Job Admin Installation	
	Preparing the WebLogic Domain for BDI Batch Job Admin for RXM	
	Deploying BDI RXM Batch Job Admin on the WebLogic	
	Testing the Deployment	
	Creating Inbound Interface tables for BDI RXM	4-8

# 5 Process Flow Installation Prerequisites 5-1 Install the Process Flow Application 5-1 Verify Installation 5-4 6 BDI Batch Scheduler Installation Installation Prerequisites 6-1 Preparing for Installation 6-1 Deploying Scheduler Application 6-2 Verifying Installation 6-3 Enabling Email Notification Alerts 6-4 A Appendix: Installation Order Enterprise Installation Order A-1

# **Send Us Your Comments**

Oracle® Retail Bulk Data Integration Installation Guide, Release 16.0.1.

Oracle welcomes customers' comments and suggestions on the quality and usefulness of this document.

Your feedback is important, and helps us to best meet your needs as a user of our products. For example:

- Are the implementation steps correct and complete?
- Did you understand the context of the procedures?
- Did you find any errors in the information?
- Does the structure of the information help you with your tasks?
- Do you need different information or graphics? If so, where, and in what format?
- Are the examples correct? Do you need more examples?

If you find any errors or have any other suggestions for improvement, then please tell us your name, the name of the company who has licensed our products, the title and part number of the documentation and the chapter, section, and page number (if available).

**Note:** Before sending us your comments, you might like to check that you have the latest version of the document and if any concerns are already addressed. To do this, access the Online Documentation available on the Oracle Technology Network Web site. It contains the most current Documentation Library plus all documents revised or released recently.

Send your comments to us using the electronic mail address: retail-doc\_us@oracle.com

Please give your name, address, electronic mail address, and telephone number (optional).

If you need assistance with Oracle software, then please contact your support representative or Oracle Support Services.

If you require training or instruction in using Oracle software, then please contact your Oracle local office and inquire about our Oracle University offerings. A list of Oracle offices is available on our Web site at http://www.oracle.com.

# **Preface**

The Oracle® Retail Bulk Data Integration Installation Guide contains the requirements and procedures that are necessary for the retailer to install the Oracle Retail Bulk Data Integration product.

## **Audience**

The Installation Guide is written for the following audiences:

- Database administrators (DBA)
- System analysts and designers
- Integrators and implementation staff

# **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.

# **Customer Support**

To contact Oracle Customer Support, access My Oracle Support at the following URL:

https://support.oracle.com

When contacting Customer Support, please provide the following:

- Product version and program/module name
- Functional and technical description of the problem (include business impact)
- Detailed step-by-step instructions to re-create
- Exact error message received
- Screen shots of each step you take

## **Review Patch Documentation**

When you install the application for the first time, you install either a base release (for example, 16.0) or a later patch release (for example, 16.0.1). If you are installing the base release and additional patch releases, read the documentation for all releases that have occurred since the base release before you begin installation. Documentation for patch releases can contain critical information related to the base release, as well as information about code changes since the base release.

# Improved Process for Oracle Retail Documentation Corrections

To more quickly address critical corrections to Oracle Retail documentation content, Oracle Retail documentation may be republished whenever a critical correction is needed. For critical corrections, the republication of an Oracle Retail document may at times not be attached to a numbered software release; instead, the Oracle Retail document will simply be replaced on the Oracle Technology Network Web site, or, in the case of Data Models, to the applicable My Oracle Support Documentation container where they reside.

This process will prevent delays in making critical corrections available to customers. For the customer, it means that before you begin installation, you must verify that you have the most recent version of the Oracle Retail documentation set. Oracle Retail documentation is available on the Oracle Technology Network at the following URL:

http://www.oracle.com/technetwork/documentation/oracle-retail-100266.ht ml

An updated version of the applicable Oracle Retail document is indicated by an Oracle part number, as well as print date (month and year). An updated version uses the same part number, with a higher-numbered suffix. For example, part number E123456-02 is an updated version of a document with part number E123456-01.

If a more recent version of a document is available, that version supersedes all previous versions.

# Oracle Retail Documentation on the Oracle Technology Network

Oracle Retail product documentation is available on the following web site:

http://www.oracle.com/technetwork/documentation/oracle-retail-100266.ht ml

(Data Model documents are not available through the Oracle Technology Network. You can obtain these documents through My Oracle Support.)

# **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.

# Introduction

Oracle Retail Bulk Data Integration (BDI) provides the ability to transfer bulk data between Oracle Retail applications. BDI contains the following components:

- BDI Batch Job Admin Helps management of batch jobs
- BDI Process Flow Provides a mechanism to run multiple dependent batch jobs
- BDI Scheduler Schedules execution of an action, like invoking process flows or services

A BDI installation contains the following components:

- An installation of BDI RMS Batch Job Admin
- An installation of BDI RXM Batch Job Admin
- An installation of BDI SIM Batch Job Admin
- An installation of BDI Process Flow
- An installation of BDI Scheduler

# **BDI Topology**

The diagram below shows the default topology for BDI. Please refer to the Oracle Retail Bulk Data Integration Implementation Guide for other supported topologies.

# 

BDI RXM Integration Schema resides in the RXM database

**Bulk Data Integration** 

BDI RMS Integration Schema resides in the RMS database

# **Technical Specifications**

The BDI components have several dependencies on Oracle Retail Application installations, as well as on the Oracle WebLogic Servers. This section covers these requirements.

# **Requesting Infrastructure Software**

If you are unable to find the necessary version of the required Oracle infrastructure software (database server, application server, WebLogic, etc.) on the Oracle Software Delivery Cloud, you should file a non-technical 'Contact Us' Service Request (SR) and request access to the media. For instructions on filing a non-technical SR, see My Oracle Support Note 1071023.1 - Requesting Physical Shipment or Download URL for Software Media.

# **Server Requirements**

Supported On	Versions Supported	
Database Server OS	OS certified with Oracle Database 12c (12.1.0.2) Enterprise Edition. Options are:	
	<ul> <li>Oracle Linux 6 or 7 for x86-64 (Actual hardware or Oracle virtual machine).</li> </ul>	
	<ul> <li>Red Hat Enterprise Linux 6 or 7 for x86-64 (actual hardware or Oracle virtual machine)</li> </ul>	
	■ IBM AIX 7.1 (actual hardware or LPARs)	
	<ul> <li>Solaris 11.x Sparc (actual hardware or logical domains)</li> </ul>	

Database Server 12c

Oracle Database Enterprise Edition 12c (12.1.0.2) with the following specifications:

## Components:

- **Enterprise Edition**
- Examples CD (formerly the companion CD)

## **Oneoff Patches:**

- 20846438: ORA-600 [KKPAPXFORMFKK2KEY\_1] WITH LIST PARTITION
- Patch 19623450: MISSING JAVA CLASSES AFTER UPGRADE TO JDK 7
- 20406840: PROC 12.1.0.2 THROWS ORA-600 [17998] WHEN PRECOMPILING BY 'OTHER' USER

## RAC only:

- 21260431: APPSST 12C: GETTING ORA-4031 AFTER 12C UPGRADE
- 21373473: INSTANCE TERMINATED AS LMD0 AND LMD2 HUNG FOR MORE THAN 70 SECS

### **Other Components:**

- Perl interpreter 5.0 or later
- X-Windows interface
- JDK 1.7

**Application Server OS** 

OS certified with Oracle Fusion Middleware 12c. Options

- Oracle Linux 6 or 7 for x86-64 (Actual hardware or Oracle virtual machine).
- Red Hat Enterprise Linux 6 or 7 for x86-64 (actual hardware or Oracle virtual machine)
- IBM AIX 7.1 (actual hardware or LPARs)
- Solaris 11.x Sparc (actual hardware or logical domains)

Application Server

Oracle Fusion Middleware 12c (12.2.1.2)

## Components:

- Oracle WebLogic Server 12c (12.2.1.2)
- Java: JDK 1.8+ latest security updates 64 bit

Patch 22648025: ILLEGALSTATEEXCEPTION WHEN INVOKING A WEBSERVICE/EJB IN WLS 12.2.1 (you need an Oracle support account to get it)

Minimum required JAVA version for all operating systems

JDK 1.8+ latest security updates 64 bit

**Note:** By default, JDK is at 1.6. After installing the 12.1.0.2 binary, apply patch 19623450. Follow the instructions on Oracle Database Java Developer's Guide 12c Release 1 to upgrade JDK to 1.7. The Guide is available at:

http://docs.oracle.com/database/121/JJDEV/chone.htm#JJDEV0100

## **Installation Notes**

When redeploying BDI applications, please note the following.

- If any existing datasource connection detail is changed (in \*env-info.json deployment config file), such as the JDBC URL, username or, password of the database connection, the datasource needs to be first deleted from the WebLogic server before installation. This is a manual step.
  - Log in to the WebLogic Server Admin console. Go to Services -> Data Sources page. Select the datasource, delete and activate the changes.
  - Proceed with the installation.
- The JobAdminDataSource and ReceiverServiceDataSource should also be cleaned if we are using the same schema, delete all the tables for RMS, RXM, SIM and external.

**Note:** The above steps are not required if no datasource connection detail is changed during redeployment.

# **BDI Batch Job Admin**

This chapter describes the procedure you must use to install the JRF domain and deploy the BDI Batch Job Admin application. For more information about domain creation and other server related information, see the WebLogic application server documents.

# Installation and Setup Instructions

This section describes the installation and setup instructions including the installation prerequisites, preparing the WebLogic server, creating a WebLogic domain, and deploying the WAR file.

# **Prerequisites**

The BDI Batch Job Admin application requires Oracle WebLogic server 12c (12.2.1.2), built with Java 8 (JDK 1.8 64 bit with the latest security updates).

The recommended Java VM memory setting for the Job Admin application domain is: -Xms1024m -Xmx2048m

# Installing WebLogic

To obtain WebLogic 12c (12.2.1.2), go to the Oracle Technology Network and take the following steps.

- Find fmw\_12.2.1.2.0.0\_infrastructure\_Disk1\_1of1.zip and download this file to your system.
- **2.** Extract the contents of this zip file to your system. You will use the fmw\_ 12.2.1.2.0.0\_infrastructure.jar file to run the installer.
- **3.** Run the installer by executing the jar file:

java -jar fmw\_12.2.1.2.0.0\_infrastructure.jar

The Welcome window appears.



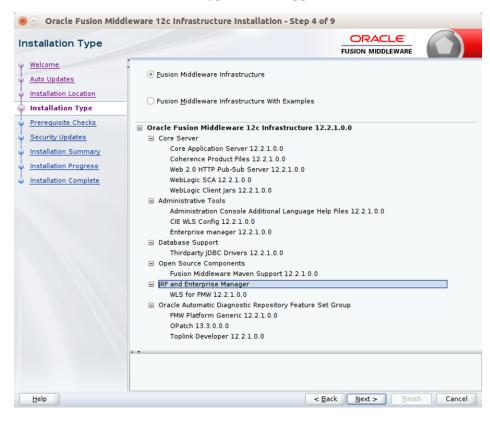
Click Next. The Auto Updates window appears.



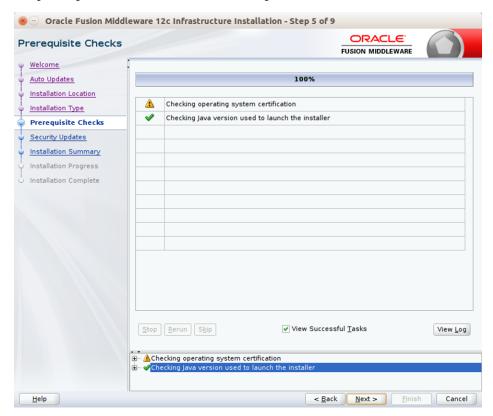
Select the appropriate radio button and click Next. The Installation Location window appears.



- Click Browse to select the Oracle Home location where the Weblogic Server is to be installed.
- Click Next. The Installation Type window appears.



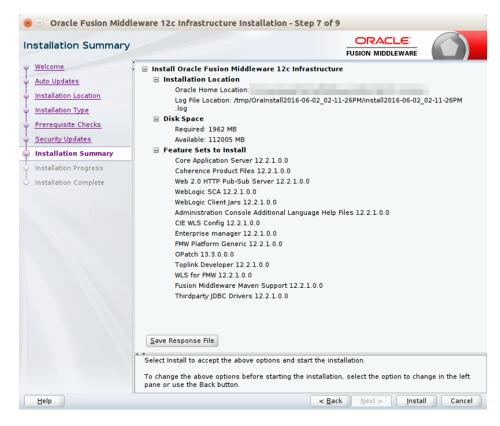
8. Select Fusion Middleware Infrastructure and click Next. The installer performs the pre-requisite checks and ensures all required conditions are satisfied.



When the prerequisite check completes successfully, click Next. The Security Updates window appears.



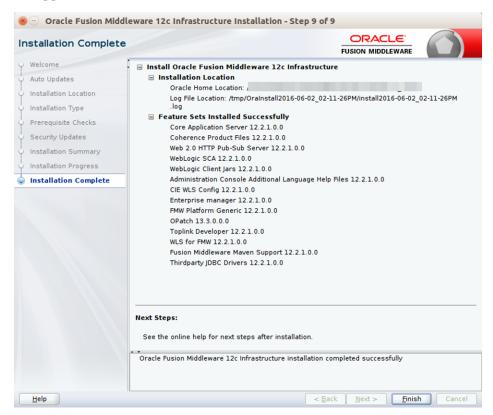
10. Provide information and click Next.



11. Click Install. The Installation Progress window appears.



12. Click Next when the installation completes. The Installation Complete window



# Creating the Required Schema Using the Repository Creation Utility

Perform the following procedure to create a schema user for the domain:

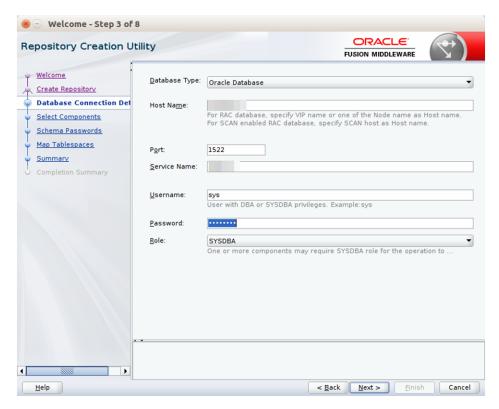
Run the RCU from the <MW\_HOME>/oracle\_common/bin folder. The Welcome window appears.



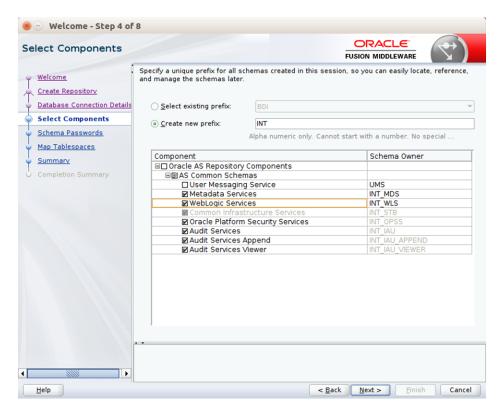
Click Next and select the Create Repository option.



Click Next. Enter the database credentials where the schema user has to be created.



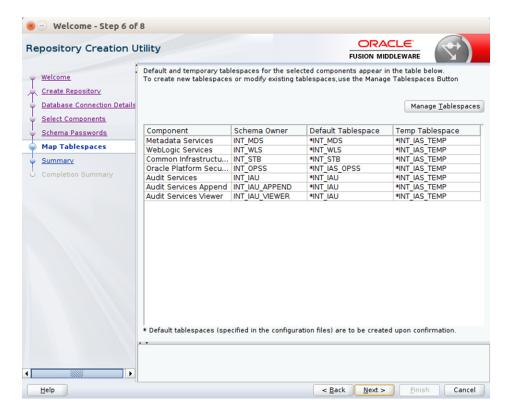
Click Next. Specify the prefix to be used for the schema user creation. For example, INT. Select Metadata Services, WebLogic Services, and Oracle Platform Security Services.



Click Next. Specify the password.



Click Next. The window provides the details of tablespaces created as part of schema creation.



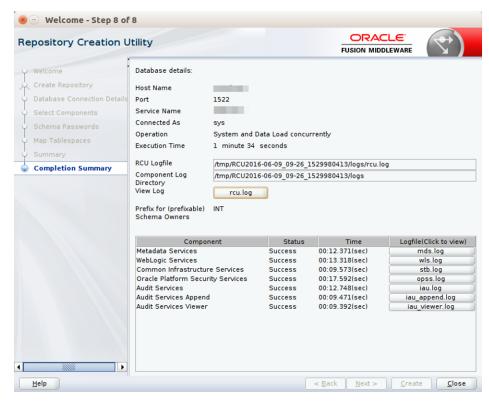
Click Next. The Confirmation window appears.



**8.** Click OK. The Summary window appears.



Click Create and proceed to create the schema. This could take a while to complete. The Completion Summary window appears.



# Creating a WebLogic Domain with JRF

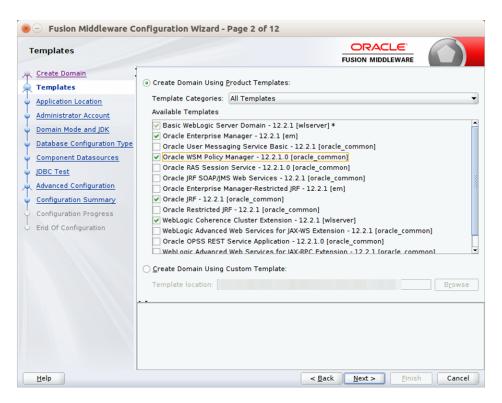
Perform the following procedure to create a new WebLogic domain with JRF:

Run the config.sh from <ORACLE\_HOME>/oracle\_common/common/bin folder. The Configuration Type window appears.

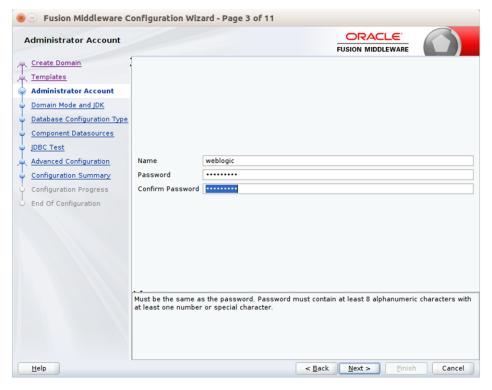


**2.** Select Create a new domain, provide domain location, and click Next. The Templates window appears. By default, the Basic WebLogic Server Domain -12.2.1.2 [wlserver] checkbox is selected.

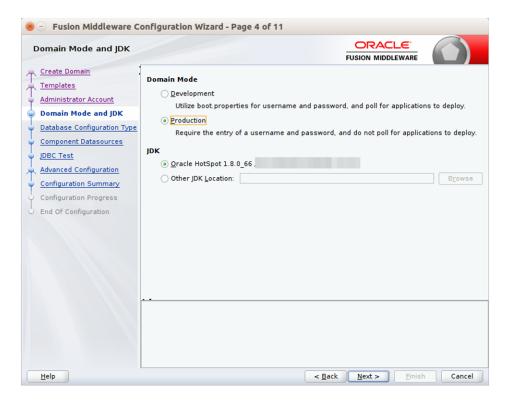
Select the Oracle JRF - 12.2.1.2 [oracle\_common], Oracle Enterprise Manager [em], and Oracle WSM Policy Manager - 12.2.1.2.0 [oracle\_common] check boxes.



Click Next. The Administrator Account window appears. Enter the user credentials you want to use to log in to the WebLogic Administration Console.

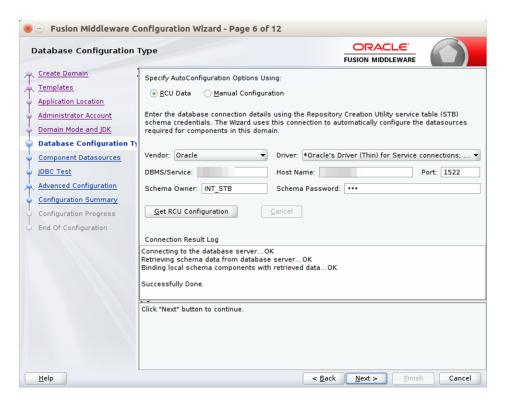


Click Next. The Domain Mode and JDK window appears. Set the Domain Mode as Production and select the JDK version (JDK 1.8 with the latest security updates) you want to use.

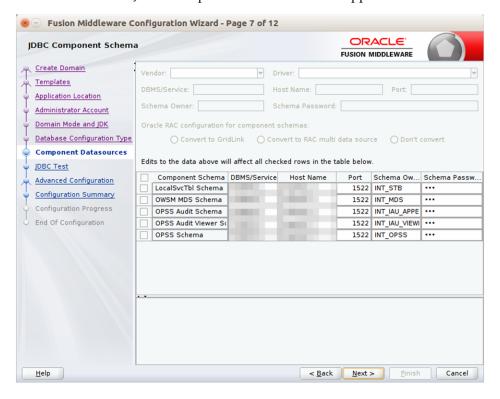


- Click Next. The Database Configuration Type window displays.
  - Select the RCU Data radio button.
  - Select Oracle as the Vendor.
  - c. Select Oracle's Driver (Thin) for Service connections; Version 9.0.1 and later as the Driver.
  - d. Enter the Service, Host Name, Port, Schema Owner, and Schema Password for the \*\_STB schema created using RCU.
  - Click Get RCU Configuration.

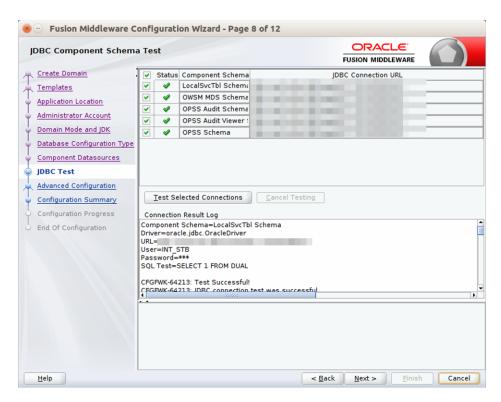
The Connection Result Log displays the connection status.



Click Next. The JDBC Component Schema window appears.



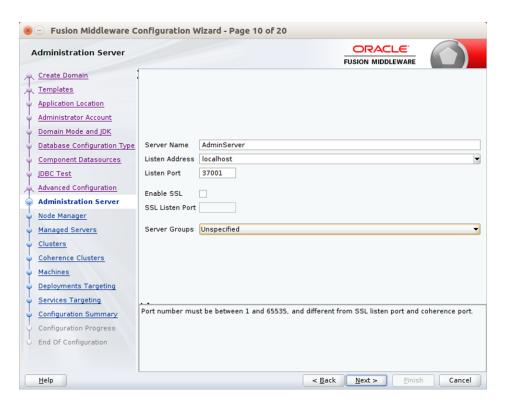
Click Next. The JDBC Component Schema Test window displays the status on whether the JDBC tests on the schemas were successful.



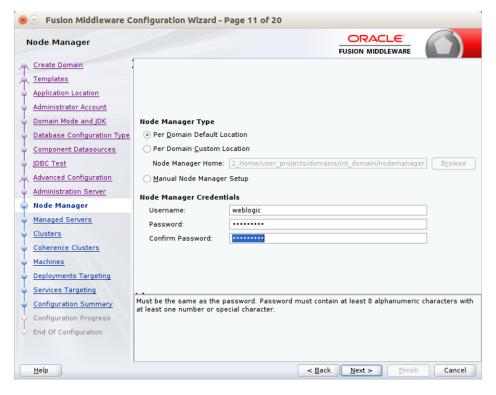
Click Next. The Advanced Configuration window displays. Select all the checkboxes, except Domain Frontend Host Capture and JMS File Store options, in this window.



9. Click Next. The Administration Server window appears. Enter the Listen Address and the Listen Port details.

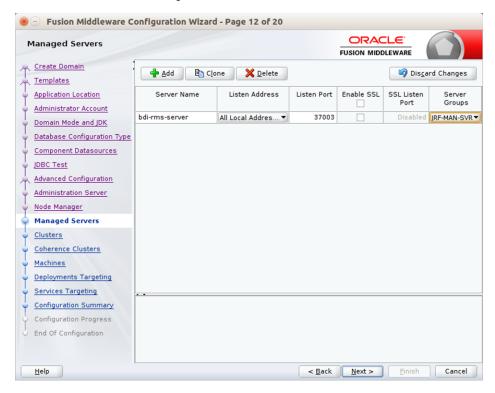


10. Click Next. The Node Manager window appears. Select the Node Manager Type and enter the Node Manager Credentials.

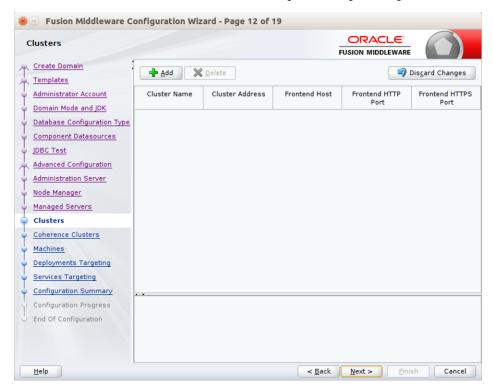


- **11.** Click Next. The Managed Servers window appears.
  - Click Add to add a managed server on which you will deploy the application.

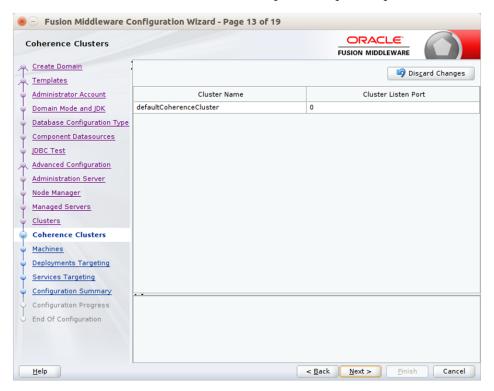
- **b.** Enter the Server Name, Listen Address, and Listen Port for the managed
- Set the Server Groups to JRF-MAN-SVR.



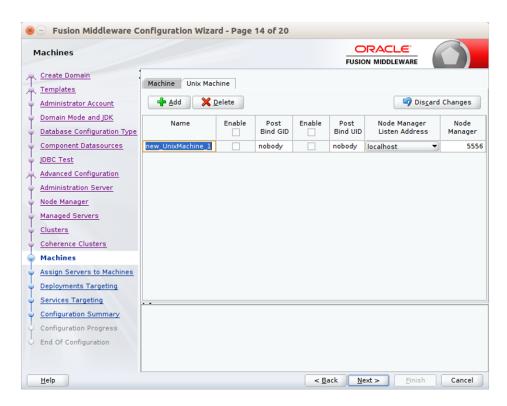
- **12.** Click Next. The Clusters window appears.
  - Click Add to add a cluster. This is an optional step in the procedure.



- **13.** Click Next. The Coherence Clusters window appears.
  - Add a coherence cluster. This is an optional step in the procedure.



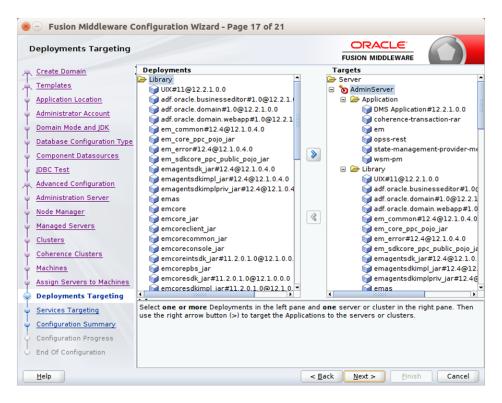
- **14.** Click Next. The Machine window appears.
  - a. Click Add.
  - **b.** Enter the Name and the Node Manager Listen Address for the managed server.



15. Click Next. The Assign Servers to Machines window appears. Add the Admin Server and the managed server to the computer.



**16.** Click Next. The Deployments Targeting window appears. Select wsm-pm from Deployments and add it to Admin Server in Targets.



17. Click Next. The Services Targeting window appears.



**18.** Click Next. The Configuration Summary window appears. Verify that all information described in this window is accurate.



19. Click Create. The Configuration Progress window displays a message when the domain is created successfully.



20. Click Next. The Configuration Success window displays the Domain Location and Admin Server URL once the configuration is complete.



- **21.** Click Finish to complete creating the WebLogic domain and managed servers.
- **22.** Add the following security policy to \$ORACLE\_ HOME/wlserver/server/lib/weblogic.policy file.

```
grant codeBase "file:/<DOMAIN_HOME>/-" {
permission java.security.AllPermission;
permission oracle.security.jps.service.credstore.CredentialAccessPermission
"credstoressp.credstore", "read, write, update, delete";
permission oracle.security.jps.service.credstore.CredentialAccessPermission
"credstoressp.credstore.*", "read, write, update, delete";
```

- **23.** Set JTA timeout to 43200.
  - Log in to Admin console
  - Click on the domain name
  - Select the JTA tab and change the timeout value to 43200.

# **Deploying BDI Batch Job Admininistration Applications for Edge Applications**

Before starting the installation procedure, identify the retail applications that are in-scope for this installation. BDI requires at least 2 applications in-scope, a sender app and a receiver app. Each bdi-app must be deployed on it's own WebLogic managed server. Depending on the site specific deployment topology, create separate WebLogic domains OR managed servers to host the BDI apps in-scope.

**Note:** Repeat the procedures in this chapter for installing other applications that are in-scope.

# Deploying BDI Batch Job Admin Applications for a Sender Application

This section describes the installation process for a sender app with the BDI-RMS app as an example.

## Preparing the Database for BDI Batch Job Admin for RMS Installation

Before you begin installing BDI RMS Batch Job Admin, make sure you have the database schema created for BDI RMS Batch Job Admin.

## Preparing the WebLogic Domain for BDI Batch Job Admin for RMS

- 1. Use the instructions provided in Chapter 4, "Deploying BDI Batch Job Admininistration Applications for Edge Applications" to install WebLogic 12.2.1.2 and create a domain.
- **2.** Start the Admin and managed servers.

## Deploying BDI RMS Batch Job Admin on the WebLogic

To deploy the BDI RMS Batch Job Admin war, take the following steps.

- Download BdiIntJobAdminPak16.0.0ForRms16.0.0\_eng\_ga.zip to \$BDI\_HOME.
- Unzip the downloaded archive. The Bdi Job home directory will be created under the current directory.

#### unzip BdiIntJobAdminPak16.0.0ForRms16.0.0 eng ga.zip

This command extracts the archive. The relevant directories for the installation are shown (There are more directories than what is shown).

```
bdi-int-rms-job-home
   - bin
    └─ bdi-job-admin-
deployer.sh.sh
 - conf
    bdi-job-admin-
deployment-env-info.json
    - security
   setup-data
     L- ddl
       - dml
```

**3.** Edit the rms job configuration file to point to deployment environment (conf/bdi-job-admin-deployment-env-info.json) as follows:

```
cd bdi-int-rms-job-home/conf
   vi bdi-job-admin-deployment-env-info.json
4. Provide the following values in the JSON file.
```

Configuration Property	Description
BdiRmsJobAdminDataSource -> jdbcUrl	The JDBC URL for the Oracle database where the RMS integration schema resides.
BdiRmsReceiverServiceDataSourc e -> jdbcUrl	The JDBC URL for the Oracle database where the RMS integration schema resides. BdiRmsJobAdminDataSource and BdiRmsReceiverServiceDataSource can use the same jdbcUrl.
BatchInfraDataSource -> jdbcUrl	The JDBC URL for the schema created using RCU. The schema user is <pre>cprefix&gt;_wls</pre> (e.g. INT_WLS). The value of prefix that you provided in schema creation using RCU.
JobAdminAppServer -> weblogicDomainName	The domain name where BDI RMS Admin app is deployed.
JobAdminAppServer->weblogicD omainHome	The domain path where BDIRMS Adminapp is deployed
JobAdminAppServer -> weblogicDomainAdminServerUrl	Admin Server URL of the BDI RMS Admin App - http:// <admin host="">:<admin port=""></admin></admin>
JobAdminAppServer->weblogicD omainAdminServerProtocol	AdminServer protocol which is by default t3, For SSL deployment update to t3s.
JobAdminAppServer -> weblogicDomainAdminServerHo st	Host Name of the BDI RMS Admin Server
JobAdminAppServer -> weblogicDomainAdminServerPor t	BDI RMS Admin Server Port
JobAdminAppServer -> weblogicDomainTargetManagedS erverName	Managed Server Name where BDI RMS Admin App is installed (e.g. bdi-rms-server)
JobAdminAppServer ->	Job Admin URL of BDI RMS
jobAdminUiUrl	http:// <host>:<managed server<br="">port&gt;/bdi-rms-batch-job-admin</managed></host>

Configuration Property	Description
RxmJobAdminAppServer -> jobAdminUiUrl	Job Admin URL of BDI RXM http:// <host>:<rxm managed="" server<br="">port&gt;/bdi-rxm-batch-job-admin</rxm></host>
SimJobAdminAppServer -> jobAdminUiUrl	Job Admin URL of BDI SIM  http:// <host>:<sim managed="" port="" server="">/bdi-sim-batch-job-admin</sim></host>

**Note:** The alias names in the configuration files should not be changed.

Run the deployer script to create the data sources and deploy BDI RMS Batch Job Admin.

```
cd bdi-int-rms-job-home/bin
bdi-job-admin-deployer.sh -setup-credentials -deploy-job-admin-app
```

```
AGE: JobAdminDeployer SECURITY_OPTION TASK_ACTION
  : JobAdminDeployer {-setup-credentials|-use-existing-credentials} -deploy-job-admin-app
SECURITY OPTION
                            : One of the following SECURITY options must be used.
    -setup-credentials : Setup AppServer and DB user/password and save to wallet.
: Edit the bdi-job-admin-deployment-env-info.json config file before setting up credentials.
    -use-existing-credentials : Use previously setup AppServer and DB user/passwords from wallet.
                            : The following TASK_ACTION option must be used.
                          : Configures WebLogic Server and deploy the job-admin application
```

**6.** Enter the values prompted by the script for following credentials aliases. JobAdmin user has more privileges (e.g change configuration and run jobs from JobAdmin UI) than JobOperator user. JobOperator can run batch jobs where as JobMonitor has just read privileges.

Alias	Description
bdiAppServerAdminServerUserAlias	WebLogic admin server credentials
bdiJobAdminUiUserAlias	Credentials for Admin Role user for Job Admin app
bdiJobOperatorUiUserAlias	Credentials for Operator Role user for Job Admin app
bdiJobMonitorUiUserAlias	Credentials for Monitor Role user for Job Admin app
bdiJobAdminDataSourceUserAlias	Credentials for the Data Source of the Job Admin Schema
bdiRmsReceiverServiceDataSourceUserAli as	Credentials for the Data Source of the Job Receiver Schema
batchInfraDataSourceUserAlias	Credentials for the Data Source of the Batch Infra Schema
rxmJobAdminBaseUrlUserAlias	BDI RXM job admin app credentials
simJobAdminBaseUrlUserAlias	BDI SIM job admin app credentials

**Note:** If you have already configured the credentials and can use the same credentials (typically when redeploying the app), you can run the deployer with the -use-existing-credentials option as follows, and you will not be prompted for the credentials again for the deployment.

bdi-job-admin-deployer.sh -use-existing-credentials -deploy-job-admin-app

- 7. Deployer script deploys BDI RMS Batch Job Admin to the managed server.
- Restrict access to the bdi-int-rms-job-home folder:

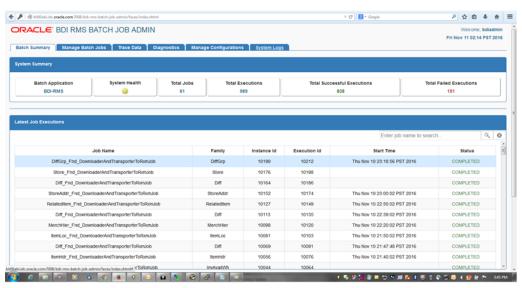
```
cd bdi-int-rms-job-home
chmod -R 700 .
```

### **Testing the Deployment**

After you deploy to the server successfully, BDI RMS Batch Job Admin can be accessed using the following URL:

http://<server>:<port>/bdi-rms-batch-job-admin

Log in using credentials provided during the installation and verify that jobs are displayed in the Manage Batch Jobs tab and configuration is displayed in the Manage Configurations tab.



## Creating Outbound Interface tables for BDI RMS

- 1. Go to the \$BDI\_HOME/bdi-int-rms-job-home/setup-data/ddl folder.
- Run the DDL provided in this folder in the BDI RMS database schema.
- DDL generates interface tables and PL/SQL packages.

# Deploying BDI Batch Job Admin Application for a Receiver Application

This section describes the installation process for a receiver app with the BDI-RXM app as an example.

### Preparing the Database for BDI RXM Batch Job Admin Installation

Before you begin installing BDI RXM Batch Job Admin, make sure you have the database schema created for BDI RXM Batch Job Admin.

#### Preparing the WebLogic Domain for BDI Batch Job Admin for RXM

- 1. Use the instructions provided above to install WebLogic 12.2.1.2 and create a domain.
- **2.** Start the Admin and managed servers.

### Deploying BDI RXM Batch Job Admin on the WebLogic

To deploy the BDI RXM Batch Job Admin war, take the following steps.

- 1. Download BdiIntJobAdminPak16.0.0ForRxm16.0.0\_eng\_ga.zip to \$BDI\_HOME.
- 2. Unzip the downloaded archive. The BDI Job home directory will be created under the current directory.

unzip BdiIntJobAdminPak16.0.0ForRxm16.0.0\_eng\_ga.zip

This command extracts the archive. The relevant directories for the installation are shown (There are more directories than what is shown).

```
bdi-int-rxm-job-home
   bin
    - bdi-job-admin-
deployer.sh.sh
  – conf
    bdi-job-admin-
deployment-env-info.json
    - security
  · setup-data
     L- ddl

    dml
```

**3.** Edit bdi-job-admin-deployment-env-info.json as follows:

```
cd bdi-int-rxm-job-home/conf
vi bdi-job-admin-deployment-env-info.json
```

**4.** Provide the following values in the JSON file.

Configuration Property	Description
BdiRxmJobAdminDataSource ->jdbcUrl	The JDBC URL for the Oracle database where the RXM integration schema resides.

Configuration Property	Description
BdiRxmReceiverServiceDataSource -> jdbcUrl	The JDBC URL for the Oracle database where the RXM integration schema resides. BdiRxmJobAdminDataSource and BdiRxmReceiverServiceDataSource can use the same jdbcUrl.
BatchInfraDataSource -> jdbcUrl	The JDBC URL for the schema created using RCU. The schema user is <pre>cprefix&gt;_</pre> wls (e.g. INT_WLS). The value of prefix that you provided in schema creation using RCU.
JobAdminAppServer -> weblogicDomainName	The domain name where BDI RXM Admin app is deployed
JobAdminAppServer -> weblogicDomainHome	The domain home directory of WebLogic where BDI RXM Admin app is deployed
JobAdminAppServer -> weblogicDomainAdminServerUrl	Admin Server URL of the BDI RXM Admin App - http:// <admin host&gt;:<admin port=""></admin></admin 
JobAdminAppServer->weblogicDomainAdminServerProtocol	AdminServer protocol which is by default t3, For SSL deployment update to t3s.
JobAdminAppServer -> weblogicDomainAdminServerHost	Host Name of the BDI RXM Admin Server
JobAdminAppServer -> weblogicDomainAdminServerPort	BDI RXM Admin Server Port
JobAdminAppServer -> weblogicDomainTargetManagedServerNa me	Managed Server Name where BDI RXM Admin App is installed (e.g. bdi-rxm-server)
JobAdminAppServer -> jobAdminUiUrl	Job Admin URL of BDI RXM
	http:// <host>:<bdi managed="" port="" rxm="" server="">/bdi-rxm-batch-job-admin</bdi></host>
RmsJobAdminAppServer ->	Job Admin URL of BDI RMS
jobAdminUiUrl	http:// <host>:<bdi managed="" port="" rms="" server="">/bdi-rms-batch-job-admin</bdi></host>

5. Run the deployer script to create the data sources and deploy BDI RXM Batch Job Admin.

cd bdi-int-rxm-job-home/bin bdi-job-admin-deployer.sh -setup-credentials -deploy-job-admin-app

```
/bdi-hone1/bdi-rxm-home/bin$ bdi-job-admin-deployer.sh
xtracting jars from jps-wallet-all.
og4j:MARN No appenders could be found for logger (com.oracle.retail.integration.common.security.credential.CredentialStoreManager)
og4j:MARN Please initialize the log4j system properly.
SAGE: JobAdminDeployer SECURITY_OPTION TASK_ACTION
   : JobAdminDeployer {-setup-credentials|-use-existing-credentials} -deploy-job-admin-app
 SECURITY OPTION
                                         : One of the following SECURITY options must be used.
       -setup-credentials

    Setup AppServer and DB user/password and save to wallet.
    Edit the bdi-job-admin-deployment-env-info.json config file before setting up credentials.

       -use-existing-credentials : Use previously setup AppServer and DB user/passwords from wallet.
                                         : The following TASK ACTION option must be used.
       -deploy-job-admin-app : Configures WebLogic Server and deploy the job-admin application.
```

**6.** Enter the values prompted by the script for the following credential aliases. JobAdmin user has more privileges(e.g change configuration and run jobs from

JobAdmin UI) than JobOp	oerator user. JobOperator can run batch	jobs where as
JobMonitor has just read j	privileges.	

Alias	Description
bdiAppServerAdminServerUserAlias	WebLogic admin server credentials
bdiJobAdminUiUserAlias	Credentials for Admin Role user for Job Admin app
bdiJobOperatorUiUserAlias	Credentials for Operator Role user for Job Admin app
bdiJobMonitorUiUserAlias	Credentials for Monitor Role user for Job Admin app
bdiJobAdminDataSourceUserAlias	Credentials for the Data Source of the Job Admin Schema
bdiRxmReceiverServiceDataSourceUserAli as	Credentials for the Data Source of the Job Receiver Schema
batchInfraDataSourceUserAlias	Credentials for the Data Source of the Batch Infra Schema
rmsJobAdminBaseUrlUserAlias	BDI RMS job admin app credentials

**Note:** If you have already configured the credentials and can use the same credentials (typically when redeploying the app), you can run the deployer with the -use-existing-credentials option as follows, and you will not be prompted for the credentials again for the deployment.

bdi-job-admin-deployer.sh -use-existing-credentials -deploy-job-admin-app

- **7.** Deployer script deploys BDI RXM Batch Job Admin to the server.
- Restrict access to the bdi-int-rxm-job-home folder:

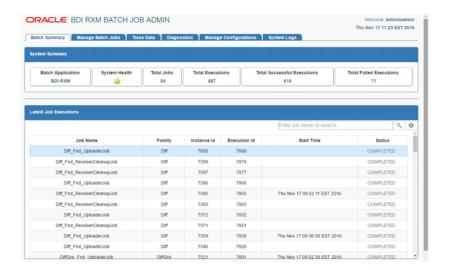
```
cd bdi-int-rms-job-home
chmod -R 700 .
```

### **Testing the Deployment**

After you deploy to the server successfully, the BDI RXM Batch Job Admin can be accessed using the following URL:

http://<server>:<port>/bdi-rxm-batch-job-admin

Log in using credentials provided during the installation and verify that jobs are displayed in the Manage Batch Jobs tab and configuration is displayed in the Manage Configurations tab.



### **Creating Inbound Interface tables for BDI RXM**

- Go to \$BDI\_HOME/bdi-int-rxm-job-home/setup-data/ddl folder.
- Run the DDL provided in this folder in the BDI RXM database schema.
- DDL generates the inbound interface tables for RXM.

# **Process Flow Installation**

# **Prerequisites**

The Process Flow application has the same tech stack requirements mentioned in the beginning of this document for JDK, WebLogic domain, and database. Before installing the Process Flow application install the following infrastructure components for the application.

- A WebLogic domain with JRF for the application
- A database schema for the Process Flow application

The recommended java VM memory setting for the Process Flow application domain

-Xms1024m -Xmx2048m

## **Install the Process Flow Application**

Perform the following procedure to install the Process Flow application:

- Download the process flow archive BdiProcessFlow16.0.0ForAll16.x.xApps\_eng\_ ga.zip
- Unzip the downloaded archive. The Process Home directory will be created under the current directory.

#### unzip BdiProcessFlow16.0.0ForAll16.x.xApps\_eng\_ga.zip

This command extracts the archive. The relevant directories for the installation are shown below (There are more directories than what is shown).

```
bdi-process-home
  - bin
    bdi-process-flow-admin-deployer.sh

    bdi-process-flow-admin-deployment-env-info.json

    security

   setup-data
    └─ ddl

— dml

     - dsl

    available process flow options

          - rms external-no split flows
          - rms rxm-no split flows
          - rms sim-no split-flows
           — rms sim rxm-receiver side split flows
            - rms sim rxm-sender side split flows
          flows-in-scope
```

**3.** Modify process flow configuration file(conf/bdi-process-flow-admin-deployment-env-info.json) to match the deployment environment. While you can change many values to match your requirements, here is a table of a minimum set of configuration values that you need to modify for process flow application.

**Note:** The alias names in the configuration files should not be changed.

Configuration Field	Description
ProcessFlowAdminDataSource ->jdbcUrl	JDBC URL for the process flow schema. Change this value to match the environment
ProcessFlowAdminDataSource ->weblogicDomainName	Name of the WebLogic domain where the process flow application is deployed
ProcessFlowAdminDataSource ->weblogicDomainHome	WebLogic Domain home directory
ProcessFlowAdminAppServer-> weblogicDomainProtocol	WebLogic admin server protocol is by default t3, if SSL configured then update to t3s.
ProcessFlowAdminDataSource ->weblogicDomainAdminServerUrl	WebLogic Admin server URL
ProcessFlowAdminDataSource ->weblogicDomainAdminServerHost	Host name of WebLogic Admin Server
ProcessFlowAdminDataSource ->weblogicDomainAdminServerPort	WebLogic admin server port
ProcessFlowAdminDataSource ->weblogicDomainTargetManagedServerN ame	Managed Server name where Process Flow is hosted
ProcessFlowAdminDataSource ->processFlowAdminUiUrl	Process Flow admin app URL. Update only the host and port

Configuration Field	Description
RmsJobAdminAppServer>jobAdminUiUrl	BDI RMS job admin URL
SimJobAdminAppServer>jobAdminUiUr l	BDI SIM job admin URL
RxmJobAdminAppServer>jobAdminUiUrl	BDI RXM job admin URL
RmsAppJobAdminAppServer -> jobAdminUiUrl	RMSAPP job admin URL
RxmAppJobAdminAppServer -> jobAdminUiUrl	RXMAPP job admin URL
SimAppJobAdminAppServer -> jobAdminUiUrl	SIMAPP job admin URL

4. Determine which flows are in scope for your deployment. Copy the flows from bdi-process-home/setup-data/dsl/available\_process\_flow\_options to bdi-process-home/setup-data/dsl/flows-in-scope.

For example, for integration between only RMS and RXM, the rms\_rxm-no\_split\_ flows files would be copied:

- cp bdi-process-home/setup-data/dsl/available\_process\_flow\_options/rms\_ rxm-no-split-flows/\* bdi-process-home/setup-data/dsl/flows-in-scope/.
- 5. Run the deployer. Make sure that the WebLogic server is running before issuing the following command.

cd bin bdi-process-flow-admin-deployer.sh -setup-credentials -deploy-process-flow-admin-app

The process flow deployer will prompt for username and password for the following credential aliases:

Alias	Description
bdiAppServerAdminServerUserAlias	WebLogic admin server credentials
processFlowAdminBaseUrlUserAlias	Credentials for Admin Role user for Process Flow Admin app
processFlowOperatorBaseUrlUserAlias	Credentials for Operator Role user for Process Flow Admin app
processFlowMonitorBaseUrlUserAlias	Credentials for Monitor Role user for Process Flow Admin app
bdiProcessFlowAdminDataSourceUserAlia s	Credentials for the Data Source of the Process Flow Schema
rmsJobAdminBaseUrlUserAlias	BDI RMS job admin app credentials
rxmJobAdminBaseUrlUserAlias	BDI RXM job admin app credentials
simJobAdminBaseUrlUserAlias	BDI SIM job admin app credentials
rmsappJobAdminBaseUrlUserAlias	RMS APP job admin credentials
rxmappJobAdminBaseUrlUserAlias	RXM APP job admin credentials
simappJobAdminBaseUrlUserAlias	SIM APP job admin credentials

**Note:** If you have already configured various credentials required for process flow, you can run the deployer with the following syntax. It will not ask the credentials again for the deployment.

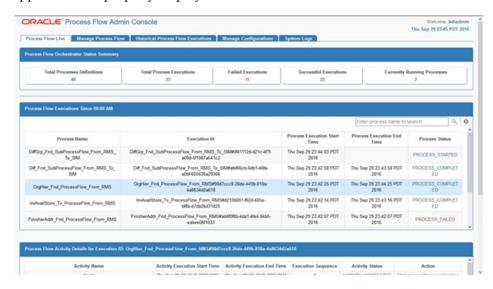
bdi-process-flow-admin-deployer.sh -use-existing-credentials -deploy-process-flow-admin-app

- **6.** Make sure the deployment step shows deployment success message at the end.
- **7.** Restrict access to the bdi-process-home folder:

cd bdi-process-home chmod -R 700 .

## **Verify Installation**

If the process flow app is successfully deployed, you should be able to access the application at the URL http://<host>:<port>/bdi-process-flow/ The following is a sample screenshot of the process flow application. Make sure all the tabs of the application are properly displayed.



See the Oracle Retail Bulk Data Integration Implementation Guide for the operation details of the Process Flow application.

# **BDI Batch Scheduler Installation**

# **Installation Prerequisites**

The BDI Batch Scheduler supports the same tech stack and platform specifications as given in prior section in this installation guide. The following infrastructure is required for Scheduler application installation.

## **Preparing for Installation**

- Before starting the installation, make sure a database schema has been created for the Scheduler application.
- Ensure that the WebLogic server where the scheduler application will be deployed is up and running.
- Download the BDI scheduler installer archive: BdiScheduler16.0.0ForAll16.x.xApps\_eng\_ga.zip
- Unzip/extract the archive to a target directory to run the installer. The bdi-scheduler-home directory will be created under the target directory with the artifacts.
- The following is part of the directory structure and artifacts that are extracted from the archive (not the complete list shown below).

```
/bdi-scheduler-home

    bdi-scheduler-admin-deployer.sh

          - conf

    bdi-scheduler-admin-deployment-env-

info.json
          – setup-data
                                      seed data.sql
                                       - <Schedule> Action.sch files
```

**Note:** Any seed data schedule definition can be edited if required using the seed\_data.sql file. To add a new schedule at the time of deployment, edit seed\_data.sql to include an insert statement for the new schedule definition and add the corresponding <ScheduleName>\_Action.sch file in the /setup-data/dsl directory. For more details, refer to the Oracle Retail Bulk Data Integration *Implementation Guide.* 

# **Deploying Scheduler Application**

1. Edit bdi-scheduler-admin-deployment-env-info.json (in bdi-scheduler-home/conf directory) with corresponding values matching the target deployment environment. Update the values of the following configuration properties.

Configuration Property	Description
DataSourceDef -> SchedulerAdminDataSource -> jdbcUrl	JDBC URL of the scheduler database schema
MiddlewareServerDef -> SchedulerAdminAppServer -> weblogicDomainName	Name of the WebLogic domain where the scheduler application is deployed.
MiddlewareServerDef -> SchedulerAdminAppServer -> weblogicDomainHome	WebLogic Domain home directory.
MiddlewareServerDef->SchedulerAdminA ppServer->weblogicDomainAdminServerP rotocol	By default the protocol is t3 and if configured to SSL then update to t3s.
MiddlewareServerDef -> SchedulerAdminAppServer -> weblogicDomainAdminServerUrl	WebLogic Admin server URL. Example: t3:// <serverhostname>:8001</serverhostname>
MiddlewareServerDef -> SchedulerAdminAppServer -> weblogicDomainAdminServerHost	Host name of WebLogic Admin server.
MiddlewareServerDef -> SchedulerAdminAppServer -> weblogicDomainAdminServerPort	WebLogic Admin server port.
MiddlewareServerDef -> SchedulerAdminAppServer -> weblogicDomainTargetManagedServerNa me	Managed Server name where the Scheduler application is deployed.
MiddlewareServerDef ->	Scheduler Admin app URL.
SchedulerAdminAppServer -> schedulerAdminUiUrl	http:// <serverhostname>:<managed server port&gt;/bdi-scheduler</managed </serverhostname>
MiddlewareServerDef -> ProcessFlowAdminAppServer -> processFlowAdminUiUrl	BDI Process Flow app base URL. This URL will be used by the scheduler to connect to the process flow app to call process flows.
	Example: http:// <serverhostname>:8001/bdi-proc ess-flow</serverhostname>

Run the deployer script from the bdi-scheduler-home/bin directory. Use the -setup-credentials option to setup necessary credentials for the application and deploy.

bdi-scheduler-admin-deployer.sh -setup-credentials -deploy-scheduler-admin-app The deployer will prompt credentials for the following user aliases to be configured. Enter the corresponding username and password as required for each alias.

Alias Name	Description
bdiAppServerAdminServerUserAlias	WebLogic admin server credentials
bdiSchedulerAdminUiUserAlias	Credentials for the user with Admin Role for Scheduler Admin app
bdiSchedulerOperatorUiUserAlias	Credentials for the user with Operator Role for Scheduler Admin app
bdiSchedulerMonitorUiUserAlias	Credentials for the user with Monitor Role for Scheduler Admin app
bdiSchedulerAdminDataSourceUserAlias	Datasource credentials to connect to the Scheduler database schema
processFlowAdminBaseUrlUserAlias	Credentials of the process flow admin app

3. If you have already configured the credentials and can use the same credentials (typically when redeploying the app), you can run the deployer with the -use-existing-credentials option as follows, and you will not be prompted for the credentials again for the deployment.

bdi-scheduler-admin-deployer.sh -use-existing-credentials -deploy-scheduler-admin-app

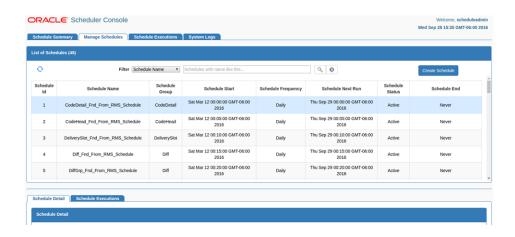
Restrict access to the bdi-scheduler-home folder:

cd bdi-scheduler-home chmod -R 700 .

# Verifying Installation

Perform the following procedure to verify the BDI Batch Scheduler installation:

- Verify that the deployer script has run successfully with no error. The scheduler application would have been deployed to the target environment.
- **2.** Launch the Scheduler admin app via the URL http://<host>:<port>/bdi-scheduler/
- Verify you are able to access the URL by logging in using the admin or operator role.
- 4. Verify that the list of schedules (created from seed data) is displayed in 'Manage Schedules' page of the app.
- **5.** Ensure that all the schedules are in 'Active' status.
- **6.** A schedule can be in 'Disabled' status if no schedule action is loaded for the corresponding schedule or if the schedule action contains any forbidden keyword. The user needs to correct the schedule action and enable the schedule. For more details on this, please refer to the Oracle Retail Bulk Data Integration Implementation Guide.



# **Enabling Email Notification Alerts**

Scheduler can send email alerts upon success or failure of schedule executions as specified in the schedule definitions. The following configuration is required for Scheduler email notification.

Mail Session configuration in WebLogic, for scheduler email notification:

- 1. Go to the WebLogic Admin console of the environment where the scheduler app is deployed.
- Navigate to Services -> Mail Sessions.
- Select 'New' to create a new mail session.
- Enter the following details:

Name: BdiSchedulerMailSession

JNDI name: mail/BdiSchedulerMailSession

**Session Username:** A valid email id, preferably email-id of an administrator.

**Session password:** The password for the above email id.

Enter the following in the JavaMail properties:

mail.smtp.ssl.enable=true

mail.smtp.auth=true

mail.smtp.ssl.trust=<company's smtp mail server host name>

mail.smtp.port=<mail server smtps port, typically is 465>

mail.transport.protocol=smtps

mail.smtp.host=<company's smtp mail server host name>

mail.from=<A valid email-id for 'from email address' when email is sent>

- Click Next. In the Mail Session Targets, select the managed server where the scheduler application is deployed.
- Finish creating the mail session.

**Note:** For more information on configuring Mail sessions on WebLogic, see the *Oracle® WebLogic Administrator's Guide 12c Release*.

# **Appendix: Installation Order**

This section provides a guideline for the order in which the Oracle Retail applications should be installed. If a retailer has chosen to use only some of the applications, the order is still valid, less the applications not being installed.

**Note:** The installation order is not meant to imply integration between products.

## **Enterprise Installation Order**

- 1. Oracle Retail Merchandising System (RMS), Oracle Retail Trade Management (RTM)
- **2.** Oracle Retail Sales Audit (ReSA)
- Oracle Retail Extract, Transform, Load (RETL)
- Oracle Retail Warehouse Management System (RWMS)
- **5.** Oracle Retail Invoice Matching (ReIM)
- **6.** Oracle Retail Price Management (RPM)
- 7. Oracle Retail Allocation
- Oracle Retail Mobile Merchandising (ORMM)
- Oracle Retail Customer Engagement (ORCE)
- **10.** Oracle Retail Xstore Office
- 11. Oracle Retail Xstore Point-of-Service, including Xstore Point-of-Service for Grocery, and including Xstore Mobile
- **12.** Oracle Retail Xstore Environment
- 13. Oracle Retail EFTLink
- 14. Oracle Retail Store Inventory Management (SIM), including Mobile SIM
- **15.** Oracle Retail Predictive Application Server (RPAS)
- **16.** Oracle Retail Predictive Application Server Batch Script Architecture (RPAS BSA)
- **17.** Oracle Retail Demand Forecasting (RDF)
- 18. Oracle Retail Category Management Planning and Optimization/Macro Space Optimization (CMPO/MSO)
- **19.** Oracle Retail Replenishment Optimization (RO)

- **20.** Oracle Retail Regular Price Optimization (RPO)
- **21.** Oracle Retail Merchandise Financial Planning (MFP)
- **22.** Oracle Retail Size Profile Optimization (SPO)
- **23.** Oracle Retail Assortment Planning (AP)
- 24. Oracle Retail Item Planning (IP)
- **25.** Oracle Retail Item Planning Configured for COE (IP COE)
- **26.** Oracle Retail Advanced Inventory Planning (AIP)
- 27. Oracle Retail Integration Bus (RIB)
- 28. Oracle Retail Services Backbone (RSB)
- 29. Oracle Retail Financial Integration (ORFI)
- **30.** Oracle Retail Bulk Data Integration (BDI)
- **31.** Oracle Retail Integration Console (RIC)
- **32.** Oracle Commerce Retail Extension Module (ORXM)
- 33. Oracle Retail Data Extractor for Merchandising
- **34.** Oracle Retail Clearance Optimization Engine (COE)
- 35. Oracle Retail Analytic Parameter Calculator for Regular Price Optimization (APC-RPO)
- 36. Oracle Retail Insights, including Retail Merchandising Insights (previously Retail Merchandising Analytics) and Retail Customer Insights (previously Retail Customer Analytics)
- 37. Oracle Retail Order Broker