Oracle® Retail Price Management

Installation Guide

Release 15.0.3

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Oracle® Retail Price Management Installation Guide, Release 15.0.3

Primary Author: Shreyas S Manipura

Contributors: Nathan Young

Contents

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Oracle Retail Price Management, Installation Guide, Release 15.0.3

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- 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?

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

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Preface

Oracle Retail Installation Guides contain the requirements and procedures that are necessary for the retailer to install Oracle Retail products.

Audience

This Installation Guide is written for the following audiences:

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

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, 15.0) or a later patch release (for example, 15.0.3). If you are installing the base release or 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.html`

An updated version of the applicable Oracle Retail document is indicated by 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

Documentation is packaged with each Oracle Retail product release. Oracle Retail product documentation is also available on the following Web site:

`http://www.oracle.com/technetwork/documentation/oracle-retail-100266.html`

(Data Model documents are not available through Oracle Technology Network. These documents are packaged with released code, or you can obtain them through My Oracle Support.)

Conventions

Navigate: This is a navigate statement. It tells you how to get to the start of the procedure and ends with a screen shot of the starting point and the statement "the Window Name window opens."

```
This is a code sample
   It is used to display examples of code
```

1 Preinstallation Tasks

RPM is a client-server application. Its client side code runs in a WebStart Java Virtual machine instance, while its server side code runs in the Oracle WebLogic Server and accesses an Oracle Database server.

Note: Oracle Retail assumes that the retailer has applied all required fixes for supported compatible technologies.

Implementation Capacity Planning

There is significant complexity involved in the deployment of Oracle Retail applications, and capacity planning is site specific. Oracle Retail strongly suggests that before installation or implementation you engage your integrator (such as the Oracle Retail Consulting team) and hardware vendor to request a disk sizing and capacity planning effort.

Sizing estimates are based on a number of factors, including the following:

- Workload and peak concurrent users and batch transactions
- Hardware configuration and parameters
- Data scarcity
- Application features utilized
- Length of time history is retained

Additional considerations during this process include your high availability needs as well as your backup and recovery methods.

Check Supported Database Server Requirements

General requirements for a database server running Oracle Retail Price Management include:

Supported on:	**Versions Supported:**
Database Server OS	OS certified with Oracle Database 12cR1Enterprise Edition. Options are: ▪ Oracle Linux 6 and 7 for x86-64 (Actual hardware or Oracle virtual machine). ▪ Red Hat Enterprise Linux 6 and 7 for x86-64 (Actual hardware or Oracle virtual machine). ▪ AIX 7.1 (Actual hardware or LPARs) ▪ Solaris 11 SPARC (Actual hardware or logical domains) ▪ HP-UX 11.31 Integrity (Actual hardware, HPVM, or vPars)
Database Server 12cR1	Oracle Database Enterprise Edition 12cR1 (12.1.0.2) with the following specifications: **Components:** ▪ Oracle Partitioning ▪ Examples CD **Oneoffs:** ▪ 20846438: ORA-600 [KKPAPXFORMFKK2KEY_1] WITH LIST PARTITION ▪ 19623450: MISSING JAVA CLASSES AFTER UPGRADE TO JDK 7 ▪ 20406840: PROC 12.1.0.2 THROWS ORA-600 [17998] WHEN PRECOMPILING BY 'OTHER' USER ▪ 20925154: ORA-39126: WORKER UNEXPECTED FATAL ERROR IN KUPW$WORKER GATHER_PARSE_ITEMS JAVA **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

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#JJDEV01000.

Check Supported Application Server Requirements

General requirements for an application server capable of running the Oracle Retail Price Management application include the following.

Supported on:	**Versions Supported:**
Application Server OS	OS certified with Oracle Fusion Middleware 12c (12.2.1.3). Options are: ▪ Oracle Linux 6 and 7 for x86-64 (Actual hardware or Oracle virtual machine) ▪ Red Hat Enterprise Linux 6 and 7for x86-64 (Actual hardware or Oracle virtual machine) ▪ AIX 7.1 (Actual hardware or LPARs) ▪ Solaris 11.3 SPARC (Actual hardware or logical domains) ▪ HP-UX 11.31 Integrity (Actual hardware, HPVM, or vPars)
Application Server	Oracle Fusion Middleware 12c (12.2.1.3) **Components:** ▪ FMW 12.2.1.3 Infrastructure (WLS and ADF included) ▪ Repository Creation Utility (RCU 12.2.1.3) ▪ Oracle ADF 12c(12.2.1.3) ▪ Oracle Identity Management 11g Release 1 (12.2.1.3) **Note:** Oracle Internet Directory (OID) is the supported LDAP directory for Oracle Retail products. For alternate LDAP directories, refer to Oracle WebLogic documentation set. **Java:** ▪ JDK 1.8+ 64 bit Optional (required for SSO) ▪ Oracle Webgate/WebTier 12c (12.2.1.3) Oracle Access Manager 12c

Check Single Sign-On Requirements

If RPM will not be deployed in a Single Sign-On environment, skip this section.

If Single Sign-On is to be used, verify the Oracle Identity Management version 12.2.1.3 has been installed along with the components listed in the above Application Server requirements section. . Verify the Oracle Access Manager Agent is registered with the Oracle Access Manager 12c as a partner application.

Check Supported Client PC and Web Browser Requirements

Requirement	Version
Operating system	Windows 7 or 10
Display resolution	1024x768 or higher
Processor	2.6GHz or higher
Memory	1GByte or higher
Networking	intranet with at least 10Mbps data rate
Oracle (Sun) Java Runtime Environment	1.8+
Browser	Microsoft Internet Explorer version 11 Microsoft Edge 41+ Mozilla Firefox ESR 60+

Check Oracle Retail Software Dependencies

The database portion of the RMS 15.0 application must be installed prior to installing RPM.

Supported Oracle Retail Products

Requirement	Version
Oracle Retail Merchandising System (RMS)/Oracle Retail Trade Management (RTM)/Oracle Retail Sales Audit (ReSA)	15.0.3
Oracle Retail Allocation	15.0.3
Oracle Retail Store Inventory Management (SIM)	15.0.3
Oracle Retail Xstore Suite	15.0.2
Oracle Retail POS Suite	14.1.x

Supported Oracle Retail Integration Technologies

Requirement	Version
Oracle Retail Integration Bus (RIB)	15.0.3
Oracle Retail Service Backbone (RSB)	15.0.3

Check Third-Party Software Dependencies

Hibernate 4.3.10 must be downloaded and the hibernate4.jar file must be extracted. The RPM application installation procedure specifies how to install this file. The link to download jars is present in the readme.txt inside the hibernate4 folder for RPM software.

UNIX User Account Privileges to Install the Software

A UNIX user account is needed to install the software. The UNIX user that is used to install the software should have write access to the WebLogic server installation files.

For example, oretail.

Note: Installation steps will fail when trying to modify files under the WebLogic installation unless the user has write access.

2

RAC and Clustering

Oracle Retail Price Management has been validated to run in two configurations on Linux:

- Standalone WebLogic and Database installations
- Real Application Cluster Database and WebLogic Server Clustering

The Oracle Retail products have been validated against a 12.1.0.2 RAC database. When using a RAC database, all JDBC connections should be configured to use THIN connections rather than OCI connections.

Clustering for WebLogic Server 12.2.1.3 is managed as an Active-Active cluster accessed through a Load Balancer. Validation has been completed utilizing a RAC 12.1.0.2 Oracle Internet Directory database with the WebLogic 12.2.1.3 cluster. It is suggested that a Web Tier 12.2.1.3 installation be configured to reflect all application server installations if SSO will be utilized.

References for Configuration

- Oracle® Fusion Middleware High Availability Guide 12c(12.2.1.3) Part Number E95492-01
- Oracle Real Application Clusters Administration and Deployment Guide 12c Release 1 (12.1) E48838-10

Database Installation Tasks

RPM Schema

The RPM database tables are installed with the RMS database schema. RMS 15.0.3 is a prerequisite of the RPM 15.0.3 installation.

Note: The listed are RPM owned tables, data on these tables indicates that a transaction is likely in progress within the system. Any transactions related to those tables needs to be completed. Any client owned data (on RPM_STAGE% tables) should be backed up by the client outside those tables. Any application owned data (payload data, workspace data – aka "WS", and RPM_BULK_CC% related tables) should be removed by completing necessary transactions to do so (i.e., extract payload data and execute purge payloads batch; execute the purge bulk conflict check artifacts batch; etc). All transactional data needs to be fully processed and purged prior to an upgrade.

- RPM_STAGE_SIMPLE_PROMO
- RPM_STAGE_PRICE_CHANGE
- RPM_STAGE_CLEARANCE
- RPM_STAGE_CLEARANCE_RESET
- RPM_STAGE_THRESHOLD_PROMO
- RPM_STAGE_COMP_THRESH_LINK
- RPM_STAGE_MULTIBUY_BUYLIST
- RPM_STAGE_MULTIBUY_HEADER
- RPM_STAGE_MULTIBUY_RWDLIST
- RPM_STAGE_TRAN_PROMO_BUYLIST
- RPM_STAGE_TRAN_PROMO_HEADER
- RPM_STAGE_TRAN_PROMO_RWDLIST
- RPM_STAGE_FINANCE_PROMO
- RPM_STAGE_FIN_CRED_DTL
- RPM_STAGE_FIN_THRESH_DTL
- RPM_CLEARANCE_PAYLOAD
- RPM_FIN_CRED_DTL_PAYLOAD
- RPM_PRICE_CHG_PAYLOAD
- RPM_PRICE_EVENT_PAYLOAD
- RPM_PROMO_DISC_LDR_PAYLOAD
- RPM_PROMO_DTL_CIL_ITEM_PAYLOAD
- RPM_PROMO_DTL_CIL_LOC_PAYLOAD
- RPM_PROMO_DTL_CIL_PAYLOAD
- RPM_PROMO_DTL_LIST_GRP_PAYLOAD
- RPM_PROMO_DTL_LIST_PAYLOAD
- RPM_PROMO_DTL_MN_PAYLOAD
- RPM_PROMO_DTL_PAYLOAD
- RPM_PROMO_DTL_PRC_RNG_PAYLOAD
- RPM_PROMO_FIN_DTL_PAYLOAD
- RPM_PROMO_ITEM_LOC_SR_PAYLOAD
- RPM_PROMO_ITEM_PAYLOAD

- RPM_PROMO_LOCATION_PAYLOAD
- RPM_THRESHOLD_INT_PAYLOAD
- RPM_CC_SYS_GEN_DETAIL_WS
- RPM_CC_SYS_GEN_HEAD_WS
- RPM_CLEARANCE_WS
- RPM_CUST_SEGMENT_PROMO_FR_WS
- RPM_FUTURE_RETAIL_WS
- RPM_PROMO_ITEM_LOC_EXPL_WS
- RPM_BULK_CC_PE
- RPM_BULK_CC_PE_CHUNK
- RPM_BULK_CC_PE_ITEM
- RPM_BULK_CC_PE_ITEM_GTT
- RPM_BULK_CC_PE_LOCATION
- RPM_BULK_CC_PE_SEQUENCE
- RPM_BULK_CC_PE_THREAD
- RPM_BULK_CC_TASK

4 Application Installation Tasks

Before proceeding, you must install Oracle WebLogic Server 12.2.1.3. The Oracle Retail Price Management application is deployed to a WebLogic Managed server within the WebLogic installation.

It is assumed Oracle Database has already been configured and loaded with the appropriate Oracle Retail Price Management schemas for your installation.

Installing a separate domain is mandated. It can be called "RPMdomain" (or something similar) and will be used to install the managed servers. The ADF libraries should be extended to this domain and the Enterprise Manager should be deployed.

Middleware Infrastructure and WebLogic Server12c (12.2.1.3.0) Installation

Create a directory to install the WebLogic (this will be the ORACLE_HOME):

Example: mkdir -p /u00/webadmin/products/wls_retail

1. Set the ORACLE_HOME, JAVA_HOME and DOMAIN_HOME environment variables:
   - ORACLE_HOME should point to your WebLogic installation.
   - JAVA_HOME should point to the Java JDK 1.8+. This is typically the same JDK which is being used by the WebLogic domain where application is getting installed.

   Example:

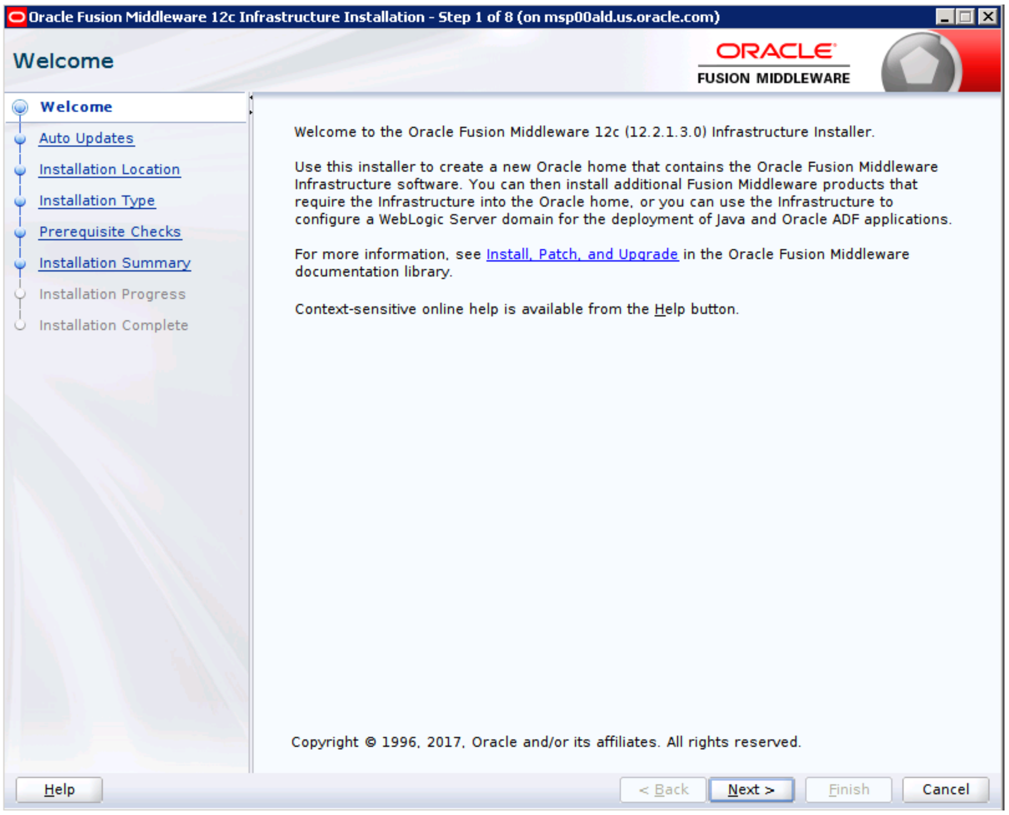
   ```
   $export ORACLE_HOME=/u00/webadmin/products/wls_retail
   $export JAVA_HOME=/u00/webadmin/products/jdk_java
   (This should point to the Java which is installed on your server)
   $export PATH=$JAVA_HOME/bin:$PATH
   ```

   Going forward we will use the above references for further installations.

2. Go to location where the weblogic jar is downloaded and run the installer using the following command:

   ```
   java -jar ./fmw_12.2.1.3.0_infrastructure.jar
   ```

3. Welcome screen appears. Click **Next**.



Welcome to the Oracle Fusion Middleware 12c (12.2.1.3.0) Infrastructure Installer.

Use this installer to create a new Oracle home that contains the Oracle Fusion Middleware Infrastructure software. You can then install additional Fusion Middleware products that require the Infrastructure into the Oracle home, or you can use the Infrastructure to configure a WebLogic Server domain for the deployment of Java and Oracle ADF applications.

For more information, see Install, Patch, and Upgrade in the Oracle Fusion Middleware documentation library.

Context-sensitive online help is available from the Help button.

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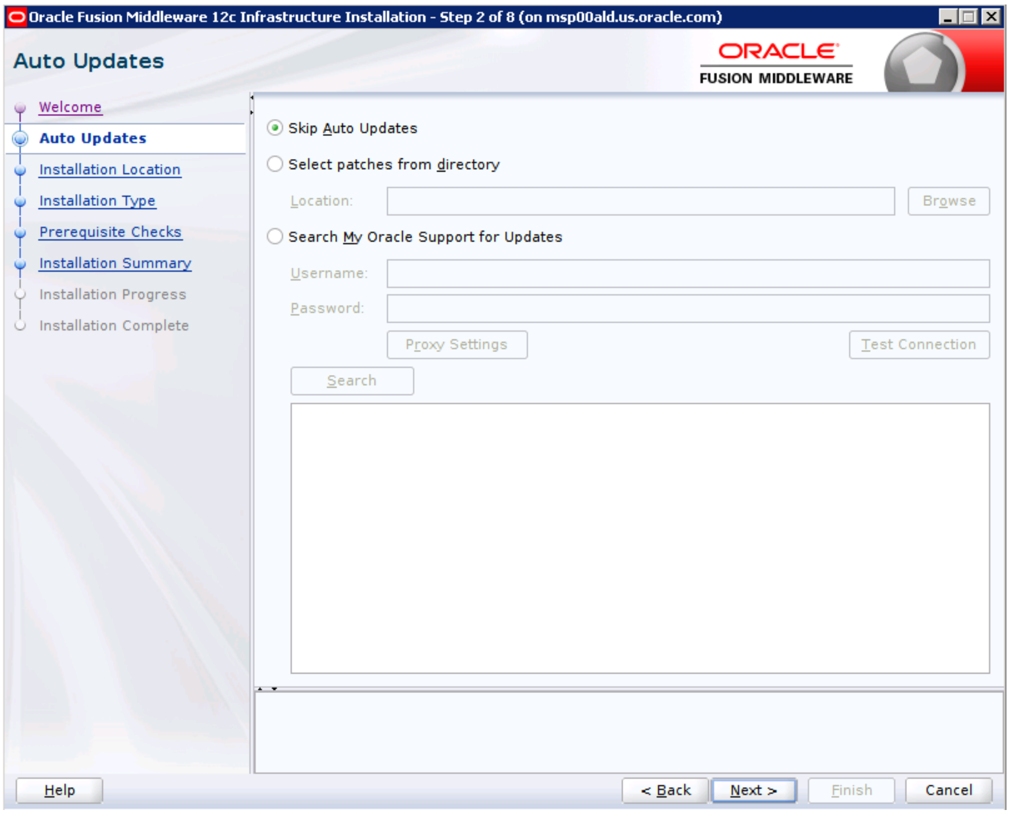
4. Click **Next**.



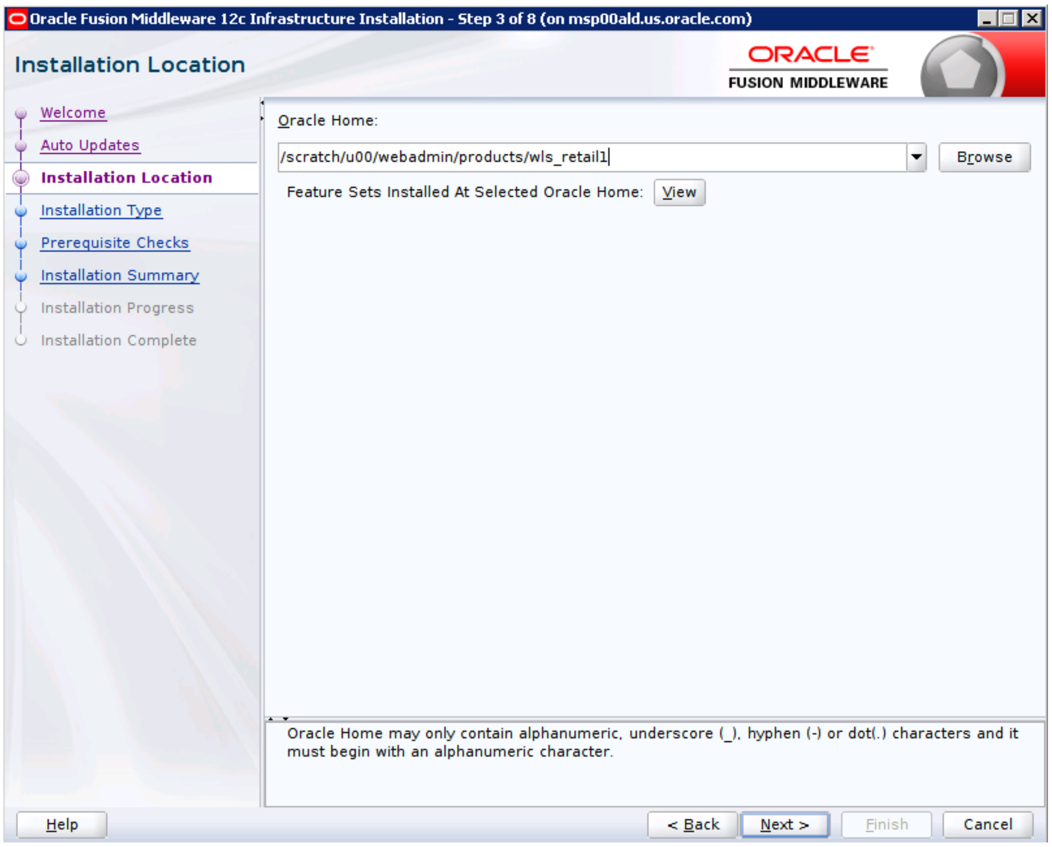
[✓ Skip Auto Updates]
Select patches from directory
Location:
Search My Oracle Support for Updates
Username:
Password:

5. Enter the following and click **Next**.

   `Oracle home =<Path to the ORACLE_HOME>`

   Example:

   `/u00/webadmin/products/wls_retail`



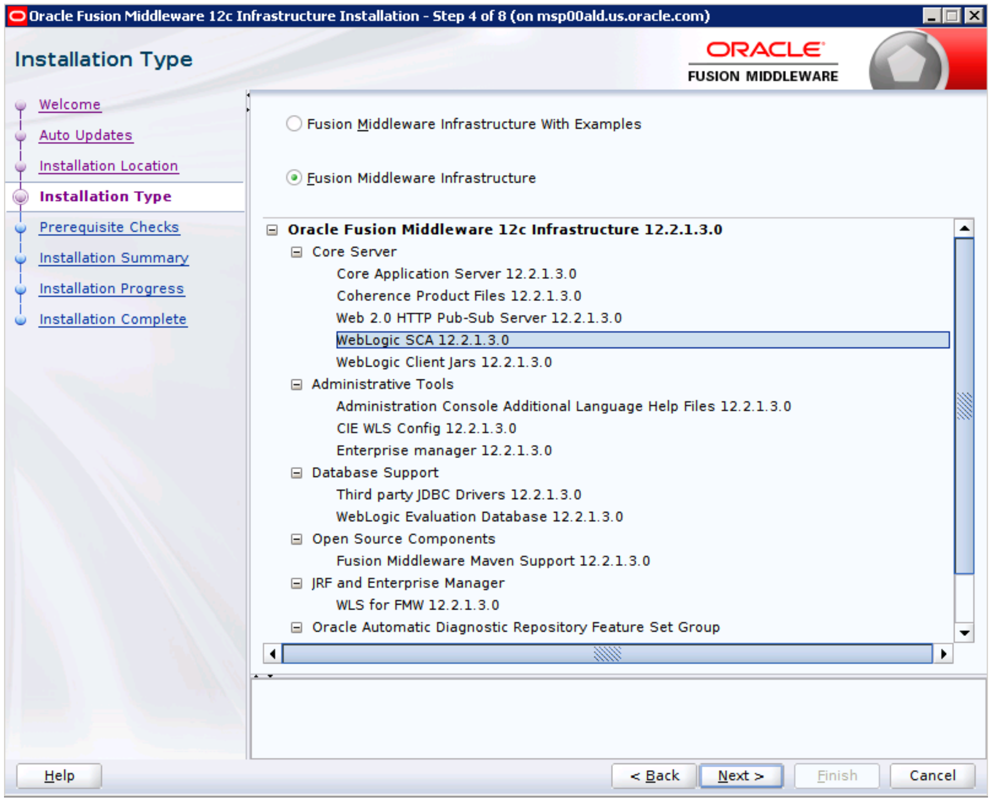
Oracle Home:

/scratch/u00/webadmin/products/wls_retail1

Feature Sets Installed At Selected Oracle Home:

Oracle Home may only contain alphanumeric, underscore (_), hyphen (-) or dot(.) characters and it must begin with an alphanumeric character.

6. Select install type 'Fusion Middleware Infrastructure'. Click **Next**.

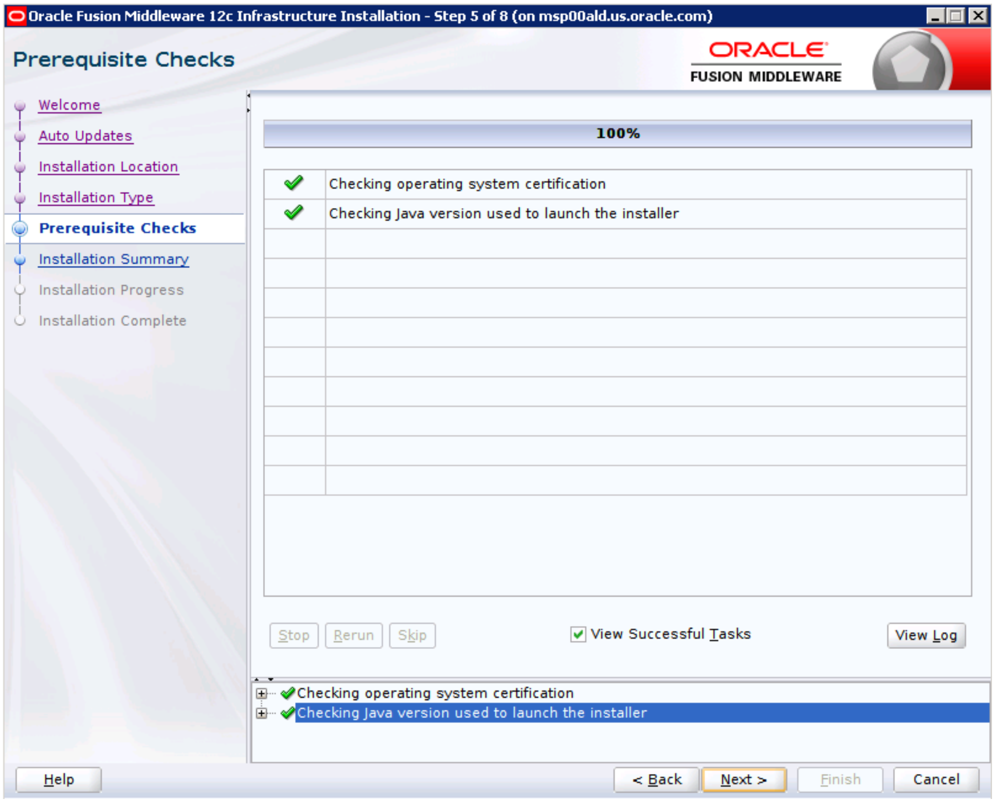

Oracle Fusion Middleware 12c Infrastructure Installation - Step 4 of 8 (on msp00ald.us.oracle.com)

Installation Type

( ) Fusion Middleware Infrastructure With Examples
[✓ Fusion Middleware Infrastructure]

```
Oracle Fusion Middleware 12c Infrastructure 12.2.1.3.0
    Core Server
        Core Application Server 12.2.1.3.0
        Coherence Product Files 12.2.1.3.0
        Web 2.0 HTTP Pub-Sub Server 12.2.1.3.0
        WebLogic SCA 12.2.1.3.0
        WebLogic Client Jars 12.2.1.3.0
    Administrative Tools
        Administration Console Additional Language Help Files 12.2.1.3.0
        CIE WLS Config 12.2.1.3.0
        Enterprise manager 12.2.1.3.0
    Database Support
        Third party JDBC Drivers 12.2.1.3.0
        WebLogic Evaluation Database 12.2.1.3.0
    Open Source Components
        Fusion Middleware Maven Support 12.2.1.3.0
    JRF and Enterprise Manager
        WLS for FMW 12.2.1.3.0
    Oracle Automatic Diagnostic Repository Feature Set Group
```

This screen will verify that the system meets the minimum necessary requirements.


Oracle Fusion Middleware 12c Infrastructure Installation - Step 5 of 8 (on msp00ald.us.oracle.com)

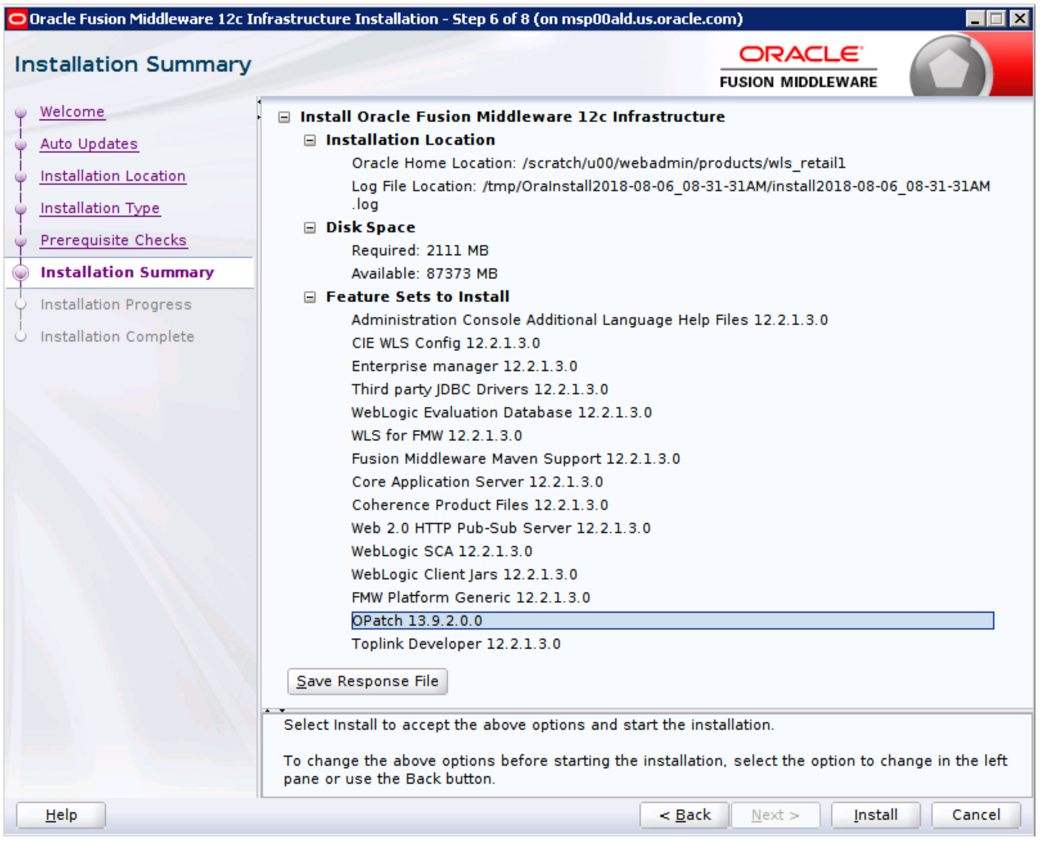
Prerequisite Checks

100%

✓	Checking operating system certification
✓	Checking Java version used to launch the installer

```
✓Checking operating system certification
✓Checking Java version used to launch the installer
```

7. Click **Next**.

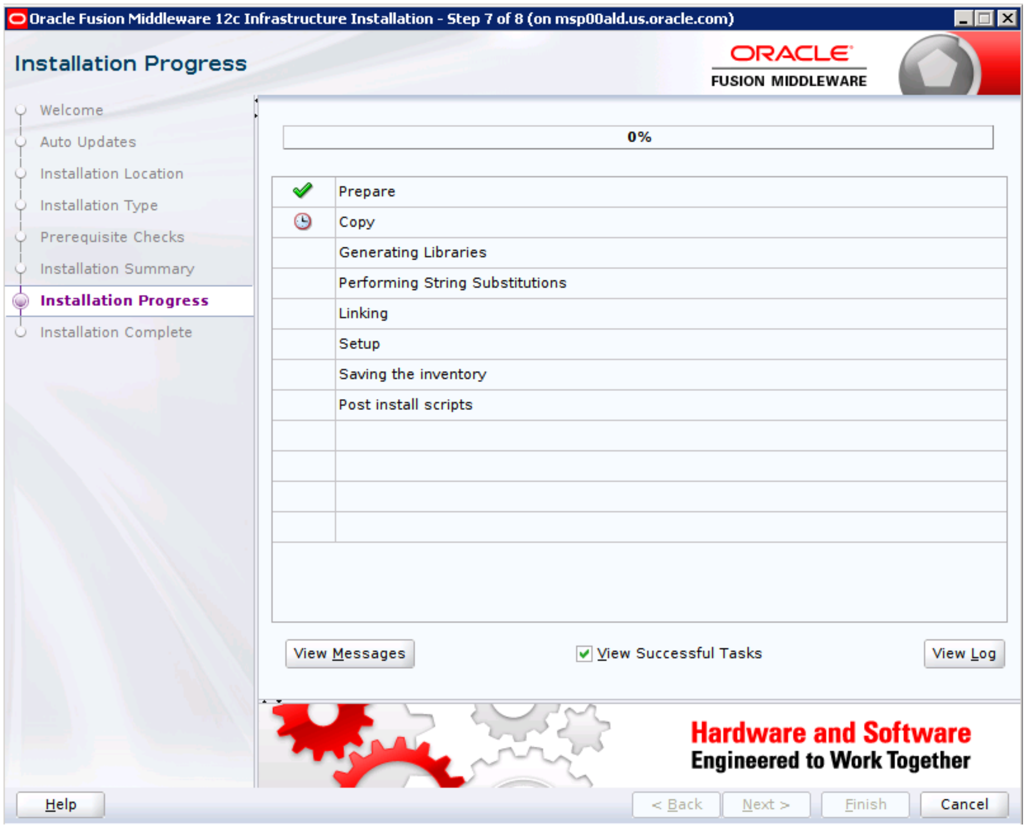


Install Oracle Fusion Middleware 12c Infrastructure
- Installation Location
  - Oracle Home Location: /scratch/u00/webadmin/products/wls_retail1
  - Log File Location: /tmp/OraInstall2018-08-06_08-31-31AM/install2018-08-06_08-31-31AM.log
- Disk Space
  - Required: 2111 MB
  - Available: 87373 MB
- Feature Sets to Install
  - Administration Console Additional Language Help Files 12.2.1.3.0
  - CIE WLS Config 12.2.1.3.0
  - Enterprise manager 12.2.1.3.0
  - Third party JDBC Drivers 12.2.1.3.0
  - WebLogic Evaluation Database 12.2.1.3.0
  - WLS for FMW 12.2.1.3.0
  - Fusion Middleware Maven Support 12.2.1.3.0
  - Core Application Server 12.2.1.3.0
  - Coherence Product Files 12.2.1.3.0
  - Web 2.0 HTTP Pub-Sub Server 12.2.1.3.0
  - WebLogic SCA 12.2.1.3.0
  - WebLogic Client Jars 12.2.1.3.0
  - FMW Platform Generic 12.2.1.3.0
  - OPatch 13.9.2.0.0
  - Toplink Developer 12.2.1.3.0

Select Install to accept the above options and start the installation.

To change the above options before starting the installation, select the option to change in the left pane or use the Back button.

8. If you already have an Oracle Support account, use this screen to indicate how you would like to receive security updates.
9. If you do not have one or if you want to skip this step, clear the check box and verify your selection in the follow-up dialog box.
10. Click **Next**.



Oracle Fusion Middleware 12c Infrastructure Installation - Step 7 of 8 (on msp00ald.us.oracle.com)

Installation Progress

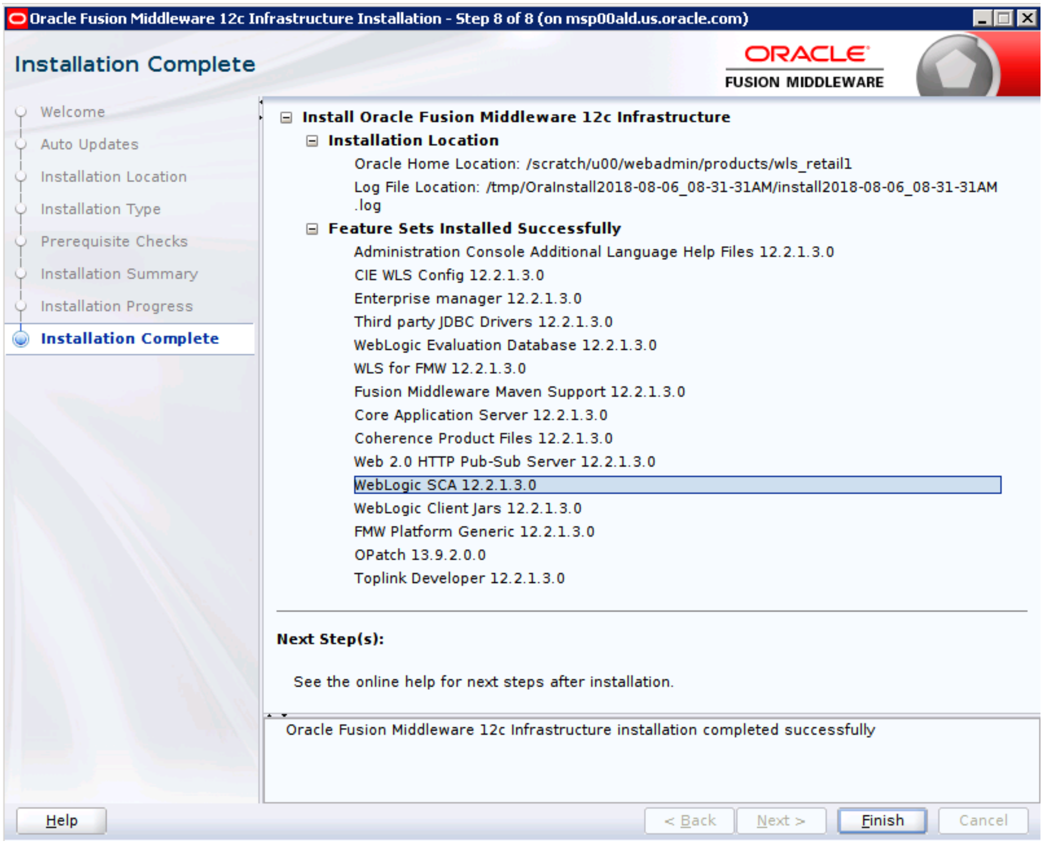
0%

✓	Prepare
◷	Copy
	Generating Libraries
	Performing String Substitutions
	Linking
	Setup
	Saving the inventory
	Post install scripts

[✓] View Successful Tasks

11. Click **Next**.
12. Click **Next**.
13. Click **Yes**, if you wish to remain uninformed of security issues in your configuration.

14. Click **Install**.



Install Oracle Fusion Middleware 12c Infrastructure
- Installation Location
  - Oracle Home Location: /scratch/u00/webadmin/products/wls_retail1
  - Log File Location: /tmp/OraInstall2018-08-06_08-31-31AM/install2018-08-06_08-31-31AM.log
- Feature Sets Installed Successfully
  - Administration Console Additional Language Help Files 12.2.1.3.0
  - CIE WLS Config 12.2.1.3.0
  - Enterprise manager 12.2.1.3.0
  - Third party JDBC Drivers 12.2.1.3.0
  - WebLogic Evaluation Database 12.2.1.3.0
  - WLS for FMW 12.2.1.3.0
  - Fusion Middleware Maven Support 12.2.1.3.0
  - Core Application Server 12.2.1.3.0
  - Coherence Product Files 12.2.1.3.0
  - Web 2.0 HTTP Pub-Sub Server 12.2.1.3.0
  - WebLogic SCA 12.2.1.3.0
  - WebLogic Client Jars 12.2.1.3.0
  - FMW Platform Generic 12.2.1.3.0
  - OPatch 13.9.2.0.0
  - Toplink Developer 12.2.1.3.0

Next Step(s):

See the online help for next steps after installation.

```
Oracle Fusion Middleware 12c Infrastructure installation completed successfully
```

15. Click **Finish**.

Install RCU Database Schemas

The RCU database schemas are required for the installation of configuration of domain and retail application.

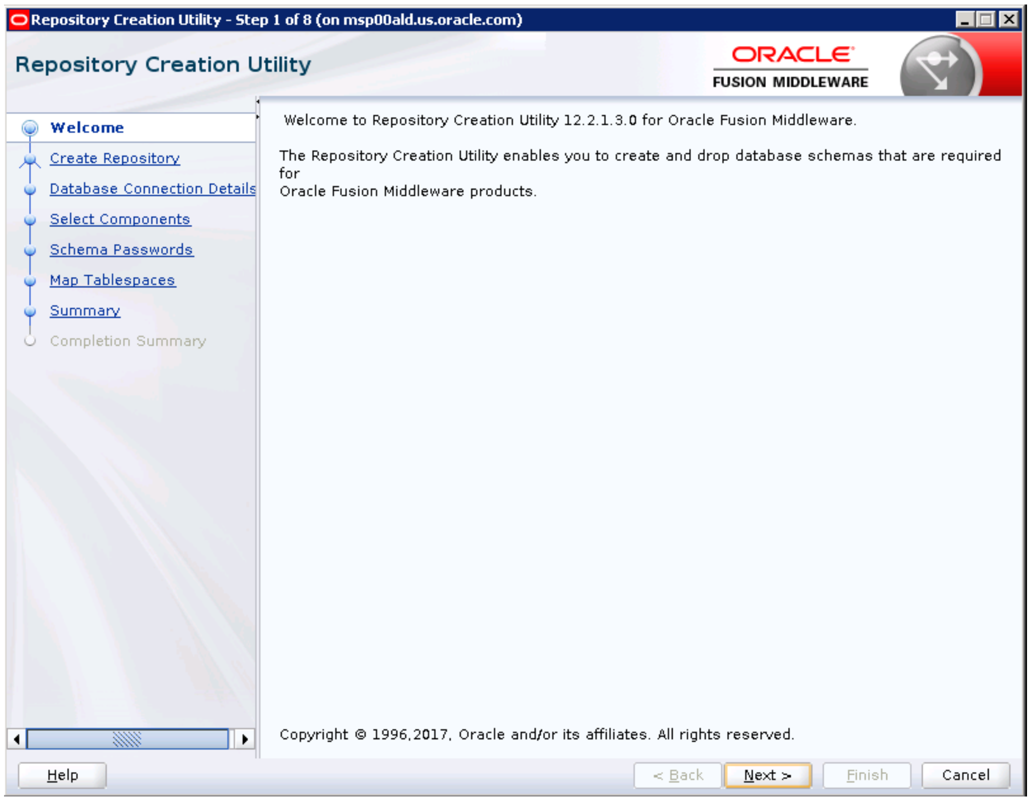
Note: Need user which have sys admin privileges to install the RCU database schemas.

The following steps are provided for the creation of the database schemas:

1. Navigate to the directory into which RCU is installed. For example:

```
<ORACLE_HOME>/oracle_common/bin/
Run "./rcu"
```

2. Click **Next**.

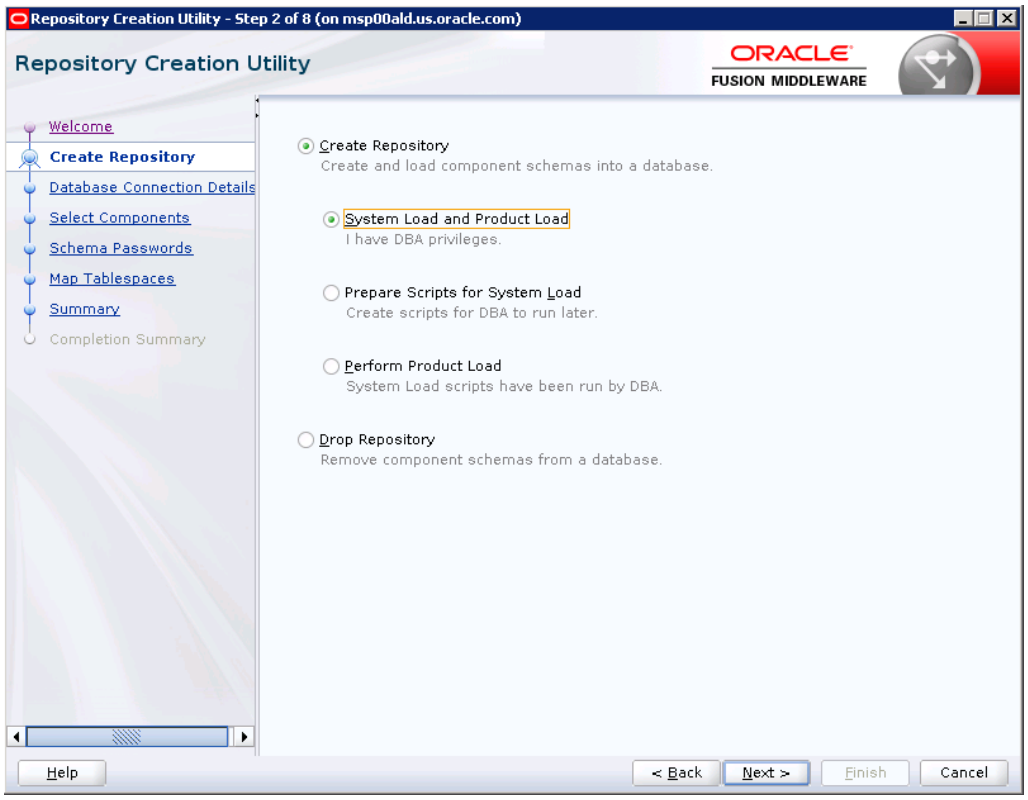


Welcome to Repository Creation Utility 12.2.1.3.0 for Oracle Fusion Middleware.

The Repository Creation Utility enables you to create and drop database schemas that are required for
Oracle Fusion Middleware products.

Copyright © 1996,2017, Oracle and/or its affiliates. All rights reserved.

3. Select Create Repository and System Load and Product Load. Click **Next**.



[✓ Create Repository]
Create and load component schemas into a database.

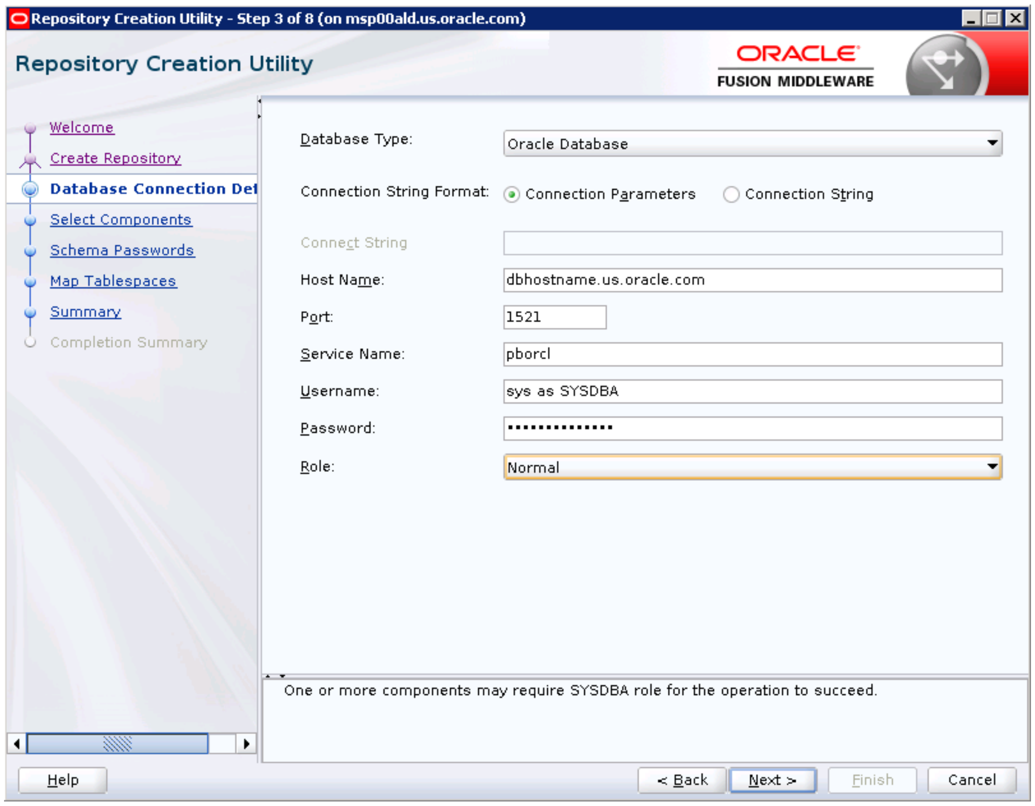
[✓ System Load and Product Load]
I have DBA privileges.

Prepare Scripts for System Load
Create scripts for DBA to run later.

Perform Product Load
System Load scripts have been run by DBA.

Drop Repository
Remove component schemas from a database.

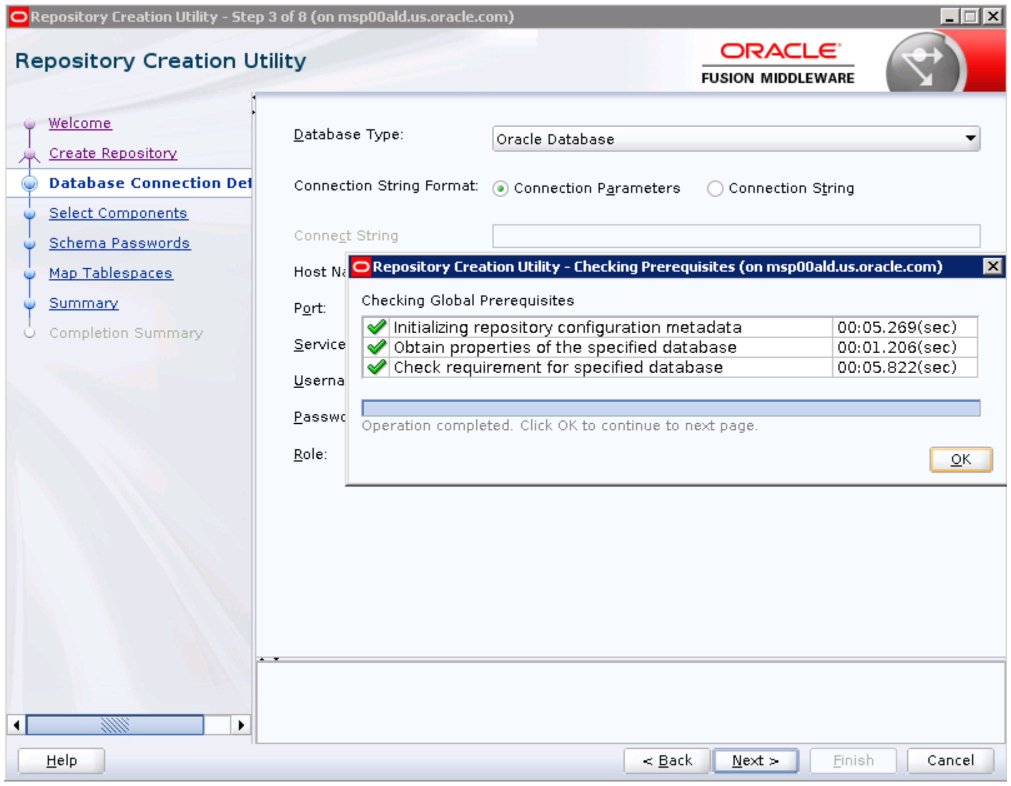
4. Enter database connection details:
   - Database Type: Oracle Database
   - Host Name: dbhostname.us.oracle.com
   - Port: 1521
   - Service Name: dbservicename
   - Username: sys
   - Password: <syspassword>
   - Role: SYSDBA



Database Type:	Oracle Database
Connection String Format:	[✓ Connection Parameters] Connection String
Connect String	
Host Name:	dbhostname.us.oracle.com
Port:	1521
Service Name:	pborcl
Username:	sys as SYSDBA
Password:	•••••••••••••••
Role:	Normal

One or more components may require SYSDBA role for the operation to succeed.

5. Click **Next**. The Installer checks prerequisites.
6. When the prerequisite checks are complete, click **OK**. Click **Next**.


Repository Creation Utility - Step 3 of 8 (on msp00ald.us.oracle.com)

Repository Creation Utility

Database Type: Oracle Database

Connection String Format: [✓ Connection Parameters] Connection String

Repository Creation Utility - Checking Prerequisites (on msp00ald.us.oracle.com)

Checking Global Prerequisites

✓	Initializing repository configuration metadata	00:05.269(sec)
✓	Obtain properties of the specified database	00:01.206(sec)
✓	Check requirement for specified database	00:05.822(sec)

Operation completed. Click OK to continue to next page.

7. Click the **Create a new prefix** option, the prefix name for your schemas should be unique to your application environment.

   Example: ReIM, ALLOC, ReSA, etc

8. Select the components to create:

   - Meta Data Services
   - Oracle Platform Security Services

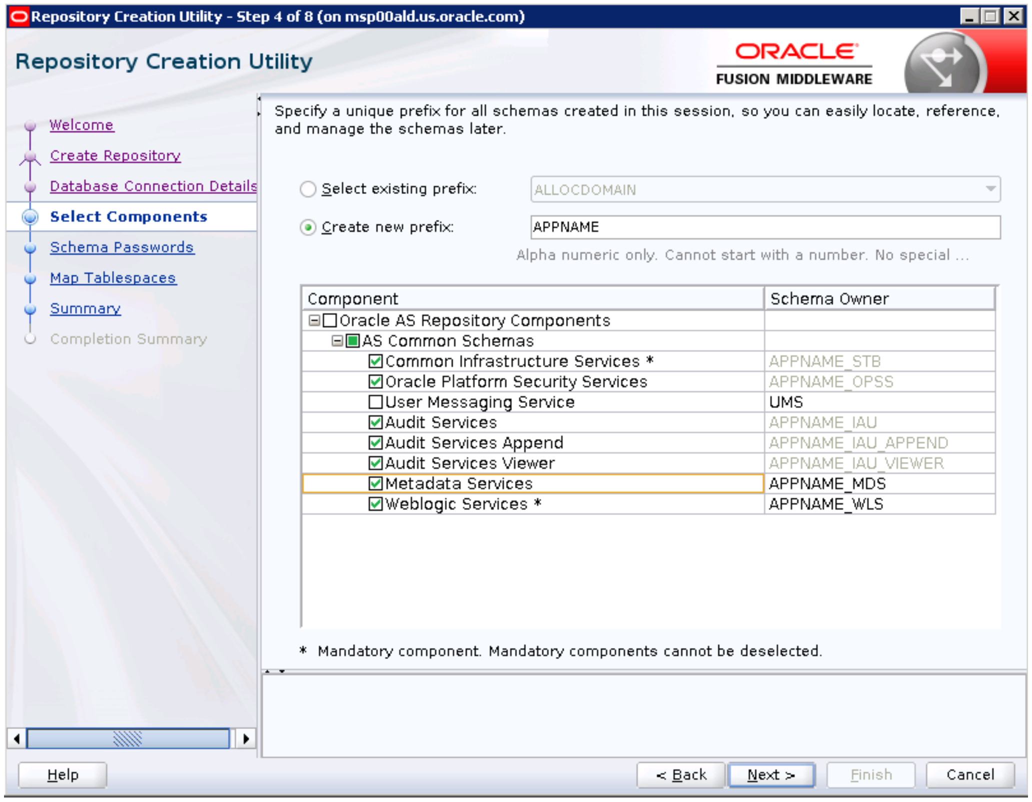
   Note: Once OPSS schema is selected, the following dependent schemas will get selected automatically.

   Audit Services

   Audit Services Append

   Audit Services Viewer

   Note: STB schema will be already selected as part of the Common Infrastructure component.



Repository Creation Utility - Step 4 of 8 (on msp00ald.us.oracle.com)

Repository Creation Utility

Specify a unique prefix for all schemas created in this session, so you can easily locate, reference, and manage the schemas later.

Select existing prefix: ALLOCDOMAIN

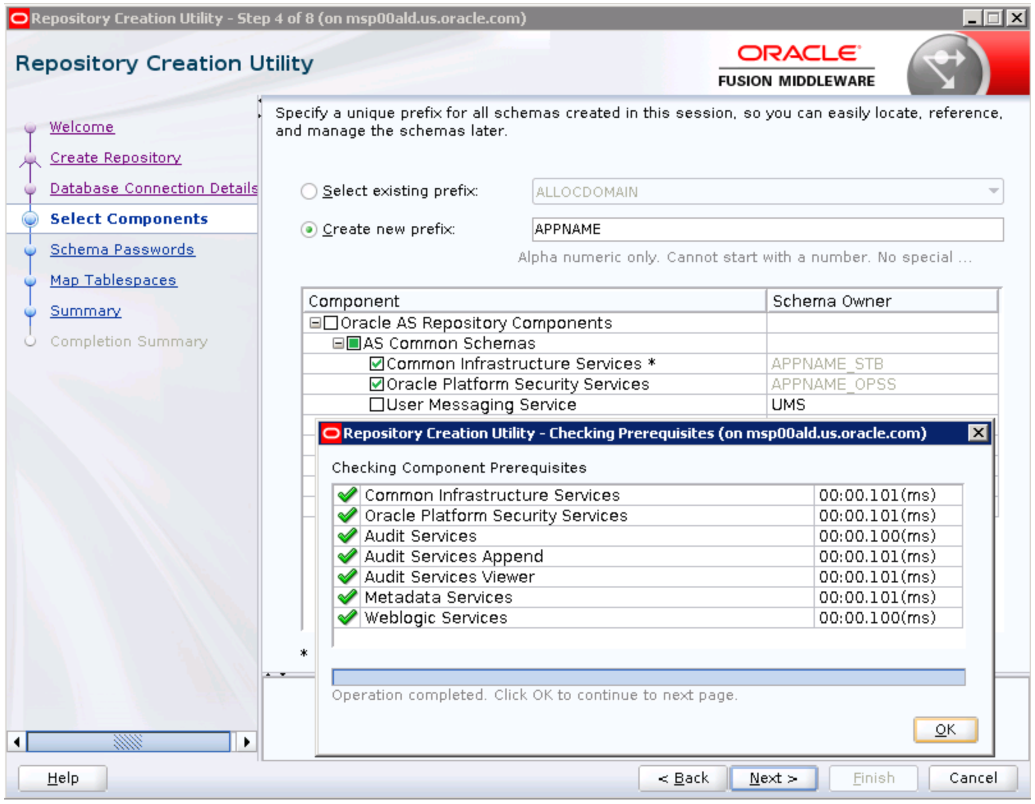
Create new prefix: APPNAME

Alpha numeric only. Cannot start with a number. No special ...

Component	Schema Owner
⊟ ☐ Oracle AS Repository Components	
⊟ ■ AS Common Schemas	
☑ Common Infrastructure Services *	APPNAME_STB
☑ Oracle Platform Security Services	APPNAME_OPSS
☐ User Messaging Service	UMS
☑ Audit Services	APPNAME_IAU
☑ Audit Services Append	APPNAME_IAU_APPEND
☑ Audit Services Viewer	APPNAME_IAU_VIEWER
☑ Metadata Services	APPNAME_MDS
☑ Weblogic Services *	APPNAME_WLS

* Mandatory component. Mandatory components cannot be deselected.

9. Click **Next**.



Repository Creation Utility - Step 4 of 8 (on msp00ald.us.oracle.com)

Repository Creation Utility

Specify a unique prefix for all schemas created in this session, so you can easily locate, reference, and manage the schemas later.

Select existing prefix: ALLOCDOMAIN

Create new prefix: APPNAME

Alpha numeric only. Cannot start with a number. No special ...

Component	Schema Owner
⊟ ☐ Oracle AS Repository Components	
⊟ ■ AS Common Schemas	
☑ Common Infrastructure Services *	APPNAME_STB
☑ Oracle Platform Security Services	APPNAME_OPSS
☐ User Messaging Service	UMS

Repository Creation Utility - Checking Prerequisites (on msp00ald.us.oracle.com)

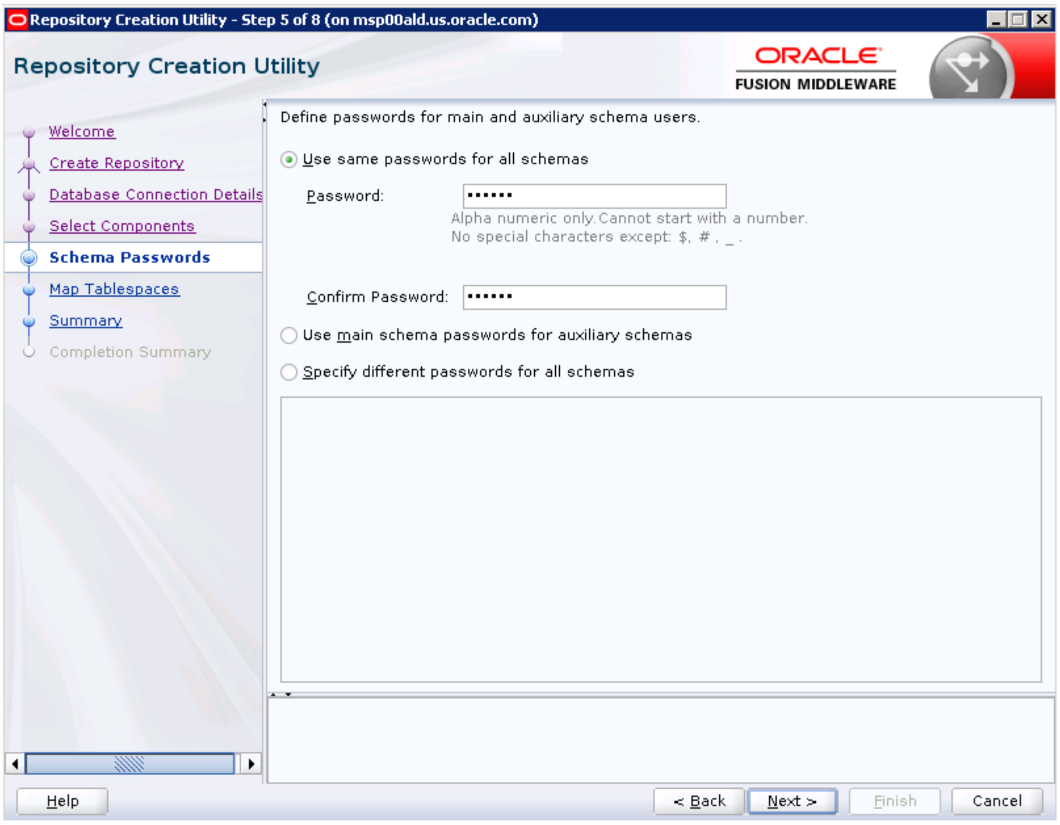
Checking Component Prerequisites

✓ Common Infrastructure Services	00:00.101(ms)
✓ Oracle Platform Security Services	00:00.101(ms)
✓ Audit Services	00:00.100(ms)
✓ Audit Services Append	00:00.101(ms)
✓ Audit Services Viewer	00:00.101(ms)
✓ Metadata Services	00:00.101(ms)
✓ Weblogic Services	00:00.100(ms)

Operation completed. Click OK to continue to next page.

10. Enter password of your choice.

> **Note:** This password is needed at the time of ADF domain creation.


Repository Creation Utility - Step 5 of 8 (on msp00ald.us.oracle.com)

Repository Creation Utility

Define passwords for main and auxiliary schema users.

[✓ Use same passwords for all schemas]

Password: ••••••

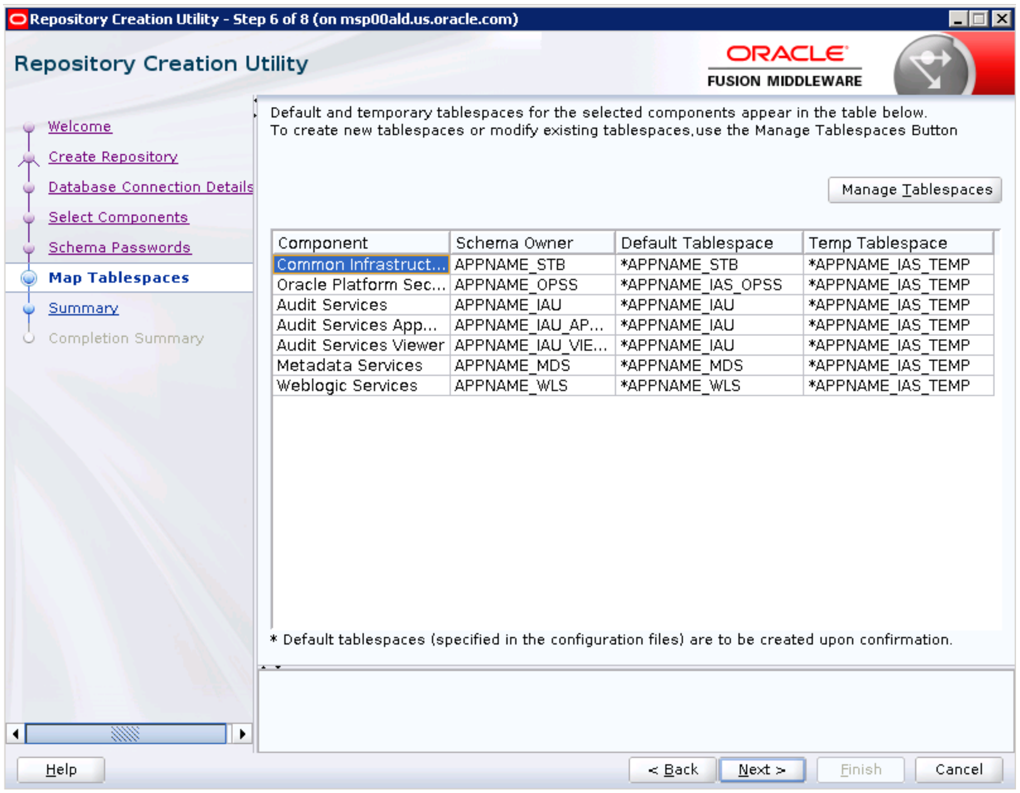
Alpha numeric only.Cannot start with a number.
No special characters except: $, # , _ .

Confirm Password: ••••••

Use main schema passwords for auxiliary schemas

Specify different passwords for all schemas

11. Provide the password and click **Next**.


Repository Creation Utility - Step 6 of 8 (on msp00ald.us.oracle.com)

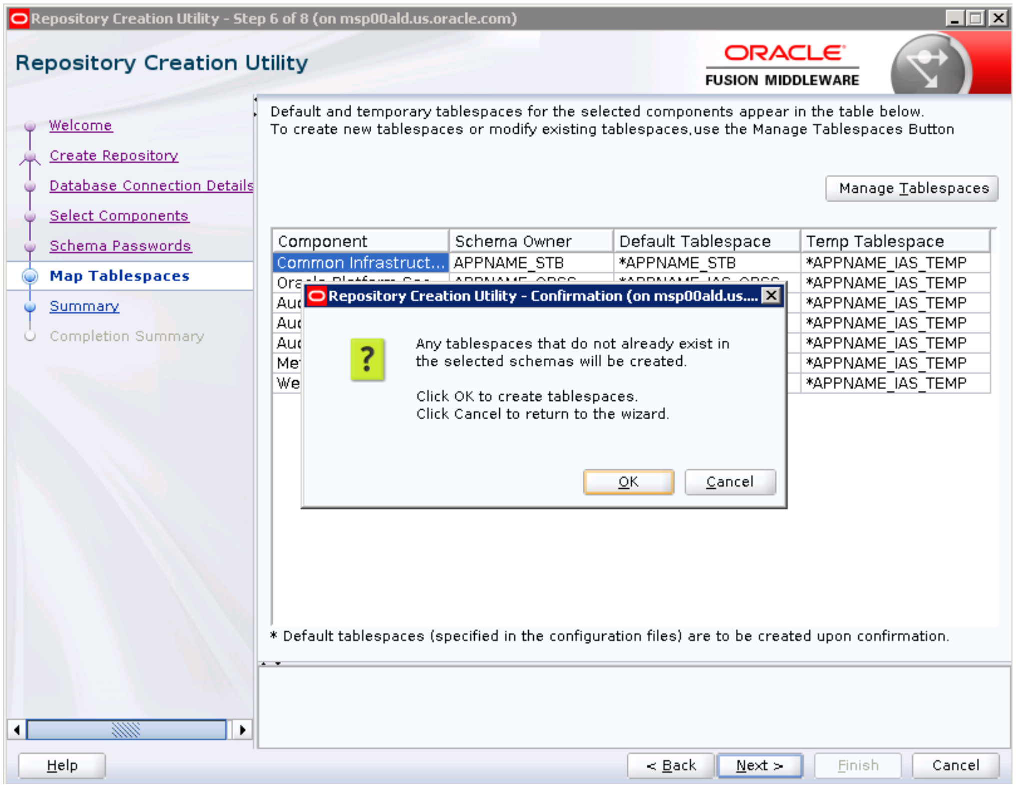
Repository Creation Utility

Default and temporary tablespaces for the selected components appear in the table below.
To create new tablespaces or modify existing tablespaces,use the Manage Tablespaces Button

Component	Schema Owner	Default Tablespace	Temp Tablespace
Common Infrastruct...	APPNAME_STB	*APPNAME_STB	*APPNAME_IAS_TEMP
Oracle Platform Sec...	APPNAME_OPSS	*APPNAME_IAS_OPSS	*APPNAME_IAS_TEMP
Audit Services	APPNAME_IAU	*APPNAME_IAU	*APPNAME_IAS_TEMP
Audit Services App...	APPNAME_IAU_AP...	*APPNAME_IAU	*APPNAME_IAS_TEMP
Audit Services Viewer	APPNAME_IAU_VIE...	*APPNAME_IAU	*APPNAME_IAS_TEMP
Metadata Services	APPNAME_MDS	*APPNAME_MDS	*APPNAME_IAS_TEMP
Weblogic Services	APPNAME_WLS	*APPNAME_WLS	*APPNAME_IAS_TEMP

* Default tablespaces (specified in the configuration files) are to be created upon confirmation.

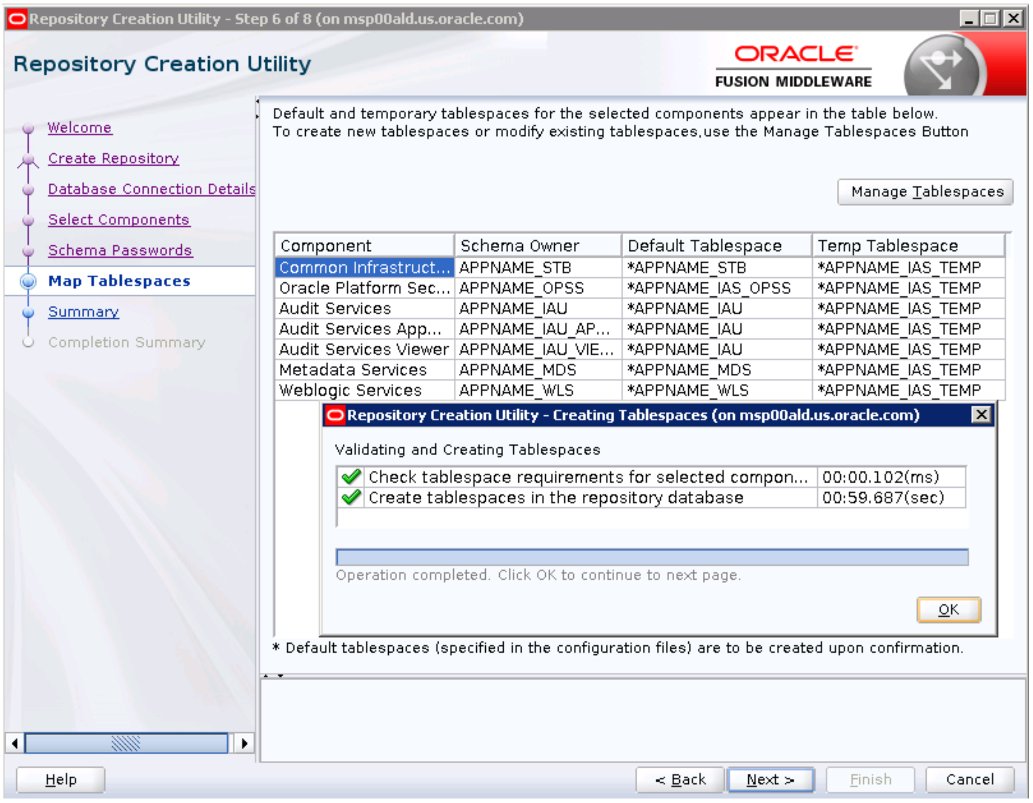
12. Click **Next**. A Repository Creation notification will appear. Click **OK**.


Repository Creation Utility - Confirmation (on msp00ald.us....

Any tablespaces that do not already exist in
the selected schemas will be created.

Click OK to create tablespaces.
Click Cancel to return to the wizard.

13. Tablespaces are created, and the progress will be displayed in a pop-up notification. When the operation is completed, click **OK**.



Default and temporary tablespaces for the selected components appear in the table below.
To create new tablespaces or modify existing tablespaces,use the Manage Tablespaces Button

Component	Schema Owner	Default Tablespace	Temp Tablespace
Common Infrastruct...	APPNAME_STB	*APPNAME_STB	*APPNAME_IAS_TEMP
Oracle Platform Sec...	APPNAME_OPSS	*APPNAME_IAS_OPSS	*APPNAME_IAS_TEMP
Audit Services	APPNAME_IAU	*APPNAME_IAU	*APPNAME_IAS_TEMP
Audit Services App...	APPNAME_IAU_AP...	*APPNAME_IAU	*APPNAME_IAS_TEMP
Audit Services Viewer	APPNAME_IAU_VIE...	*APPNAME_IAU	*APPNAME_IAS_TEMP
Metadata Services	APPNAME_MDS	*APPNAME_MDS	*APPNAME_IAS_TEMP
Weblogic Services	APPNAME_WLS	*APPNAME_WLS	*APPNAME_IAS_TEMP

Repository Creation Utility - Creating Tablespaces (on msp00ald.us.oracle.com)

Validating and Creating Tablespaces

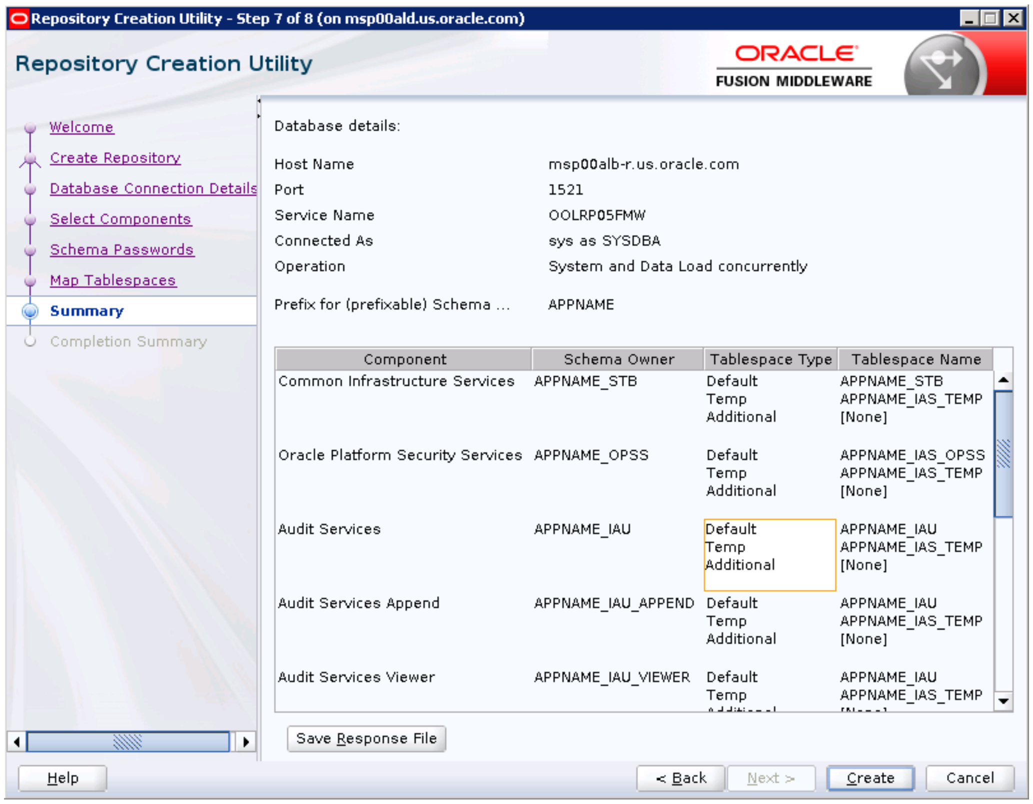
✓ Check tablespace requirements for selected compon...	00:00.102(ms)
✓ Create tablespaces in the repository database	00:59.687(sec)

Operation completed. Click OK to continue to next page.

OK

* Default tablespaces (specified in the configuration files) are to be created upon confirmation.

14. Click **Create**. The schema is created.



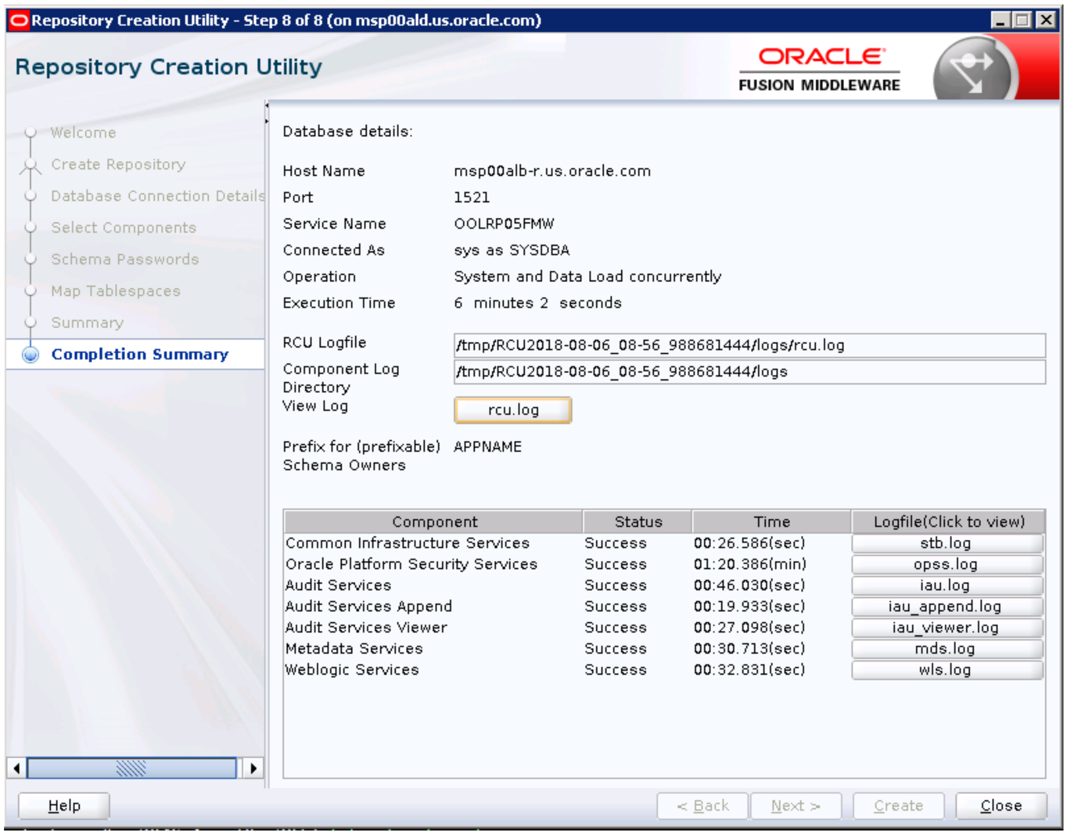
Database details:

Host Name	msp00alb-r.us.oracle.com
Port	1521
Service Name	OOLRP05FMW
Connected As	sys as SYSDBA
Operation	System and Data Load concurrently
Prefix for (prefixable) Schema ...	APPNAME

Component	Schema Owner	Tablespace Type	Tablespace Name
Common Infrastructure Services	APPNAME_STB	Default Temp Additional	APPNAME_STB APPNAME_IAS_TEMP [None]
Oracle Platform Security Services	APPNAME_OPSS	Default Temp Additional	APPNAME_IAS_OPSS APPNAME_IAS_TEMP [None]
Audit Services	APPNAME_IAU	Default Temp Additional	APPNAME_IAU APPNAME_IAS_TEMP [None]
Audit Services Append	APPNAME_IAU_APPEND	Default Temp Additional	APPNAME_IAU APPNAME_IAS_TEMP [None]
Audit Services Viewer	APPNAME_IAU_VIEWER	Default Temp	APPNAME_IAU APPNAME_IAS_TEMP

Upon successful creation of database schemas, a screen will appear with all the schemas created.

15. Click **Close**.



Repository Creation Utility - Step 8 of 8 (on msp00ald.us.oracle.com)

Repository Creation Utility

Database details:

Host Name	msp00alb-r.us.oracle.com
Port	1521
Service Name	OOLRP05FMW
Connected As	sys as SYSDBA
Operation	System and Data Load concurrently
Execution Time	6 minutes 2 seconds
RCU Logfile	/tmp/RCU2018-08-06_08-56_988681444/logs/rcu.log
Component Log Directory	/tmp/RCU2018-08-06_08-56_988681444/logs
View Log	rcu.log
Prefix for (prefixable) Schema Owners	APPNAME

Component	Status	Time	Logfile(Click to view)
Common Infrastructure Services	Success	00:26.586(sec)	stb.log
Oracle Platform Security Services	Success	01:20.386(min)	opss.log
Audit Services	Success	00:46.030(sec)	iau.log
Audit Services Append	Success	00:19.933(sec)	iau_append.log
Audit Services Viewer	Success	00:27.098(sec)	iau_viewer.log
Metadata Services	Success	00:30.713(sec)	mds.log
Weblogic Services	Success	00:32.831(sec)	wls.log

Create a New ADF Domain (with managed server and EM)

To create a new domain and managed server with ADF libraries and EM, follow the below steps:

1. Set the environment variables:

```
export JAVA_HOME=<JDK_HOME>
    (Example:/u00/webadmin/products/jdk_java) [JDK_HOME is the location where
jdk has been installed)
export PATH=$JAVA_HOME/bin:$PATH
export ORACLE_HOME=<ORACLE_HOME>/
 (Example:/u00/webadmin/products/wls_retail/)

cd $ORACLE_HOME/oracle_common/common/bin
    (ORACLE_HOMEis the location where Weblogic has been installed.)
```

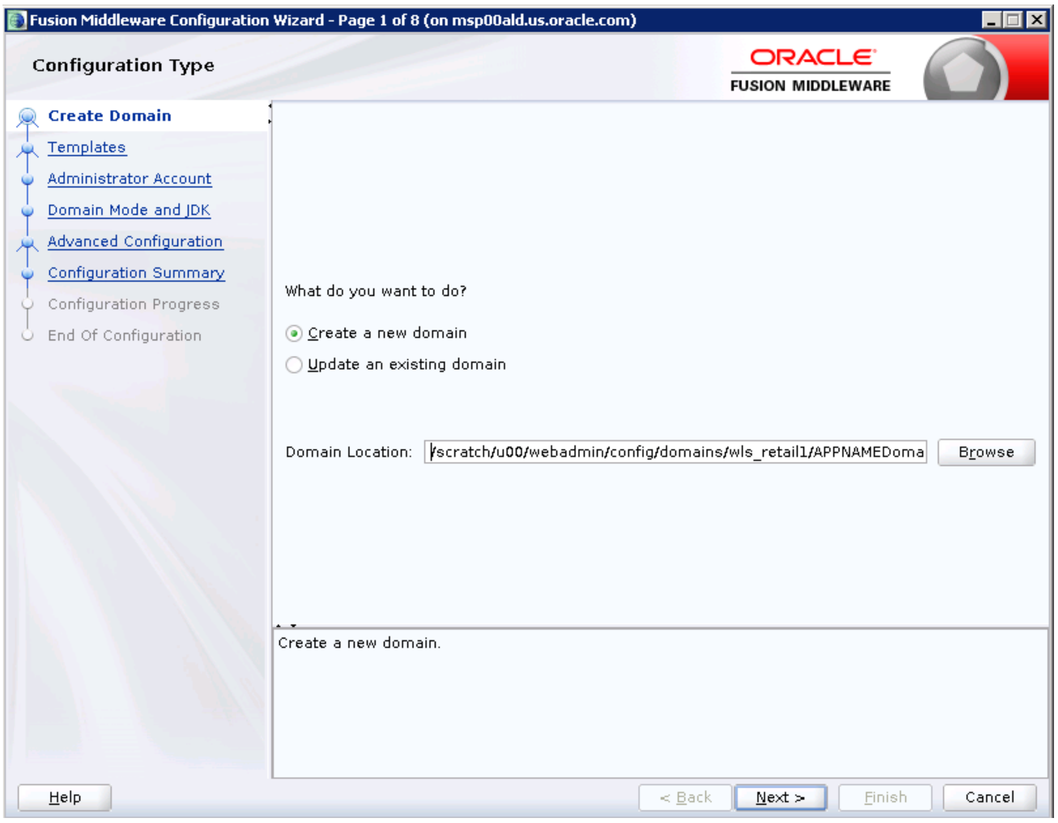
2. Run the following command:

```
./config.sh
```

3. Select **Create a new domain**.

   Domain location: Specify the path to the <DOMAIN_HOME> Example:/u00/webadmin/config/domains/wls_retail/APPNAMEDomain

   Click **Next**.



What do you want to do?

(●) Create a new domain

( ) Update an existing domain

Domain Location: /scratch/u00/webadmin/config/domains/wls_retail1/APPNAMEDoma

Create a new domain.

4. Select **Create Domain Using Product Templates**.

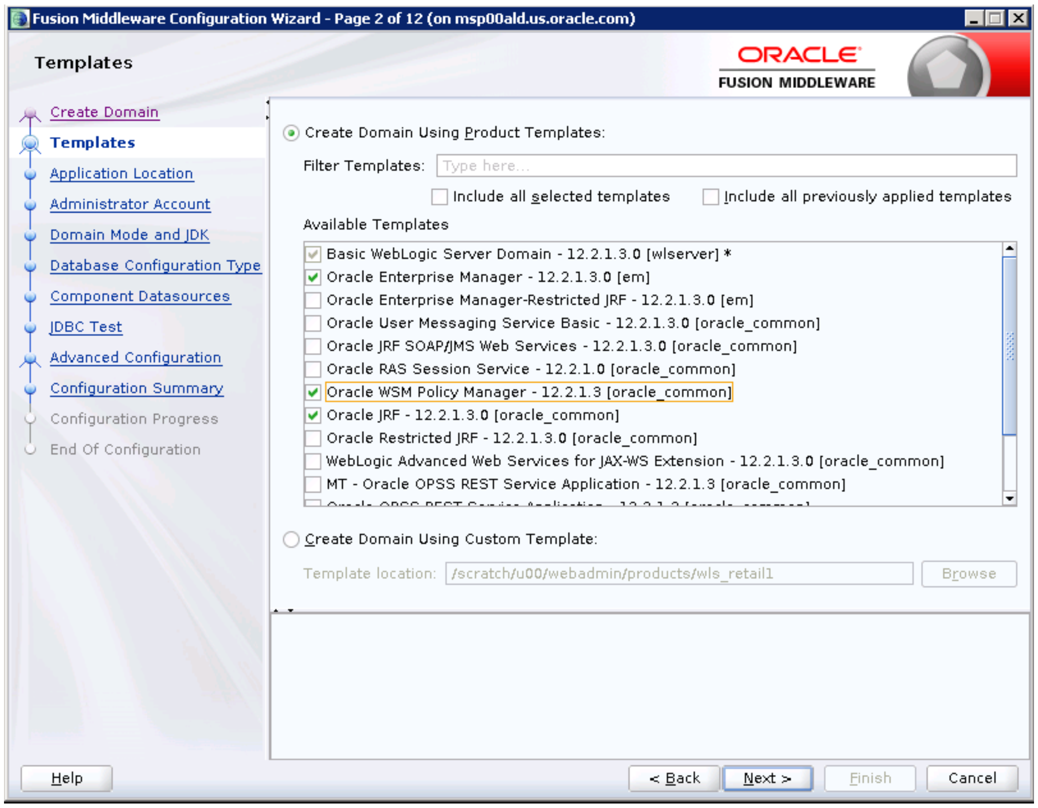
5. Check the following components:

   Oracle Enterprise Manager

   Oracle WSM Policy Manager

> **Note:** When Oracle Enterprise Manager component is selected, the following dependent components are selected automatically:
>
> **Oracle JRF**
>
> **Weblogic Coherence Cluster Extension**

6. Click **Next**.


Fusion Middleware Configuration Wizard - Page 2 of 12 (on msp00ald.us.oracle.com)

Templates

[● Create Domain Using Product Templates:]

Filter Templates: Type here...

☐ Include all selected templates ☐ Include all previously applied templates

Available Templates

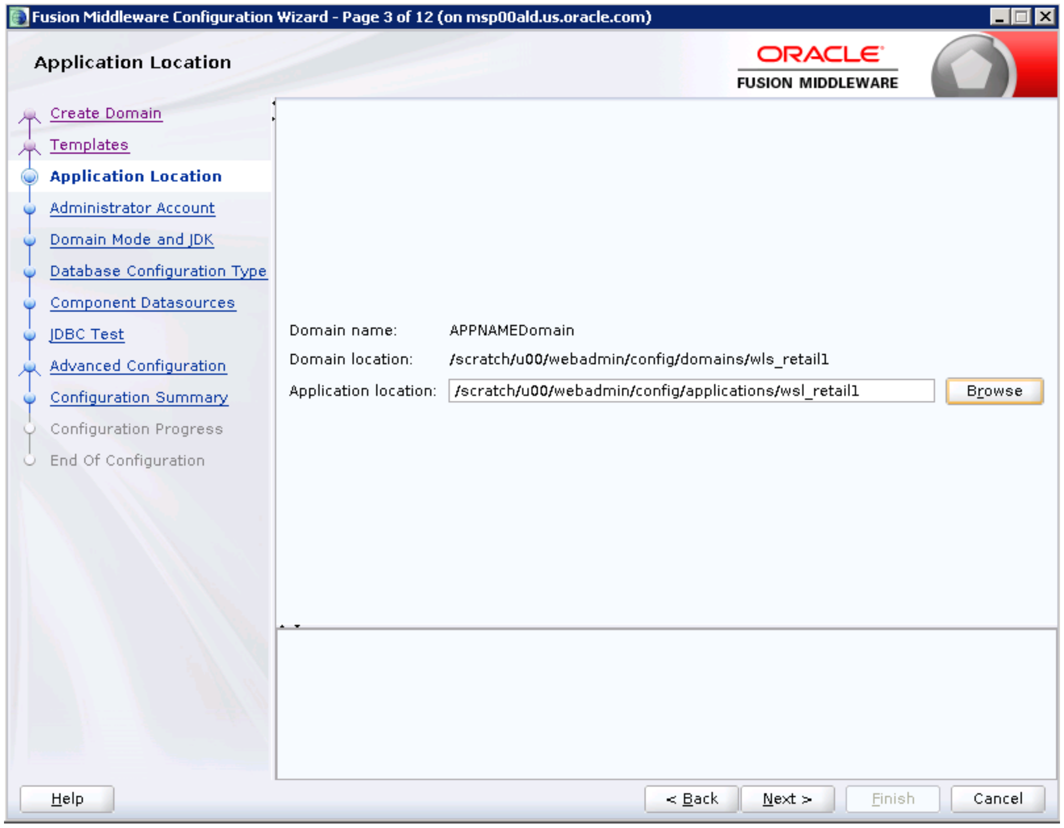
☑ Basic WebLogic Server Domain - 12.2.1.3.0 [wlserver] *
☑ Oracle Enterprise Manager - 12.2.1.3.0 [em]
☐ Oracle Enterprise Manager-Restricted JRF - 12.2.1.3.0 [em]
☐ Oracle User Messaging Service Basic - 12.2.1.3.0 [oracle_common]
☐ Oracle JRF SOAP/JMS Web Services - 12.2.1.3.0 [oracle_common]
☐ Oracle RAS Session Service - 12.2.1.0 [oracle_common]
☑ Oracle WSM Policy Manager - 12.2.1.3 [oracle_common]
☑ Oracle JRF - 12.2.1.3.0 [oracle_common]
☐ Oracle Restricted JRF - 12.2.1.3.0 [oracle_common]
☐ WebLogic Advanced Web Services for JAX-WS Extension - 12.2.1.3.0 [oracle_common]
☐ MT - Oracle OPSS REST Service Application - 12.2.1.3 [oracle_common]

○ Create Domain Using Custom Template:

Template location: /scratch/u00/webadmin/products/wls_retail1

Application location: Application directory location. Example: /u00/webadmin/config/applications/wls_retail/APPNAMEDomain

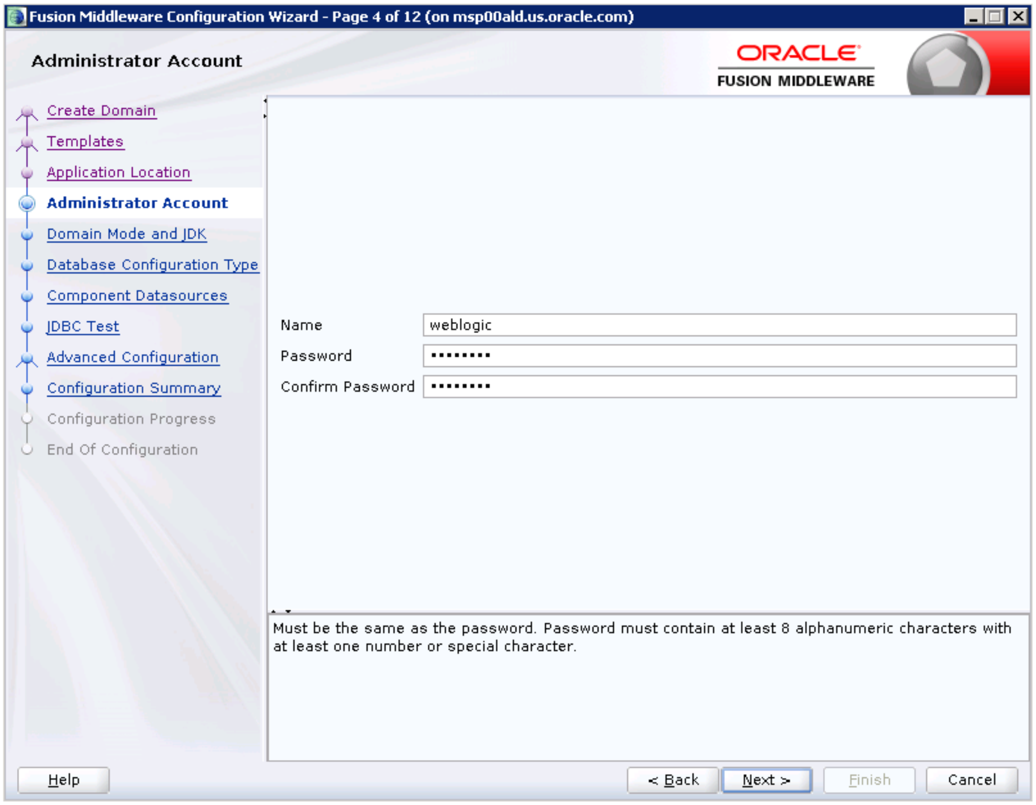
7. Click **Next**.



Domain name: APPNAMEDomain
Domain location: /scratch/u00/webadmin/config/domains/wls_retail1
Application location: /scratch/u00/webadmin/config/applications/wsl_retail1

8. Provide the WebLogic administrator credentials and click **Next**:

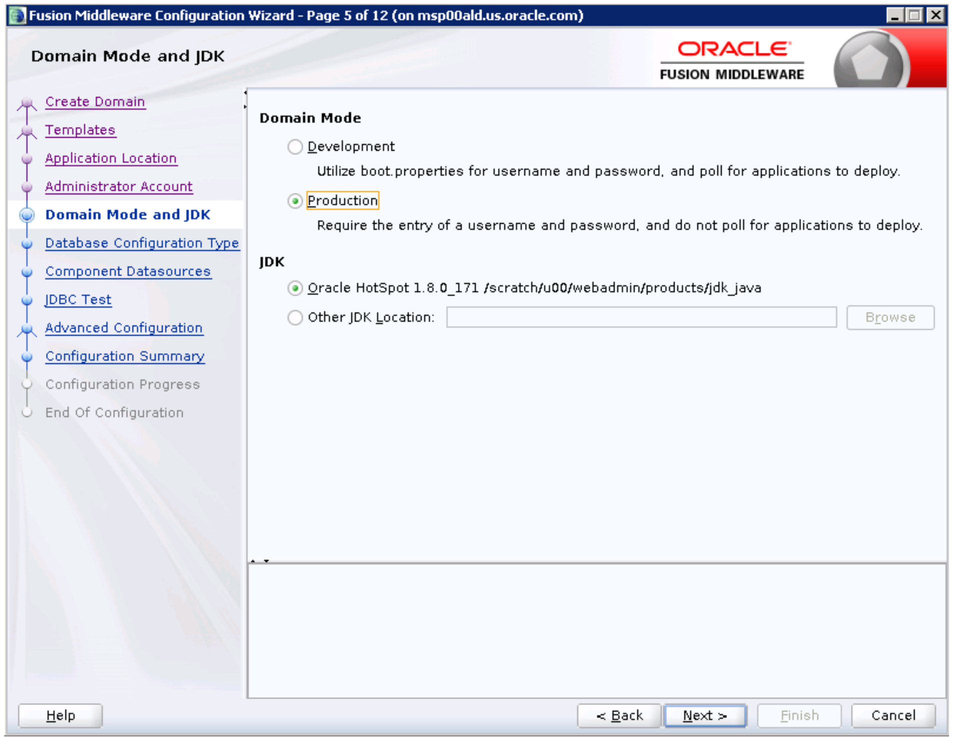
- Username: weblogic
- Password: <Password>



Name: weblogic
Password: ••••••••
Confirm Password: ••••••••

Must be the same as the password. Password must contain at least 8 alphanumeric characters with at least one number or special character.

9. Select Domain Mode as Production and the JDK to use (as applicable) and click **Next.**



Domain Mode

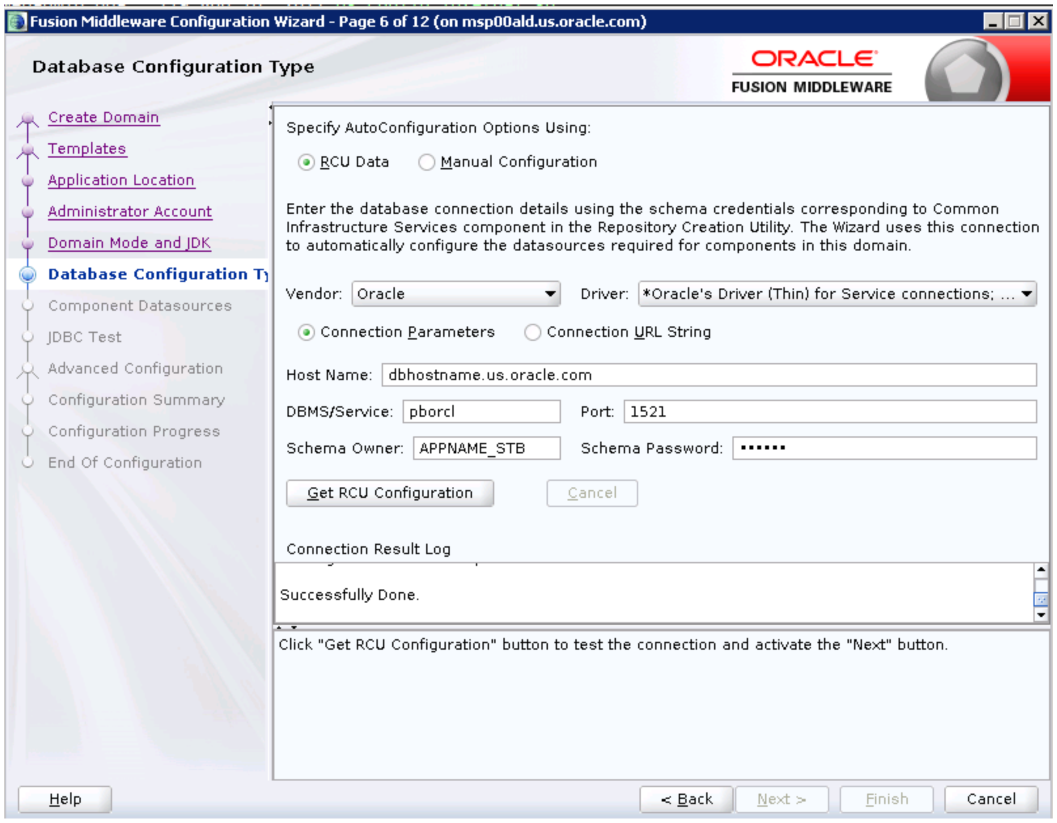
Development
Utilize boot.properties for username and password, and poll for applications to deploy.

[✓ Production]
Require the entry of a username and password, and do not poll for applications to deploy.

JDK

[✓ Oracle HotSpot 1.8.0_171 /scratch/u00/webadmin/products/jdk_java]
Other JDK Location:

10. Select **RCU Data**.
    - Vendor: Oracle
    - DBMS/Service: dbservicename
    - Host Name: dbhostname.us.oracle.com
    - Port: 1521
    - Schema Owner: APPNAME_STB (Example: ALLOC_STB, ReSA_STB, etc)
    - Password: <Password>. This password which was used for RCU schema creation.



Specify AutoConfiguration Options Using:

[✓ RCU Data] Manual Configuration

Enter the database connection details using the schema credentials corresponding to Common Infrastructure Services component in the Repository Creation Utility. The Wizard uses this connection to automatically configure the datasources required for components in this domain.

Vendor: Oracle
Driver: *Oracle's Driver (Thin) for Service connections; ...

[✓ Connection Parameters] Connection URL String

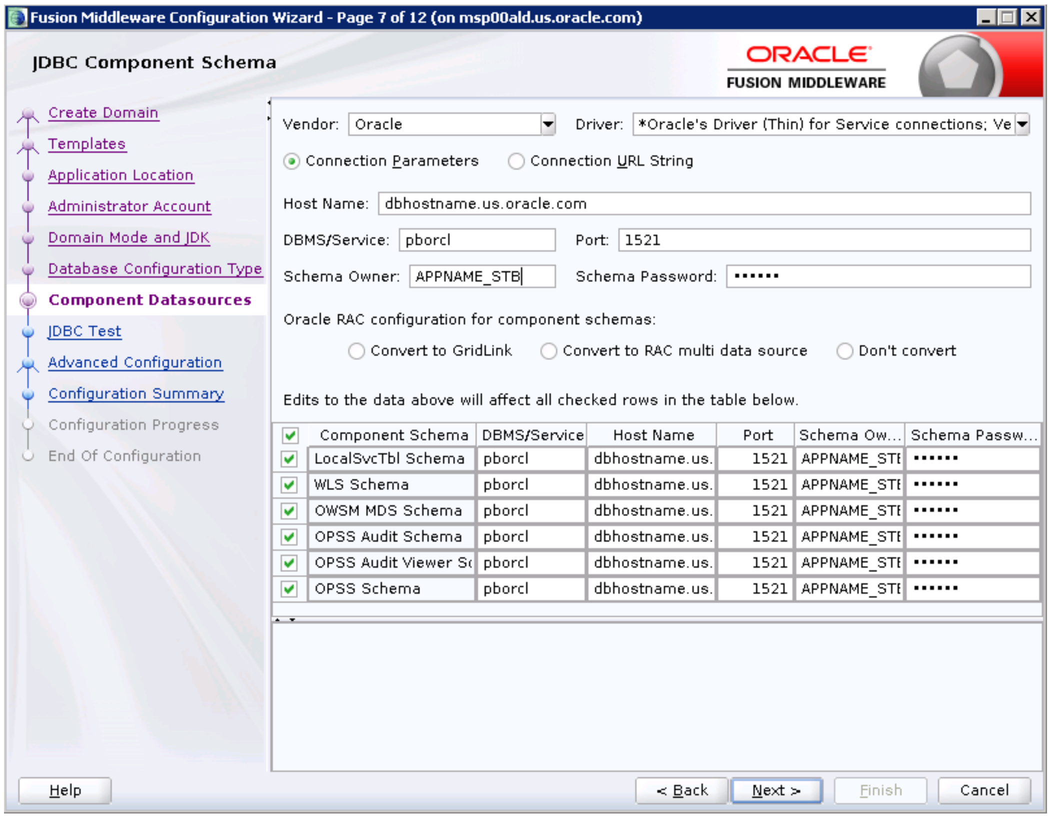
Host Name: dbhostname.us.oracle.com
DBMS/Service: pborcl
Port: 1521
Schema Owner: APPNAME_STB
Schema Password: ••••••

Connection Result Log

```
Successfully Done.
```

Click "Get RCU Configuration" button to test the connection and activate the "Next" button.

11. Click the **Get RCU Configuration** button.
12. Click **Next**.



Vendor: Oracle   Driver: *Oracle's Driver (Thin) for Service connections; Ve

[✓ Connection Parameters] Connection URL String

Host Name: dbhostname.us.oracle.com

DBMS/Service: pborcl   Port: 1521

Schema Owner: APPNAME_STB   Schema Password: ••••••

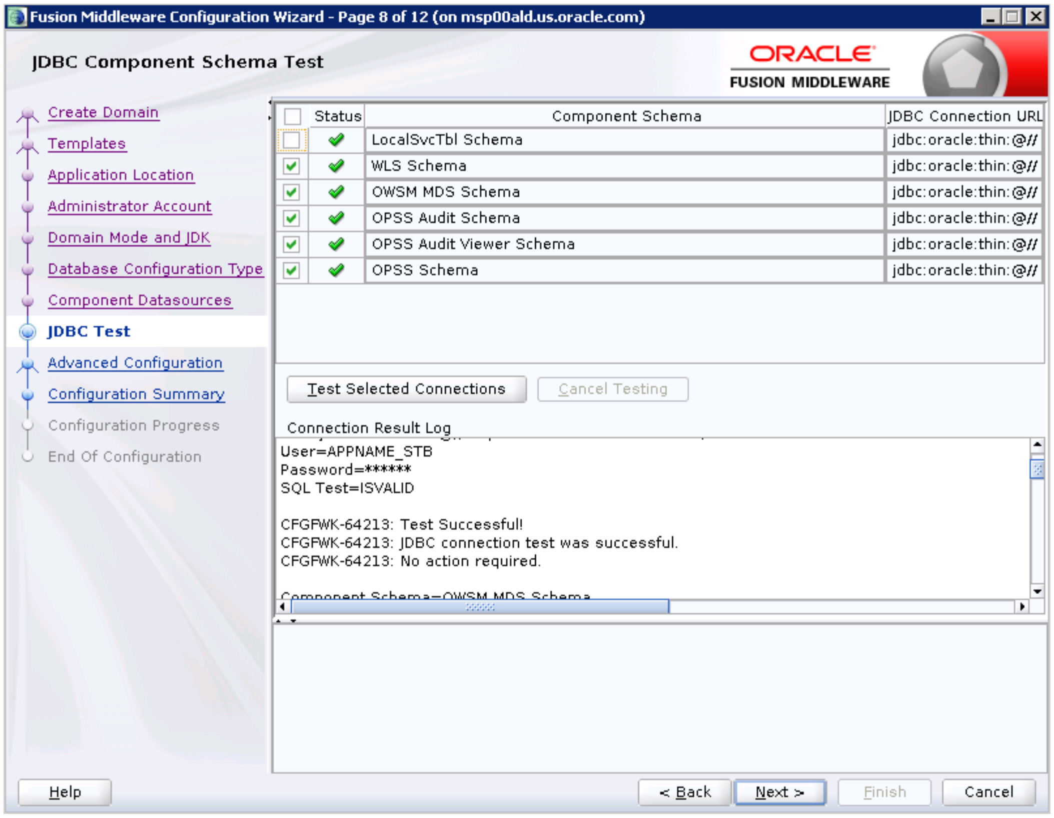
Oracle RAC configuration for component schemas:

Convert to GridLink Convert to RAC multi data source Don't convert

Edits to the data above will affect all checked rows in the table below.

✓	Component Schema	DBMS/Service	Host Name	Port	Schema Ow...	Schema Passw...
✓	LocalSvcTbl Schema	pborcl	dbhostname.us.	1521	APPNAME_STI	••••••
✓	WLS Schema	pborcl	dbhostname.us.	1521	APPNAME_STI	••••••
✓	OWSM MDS Schema	pborcl	dbhostname.us.	1521	APPNAME_STI	••••••
✓	OPSS Audit Schema	pborcl	dbhostname.us.	1521	APPNAME_STI	••••••
✓	OPSS Audit Viewer Sc	pborcl	dbhostname.us.	1521	APPNAME_STI	••••••
✓	OPSS Schema	pborcl	dbhostname.us.	1521	APPNAME_STI	••••••

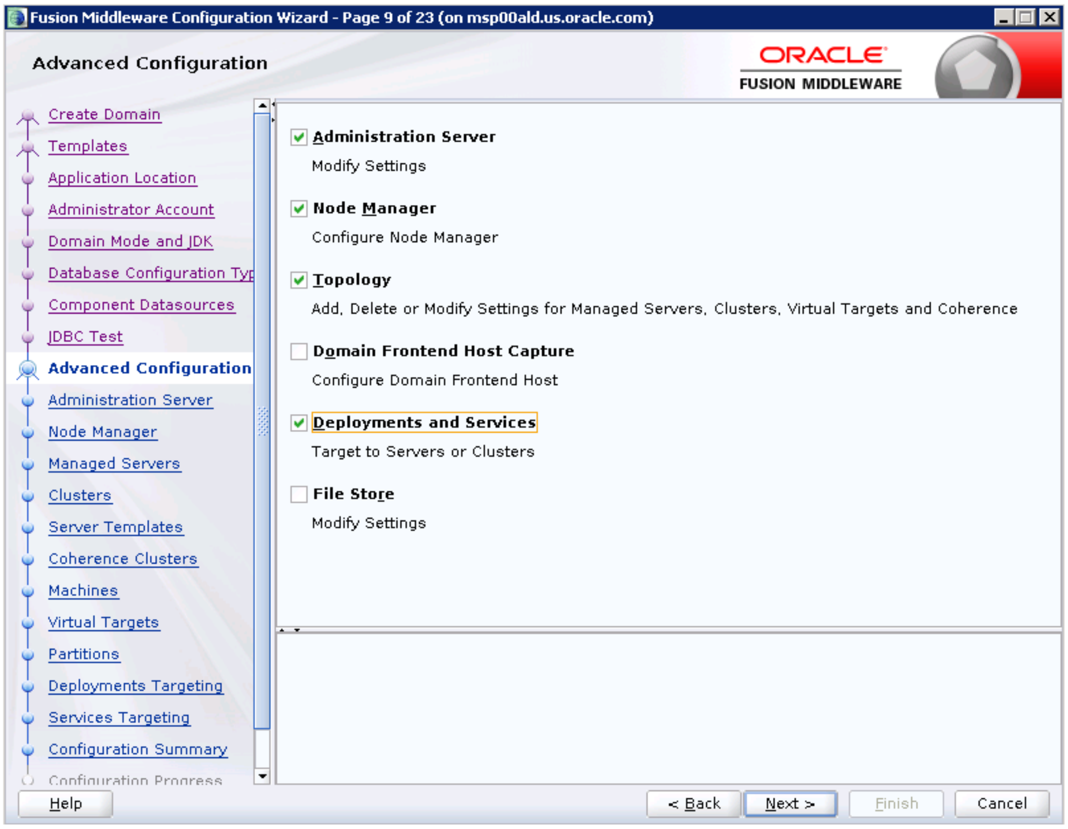
13. Click **Next** and it will test to make sure it can connect to your datasources.



	Status	Component Schema	JDBC Connection URL
☐	✓	LocalSvcTbl Schema	jdbc:oracle:thin:@//
☑	✓	WLS Schema	jdbc:oracle:thin:@//
☑	✓	OWSM MDS Schema	jdbc:oracle:thin:@//
☑	✓	OPSS Audit Schema	jdbc:oracle:thin:@//
☑	✓	OPSS Audit Viewer Schema	jdbc:oracle:thin:@//
☑	✓	OPSS Schema	jdbc:oracle:thin:@//

```
User=APPNAME_STB
Password=******
SQL Test=ISVALID

CFGFWK-64213: Test Successful!
CFGFWK-64213: JDBC connection test was successful.
CFGFWK-64213: No action required.

Component Schema=OWSM MDS Schema
```

14. Click **Next** to continue
15. Select advanced configuration for:
    - Administration Server
    - Node manager
    - Managed Servers, Clusters and Coherence
    - Deployments and Services

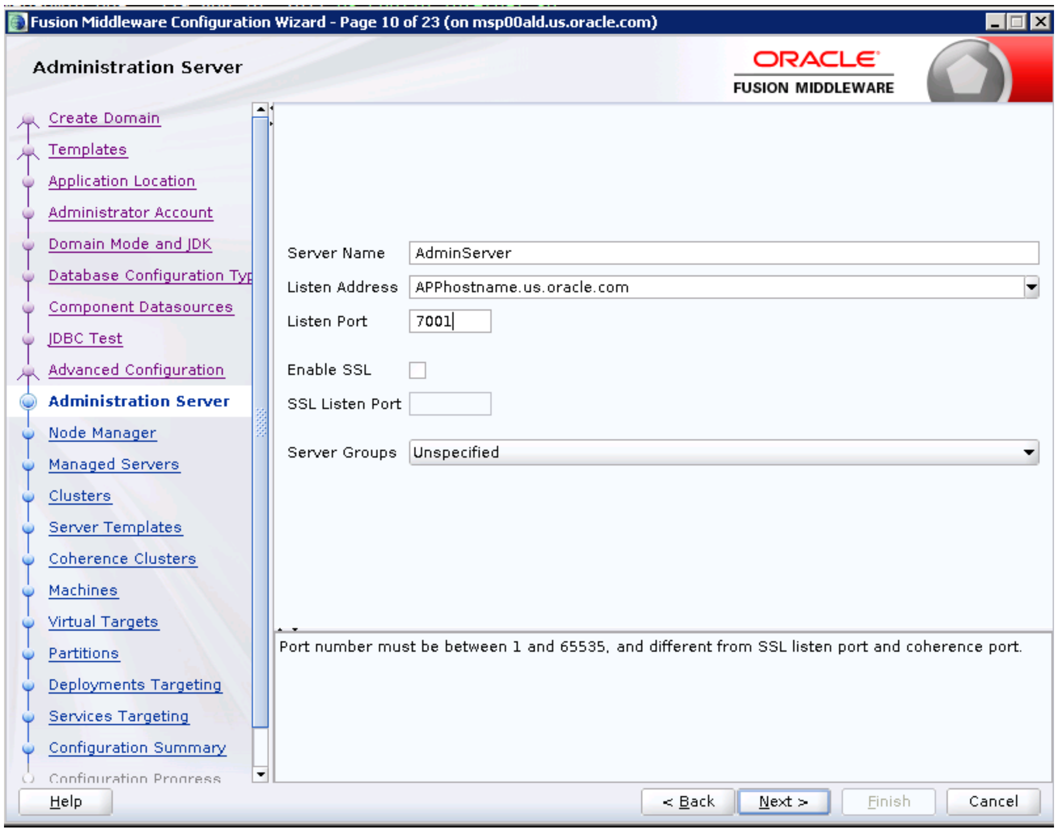

Fusion Middleware Configuration Wizard - Page 9 of 23 (on msp00ald.us.oracle.com)

Advanced Configuration

- [✓] **Administration Server** — Modify Settings
- [✓] **Node Manager** — Configure Node Manager
- [✓] **Topology** — Add, Delete or Modify Settings for Managed Servers, Clusters, Virtual Targets and Coherence
- [ ] **Domain Frontend Host Capture** — Configure Domain Frontend Host
- [✓] **Deployments and Services** — Target to Servers or Clusters
- [ ] **File Store** — Modify Settings

16. Configure the Administration Server:

- Server Name: <APP name>_AdminServer
- Listen address: Appserver Hostname or IPAddress of the Appserver Host.
- Listen port: <Port for Admin Server> Note: The port that is not already used.
- Server Groups: Unspecified

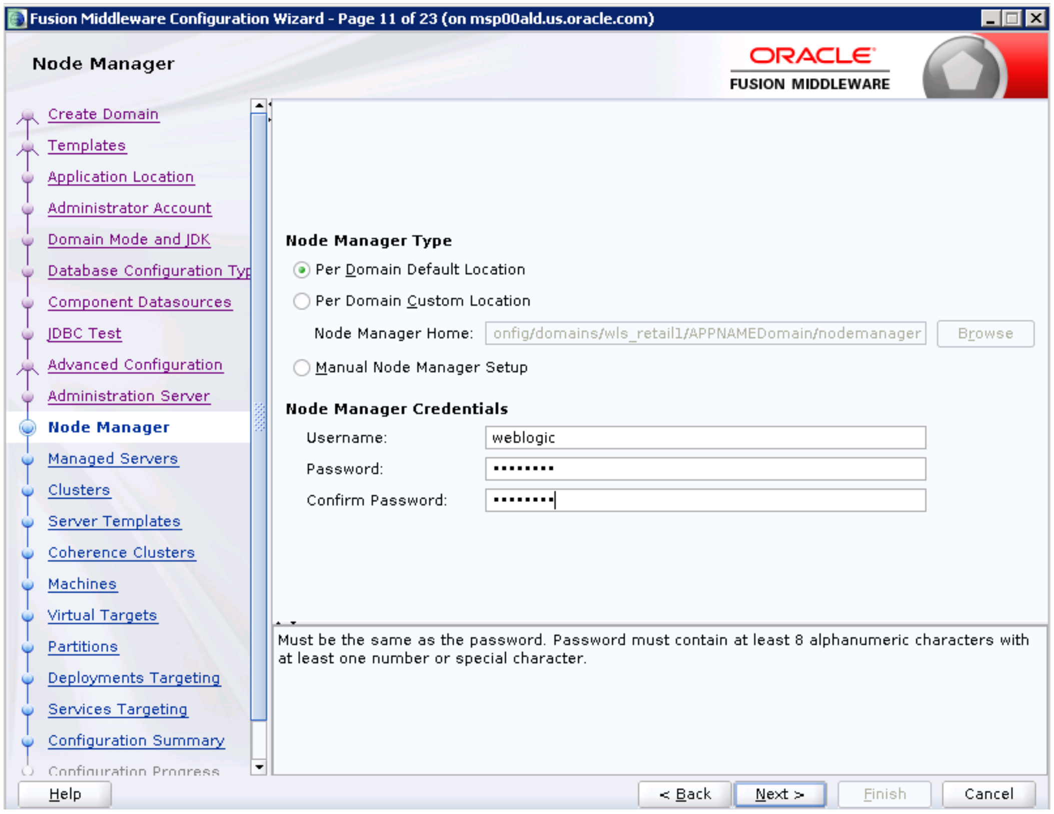


Server Name: AdminServer
Listen Address: APPhostname.us.oracle.com
Listen Port: 7001
Enable SSL: [ ]
SSL Listen Port:
Server Groups: Unspecified

Port number must be between 1 and 65535, and different from SSL listen port and coherence port.

17. Configure Node Manager:

- Node manager type: Per domain default location
- Username: weblogic
- Password: <Password for weblogic>



Fusion Middleware Configuration Wizard - Page 11 of 23 (on msp00ald.us.oracle.com)

Node Manager

Node Manager Type

- (●) Per Domain Default Location
- ( ) Per Domain Custom Location
  - Node Manager Home: onfig/domains/wls_retail1/APPNAMEDomain/nodemanager
- ( ) Manual Node Manager Setup

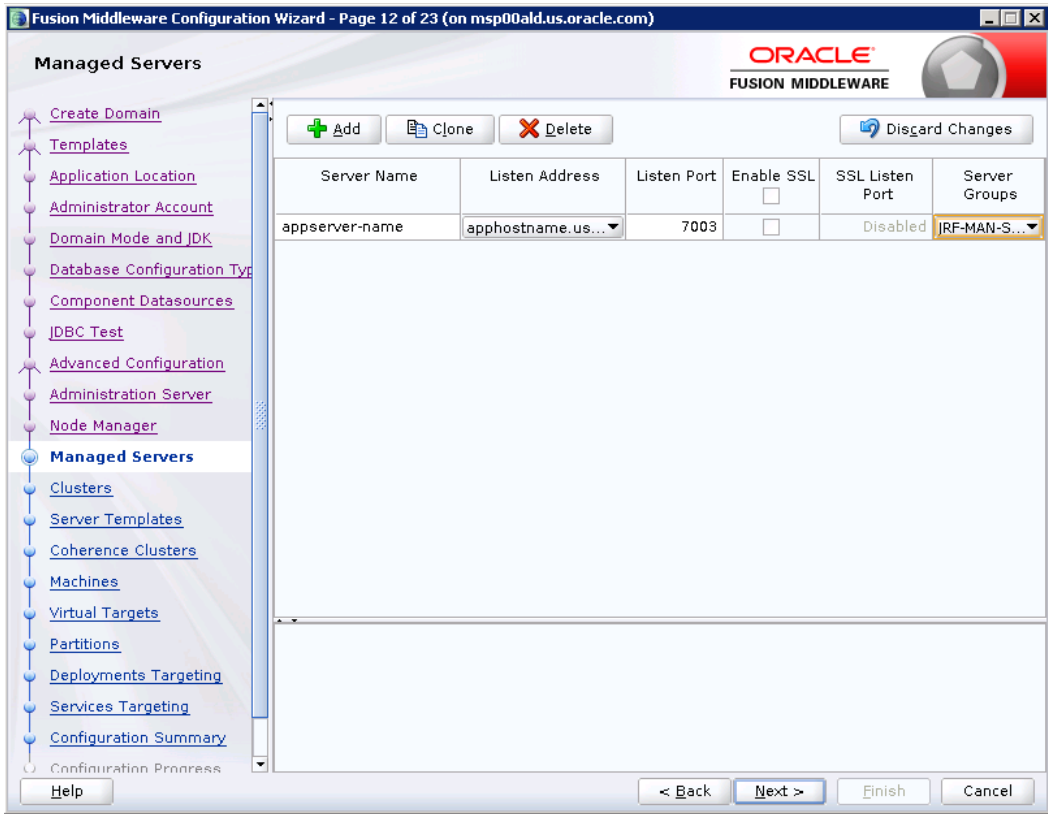
Node Manager Credentials

Username:	weblogic
Password:	•••••••••
Confirm Password:	•••••••••

Must be the same as the password. Password must contain at least 8 alphanumeric characters with at least one number or special character.

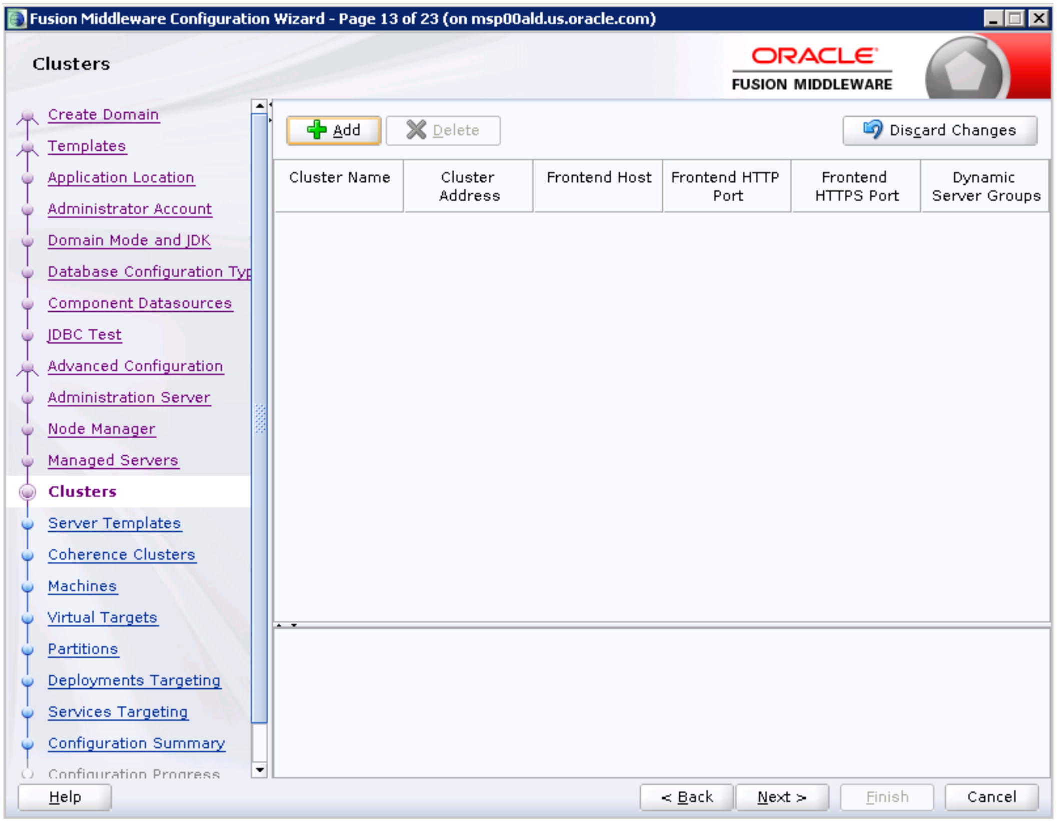
18. Click the **Add** button.

- Server Name: <appname-server>
- Listen address: Appserver Hostname or IPAddress of the Appserver Host
- Listen port: <Port for Managed Server> Note: The port used here must be a free port.
- Server Groups: JRF-MAN-SVR



Server Name	Listen Address	Listen Port	Enable SSL	SSL Listen Port	Server Groups
appserver-name	apphostname.us...	7003	☐	Disabled	JRF-MAN-S...

19. Skip Configure Clusters and click **Next**.

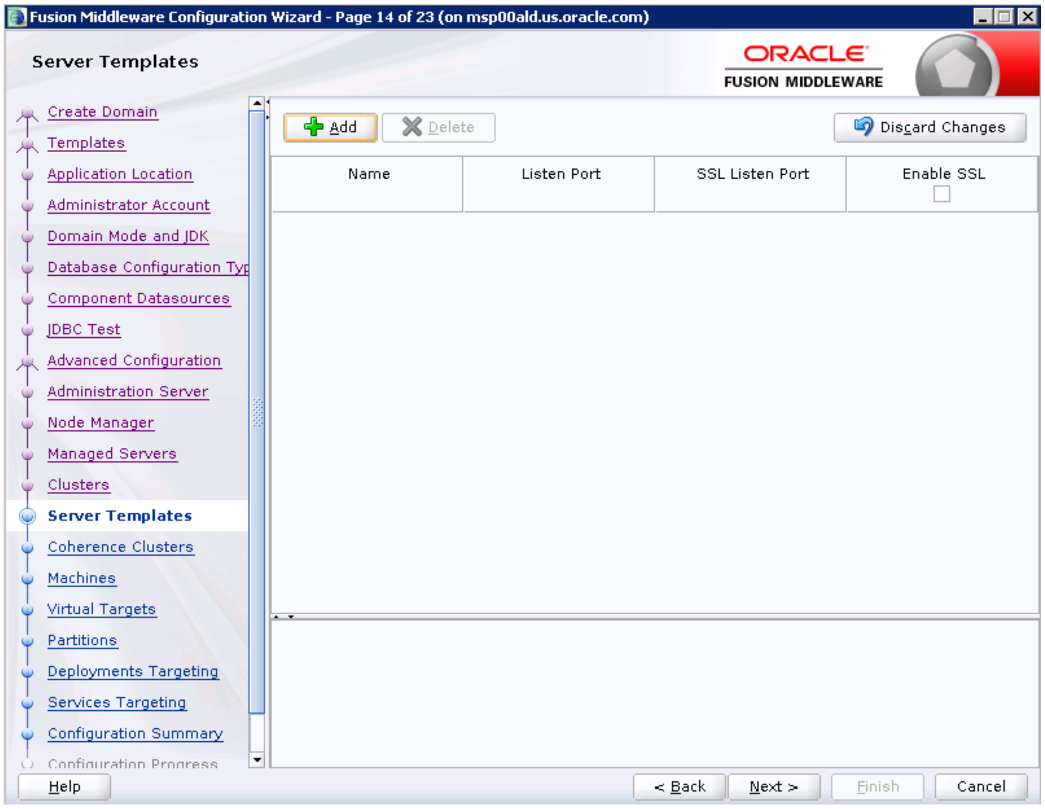


Fusion Middleware Configuration Wizard - Page 13 of 23 (on msp00ald.us.oracle.com)

Clusters

Cluster Name	Cluster Address	Frontend Host	Frontend HTTP Port	Frontend HTTPS Port	Dynamic Server Groups

20. No change needed. Click **Next**.

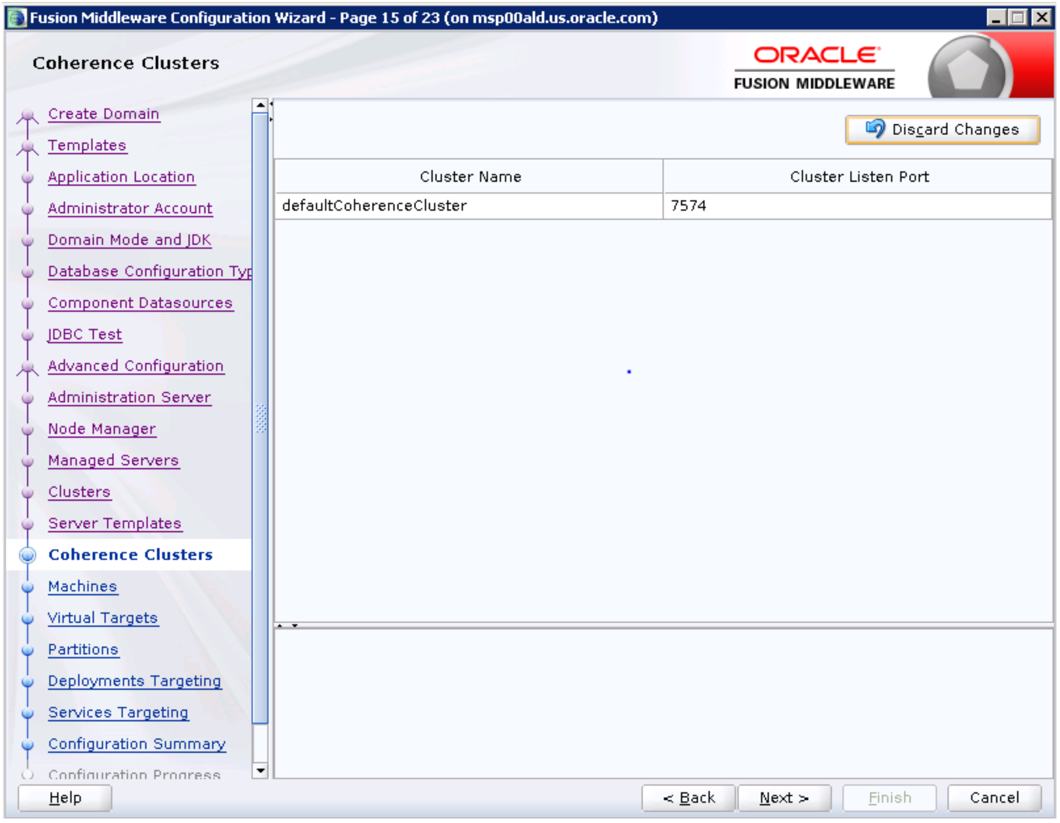


Fusion Middleware Configuration Wizard - Page 14 of 23 (on msp00ald.us.oracle.com)

Server Templates

Name	Listen Port	SSL Listen Port	Enable SSL ☐

21. Skip Server Templates and click **Next**.
22. Click **Next**.

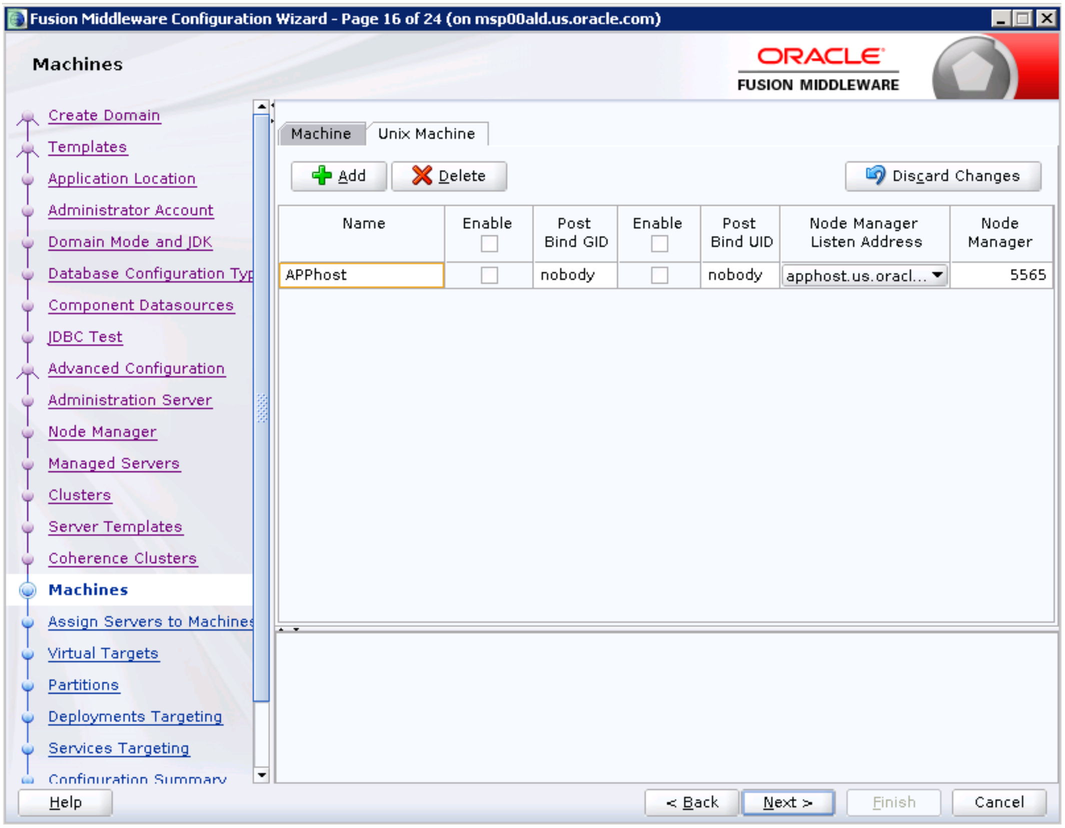


Fusion Middleware Configuration Wizard - Page 15 of 23 (on msp00ald.us.oracle.com)

Coherence Clusters

Cluster Name	Cluster Listen Port
defaultCoherenceCluster	7574

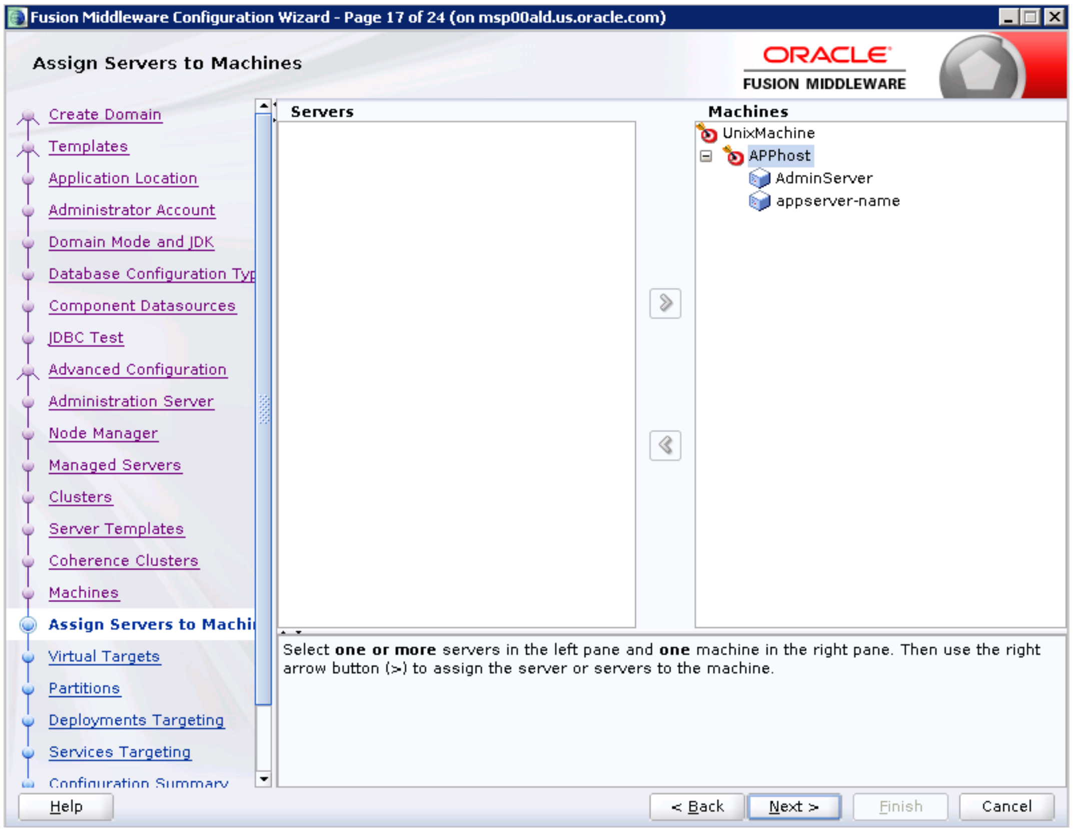
23. Configure Machines
    Select unix Machine :
    Click the **Add** button.
    - Name: apphostname_MACHINE
    - Listen address: apphostname or IPAddress
    - Listen port: <Port for node manager> Note: The port used here must be a free port.


Fusion Middleware Configuration Wizard - Page 16 of 24 (on msp00ald.us.oracle.com)

Machines

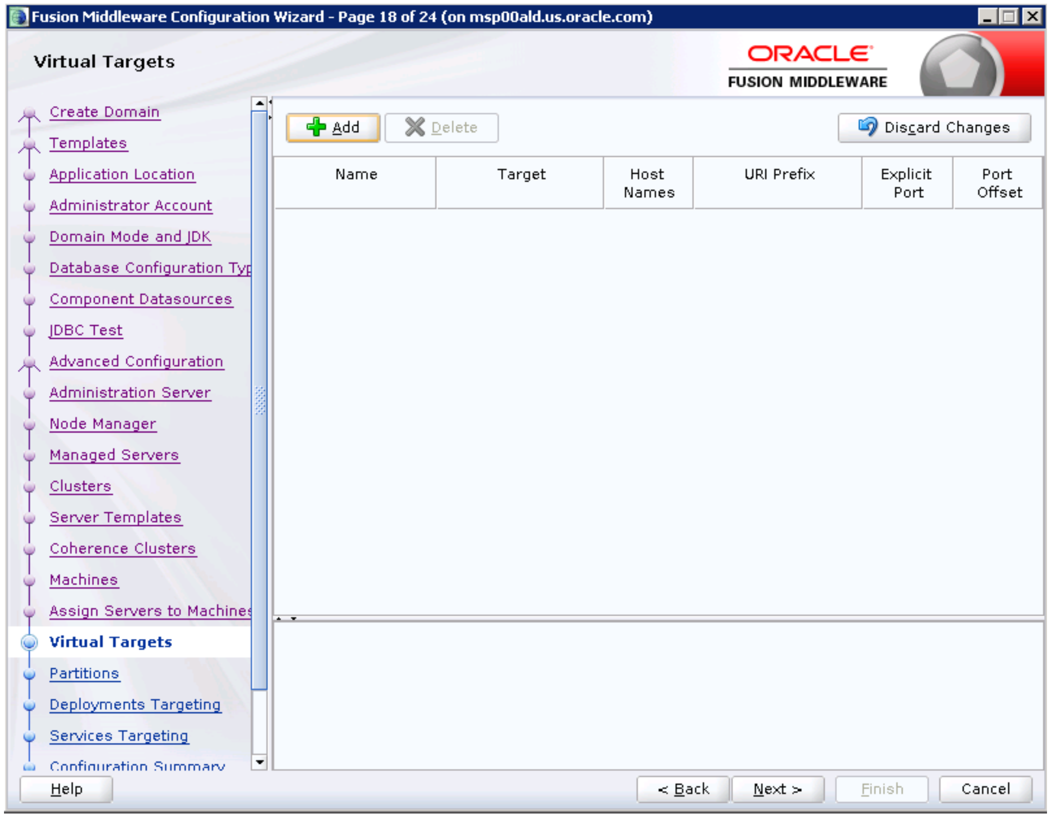
Name	Enable	Post Bind GID	Enable	Post Bind UID	Node Manager Listen Address	Node Manager
APPhost	☐	nobody	☐	nobody	apphost.us.oracl...	5565

24. Assign the configured Admin server and managed servers to the new machine.



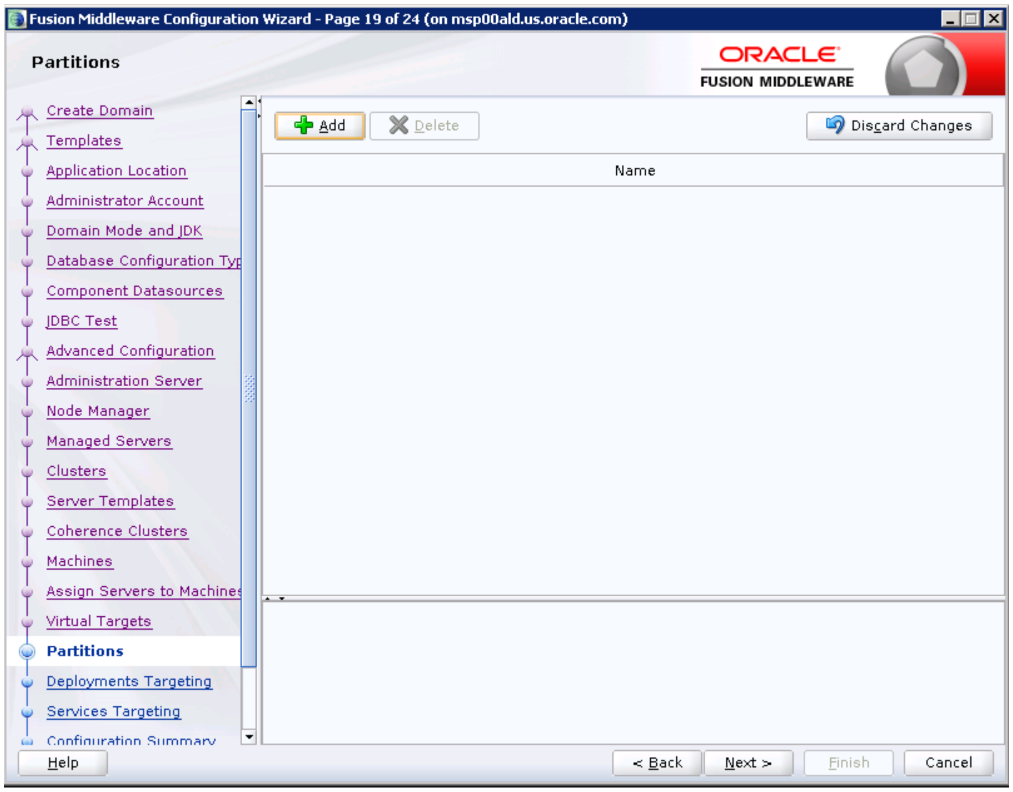
Select **one or more** servers in the left pane and **one** machine in the right pane. Then use the right arrow button (>) to assign the server or servers to the machine.

25. Skip Virtual Targets. Click **Next.**

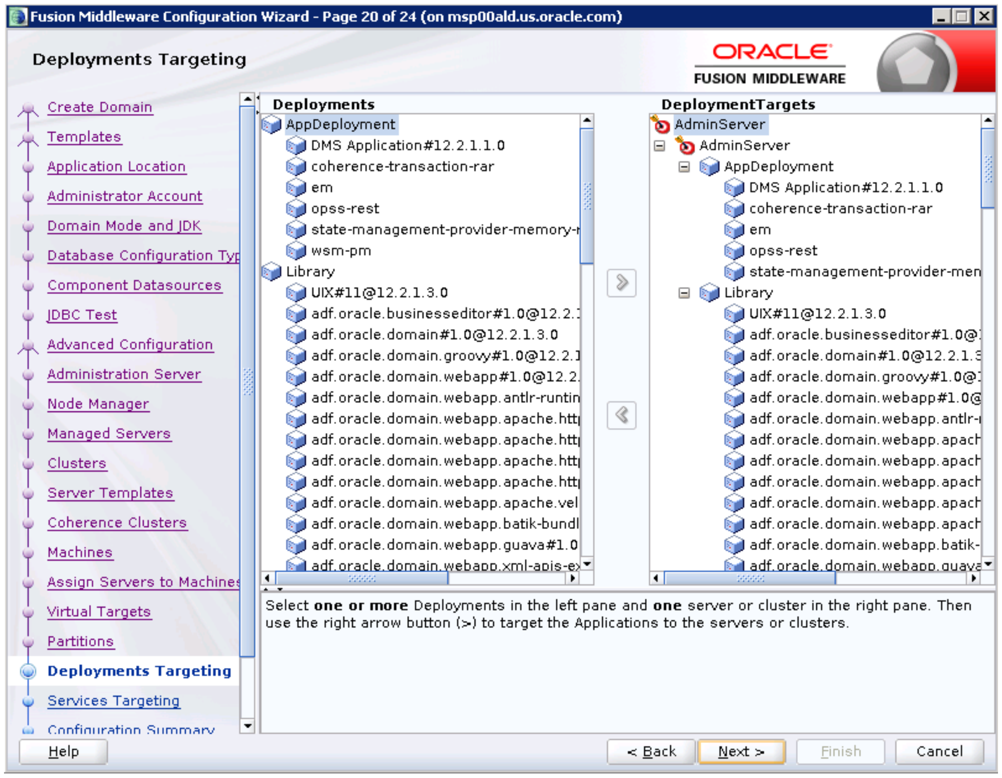


Name	Target	Host Names	URI Prefix	Explicit Port	Port Offset

26. Skip Partitions. Click **Next**.



27. Target the "wsm-pm" deployment to APPNAME_AdminServer:



Fusion Middleware Configuration Wizard - Page 20 of 24 (on msp00ald.us.oracle.com)

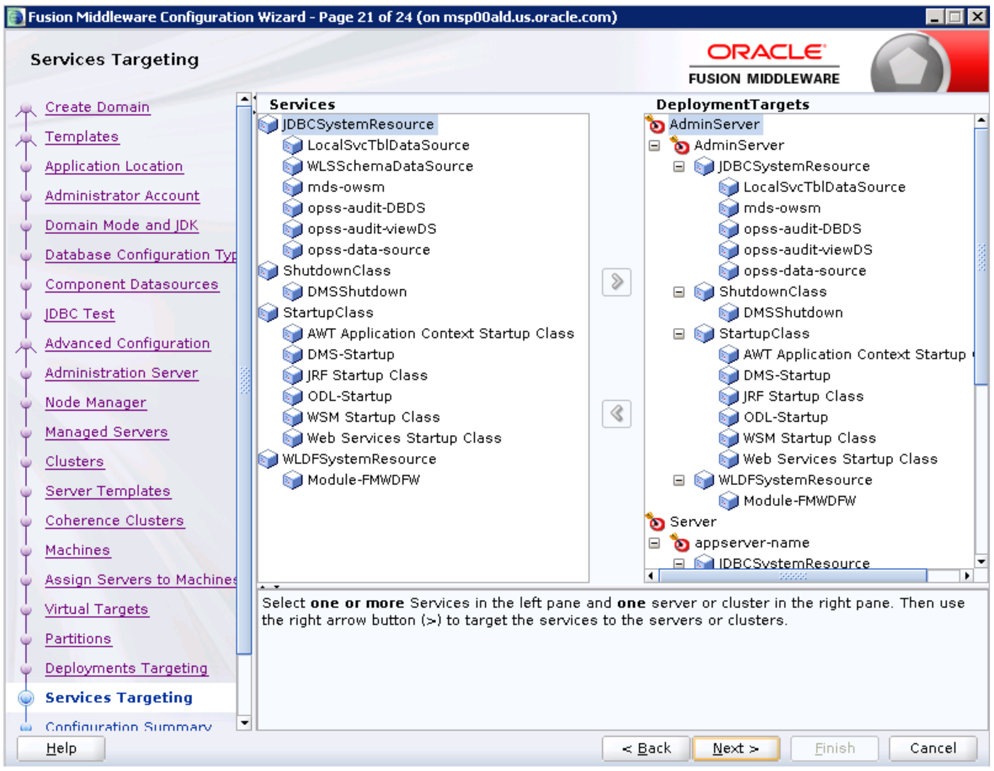
Deployments Targeting

Deployments
- AppDeployment
  - DMS Application#12.2.1.1.0
  - coherence-transaction-rar
  - em
  - opss-rest
  - state-management-provider-memory-r
  - wsm-pm
- Library
  - UIX#11@12.2.1.3.0
  - adf.oracle.businesseditor#1.0@12.2.1
  - adf.oracle.domain#1.0@12.2.1.3.0
  - adf.oracle.domain.groovy#1.0@12.2.1
  - adf.oracle.domain.webapp#1.0@12.2.
  - adf.oracle.domain.webapp.antlr-runtin
  - adf.oracle.domain.webapp.apache.htt
  - adf.oracle.domain.webapp.apache.htt
  - adf.oracle.domain.webapp.apache.htt
  - adf.oracle.domain.webapp.apache.htt
  - adf.oracle.domain.webapp.apache.vel
  - adf.oracle.domain.webapp.batik-bundl
  - adf.oracle.domain.webapp.guava#1.0
  - adf.oracle.domain.webapp.xml-apis-ex

DeploymentTargets
- AdminServer
  - AdminServer
    - AppDeployment
      - DMS Application#12.2.1.1.0
      - coherence-transaction-rar
      - em
      - opss-rest
      - state-management-provider-men
    - Library
      - UIX#11@12.2.1.3.0
      - adf.oracle.businesseditor#1.0@1
      - adf.oracle.domain#1.0@12.2.1.3
      - adf.oracle.domain.groovy#1.0@1
      - adf.oracle.domain.webapp#1.0@
      - adf.oracle.domain.webapp.antlr-
      - adf.oracle.domain.webapp.apach
      - adf.oracle.domain.webapp.apach
      - adf.oracle.domain.webapp.apach
      - adf.oracle.domain.webapp.apach
      - adf.oracle.domain.webapp.apach
      - adf.oracle.domain.webapp.batik-
      - adf.oracle.domain.webapp.guava

Select **one or more** Deployments in the left pane and **one** server or cluster in the right pane. Then use the right arrow button (>) to target the Applications to the servers or clusters.

28. Click **Next.**



Fusion Middleware Configuration Wizard - Page 21 of 24 (on msp00ald.us.oracle.com)

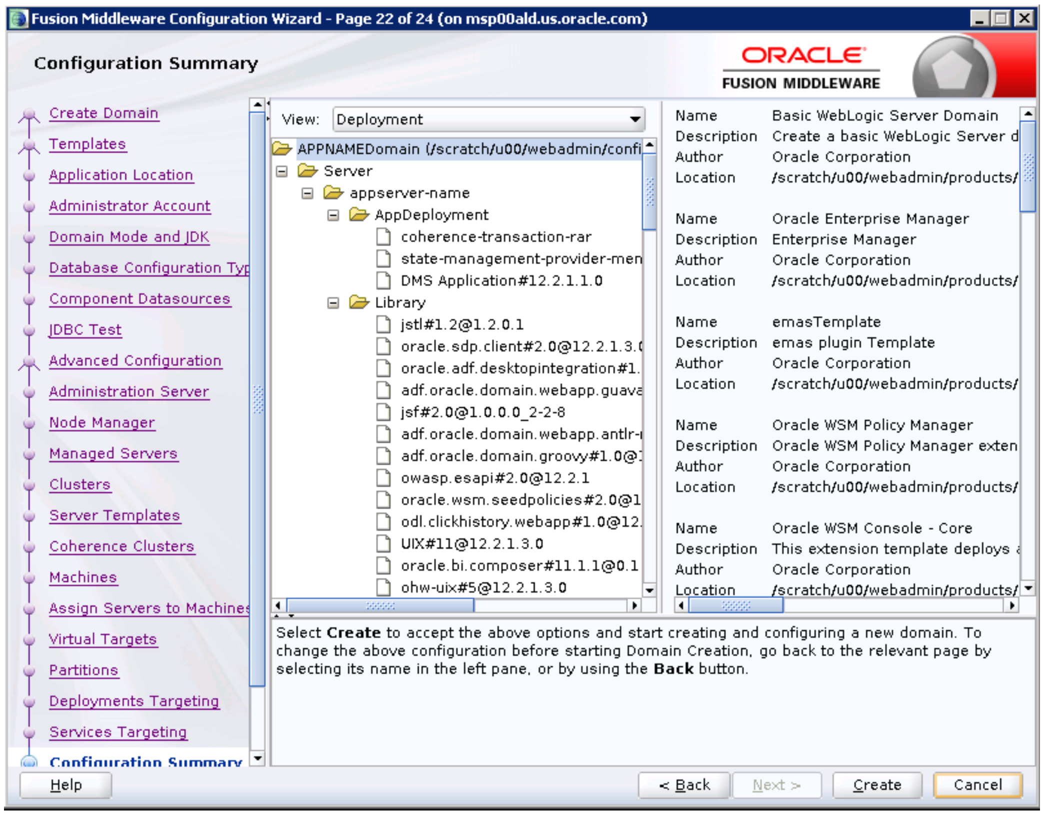
Services Targeting

Services
- JDBCSystemResource
  - LocalSvcTblDataSource
  - WLSSchemaDataSource
  - mds-owsm
  - opss-audit-DBDS
  - opss-audit-viewDS
  - opss-data-source
- ShutdownClass
  - DMSShutdown
- StartupClass
  - AWT Application Context Startup Class
  - DMS-Startup
  - JRF Startup Class
  - ODL-Startup
  - WSM Startup Class
  - Web Services Startup Class
- WLDFSystemResource
  - Module-FMWDFW

DeploymentTargets
- AdminServer
  - AdminServer
    - JDBCSystemResource
      - LocalSvcTblDataSource
      - mds-owsm
      - opss-audit-DBDS
      - opss-audit-viewDS
      - opss-data-source
    - ShutdownClass
      - DMSShutdown
    - StartupClass
      - AWT Application Context Startup
      - DMS-Startup
      - JRF Startup Class
      - ODL-Startup
      - WSM Startup Class
      - Web Services Startup Class
    - WLDFSystemResource
      - Module-FMWDFW
- Server
  - appserver-name
    - JDBCSystemResource

Select **one or more** Services in the left pane and **one** server or cluster in the right pane. Then use the right arrow button (>) to target the services to the servers or clusters.

29. Click **Create.**



Fusion Middleware Configuration Wizard - Page 22 of 24 (on msp00ald.us.oracle.com)

Configuration Summary

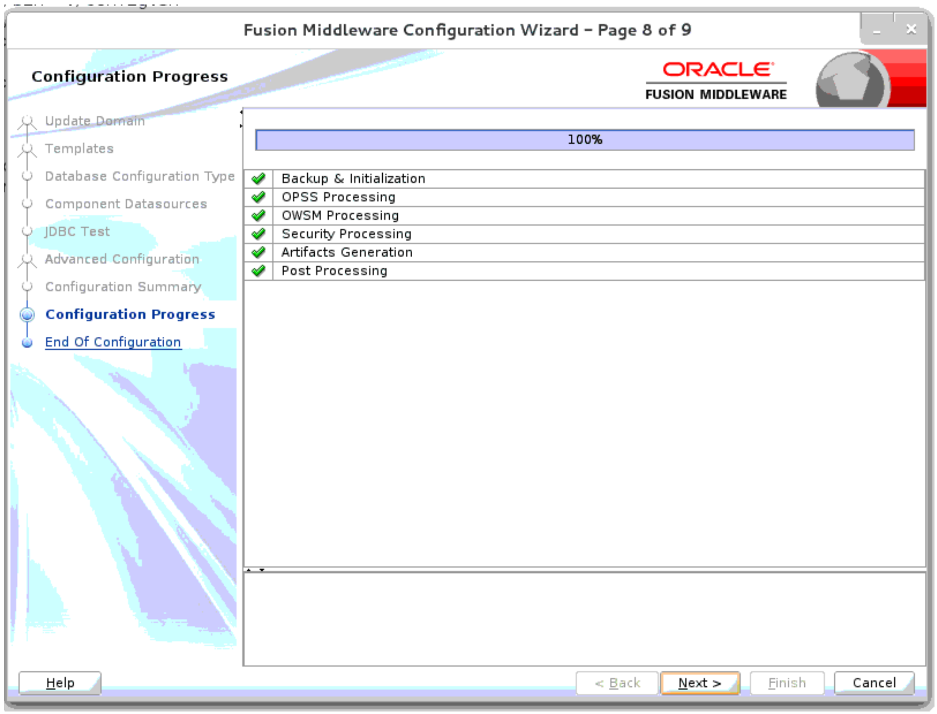
View: Deployment

```
APPNAMEDomain (/scratch/u00/webadmin/confi
  Server
    appserver-name
      AppDeployment
        coherence-transaction-rar
        state-management-provider-men
        DMS Application#12.2.1.1.0
      Library
        jstl#1.2@1.2.0.1
        oracle.sdp.client#2.0@12.2.1.3.(
        oracle.adf.desktopintegration#1.
        adf.oracle.domain.webapp.guava
        jsf#2.0@1.0.0.0_2-2-8
        adf.oracle.domain.webapp.antlr-
        adf.oracle.domain.groovy#1.0@1
        owasp.esapi#2.0@12.2.1
        oracle.wsm.seedpolicies#2.0@1
        odl.clickhistory.webapp#1.0@12.
        UIX#11@12.2.1.3.0
        oracle.bi.composer#11.1.1@0.1
        ohw-uix#5@12.2.1.3.0
```

```
Name         Basic WebLogic Server Domain
Description  Create a basic WebLogic Server d
Author       Oracle Corporation
Location     /scratch/u00/webadmin/products/

Name         Oracle Enterprise Manager
Description  Enterprise Manager
Author       Oracle Corporation
Location     /scratch/u00/webadmin/products/

Name         emasTemplate
Description  emas plugin Template
Author       Oracle Corporation
Location     /scratch/u00/webadmin/products/

Name         Oracle WSM Policy Manager
Description  Oracle WSM Policy Manager exten
Author       Oracle Corporation
Location     /scratch/u00/webadmin/products/

Name         Oracle WSM Console - Core
Description  This extension template deploys a
Author       Oracle Corporation
Location     /scratch/u00/webadmin/products/
```

Select **Create** to accept the above options and start creating and configuring a new domain. To change the above configuration before starting Domain Creation, go back to the relevant page by selecting its name in the left pane, or by using the **Back** button.

30. Click **Next**.



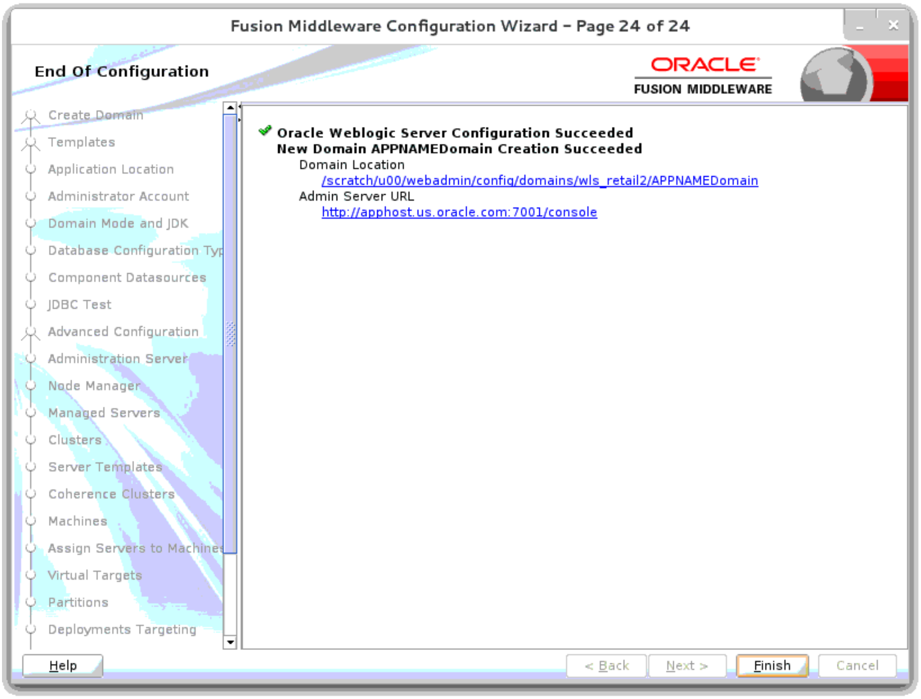
Fusion Middleware Configuration Wizard – Page 8 of 9

Configuration Progress

100%

- ✓ Backup & Initialization
- ✓ OPSS Processing
- ✓ OWSM Processing
- ✓ Security Processing
- ✓ Artifacts Generation
- ✓ Post Processing

31. When the process completes, click **Finish**.


Fusion Middleware Configuration Wizard - Page 24 of 24

End Of Configuration

Oracle Weblogic Server Configuration Succeeded
New Domain APPNAMEDomain Creation Succeeded
Domain Location
/scratch/u00/webadmin/config/domains/wls_retail2/APPNAMEDomain
Admin Server URL
http://apphost.us.oracle.com:7001/console

Update the WebLogic.policy:

1. After the APPNAMEdomain has been created, update <MW_HOME>/wlserver/server/lib/weblogic.policy file with the information below.

Note: If copying the following text from this guide to UNIX, ensure that it is properly formatted in UNIX. Each line entry beginning with "permission" must terminate on the same line with a semi colon. Also, the AdminServer must be restarted for these changes to take effect.

Note: <DOMAIN_HOME> in the example below is the full path of the WebLogic domain; <appname-server> is the RPM managed server created.

```
grant codeBase “file:< DOMAIN_HOME>/servers/<appname-
server>/tmp/_WL_user/<context_root>/-" {
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";
};
grant codeBase "file:<DOMAIN_HOME>/servers/<appname-
server>/cache/EJBCompilerCache/-" {
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";
};
```

An example of the full entry that might be entered is:

```
grant codeBase
"file:/u00/webadmin/config/domains/wls_retail/RPMdomain/servers/rpm-
server/tmp/_WL_user/rpm16/-" {
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";
};

grant codeBase "file:/u00/webadmin/config/domains/wls_retail/
RPMdomain/servers/rpm-server/cache/EJBCompilerCache/-" {
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";
};
```

Note: If RPM application hosted on AIX Operating system, then add below JAVA_OPTIONS in setDomainEnv file.

For Example, Navigate to <DOMAIN_HOME>/bin and add below line in setDomainEnv.sh file.

```
JAVA_OPTIONS="${JAVA_OPTIONS} -
Djavax.xml.validation.SchemaFactory:http://www.w3.org/20
01/XMLSchema=com.sun.org.apache.xerces.internal.jaxp.val
idation.XMLSchemaFactory"
export JAVA_OPTIONS
```

After making changes to the weblogic.policy (and setDomainEnv.sh for AIX) be sure to bounce the whole domain including the AdminServer.

Start the Node Manager

1. Start the nodemanager from <DOMAIN_HOME>/bin using the following script:

   ```
   nohup ./startNodeManager.sh &
   ```

Start the AdminServer (admin console)

1. Configure boot.properties for starting the Weblogic domain without prompting to username and password using the following command:
2. Create security folder at <DOMAIN_HOME>/servers/<AdminServer>/ and create boot.properties file under <DOMAIN_HOME>/servers/<AdminServer>/security

   The file 'boot.properties' should have the following:

   ```
   ---------------------------------
   username=weblogic
   password=<password>
   -----------------------------------
   ```

In the above, the password value is the password of WebLogic domain which is given at the time of domain creation.

Save the boot.properties file and start WebLogic server.

3. Start the WebLogic Domain (Admin Server) from <DOMAIN_HOME> using the following:

   `nohup ./startWebLogic.sh &`

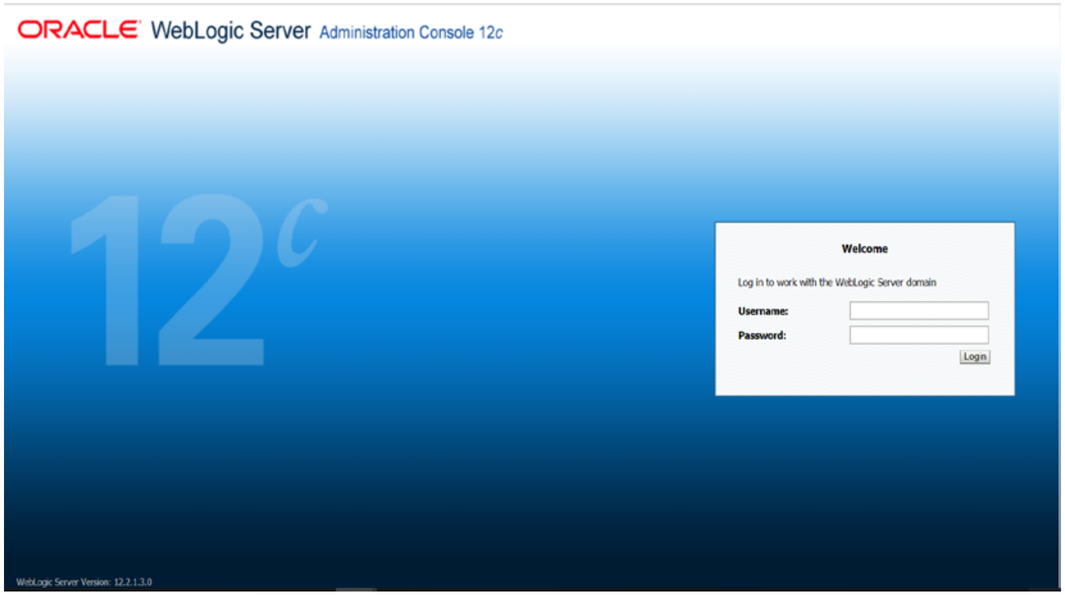
   Example:

   nohup /u00/webadmin/config/domains/wls_retail/RPMdomain/startWebLogic.sh &

4. Access the Weblogic Admin console

   Example: http://<HOST_NAME>:<ADMIN_PORT>/console

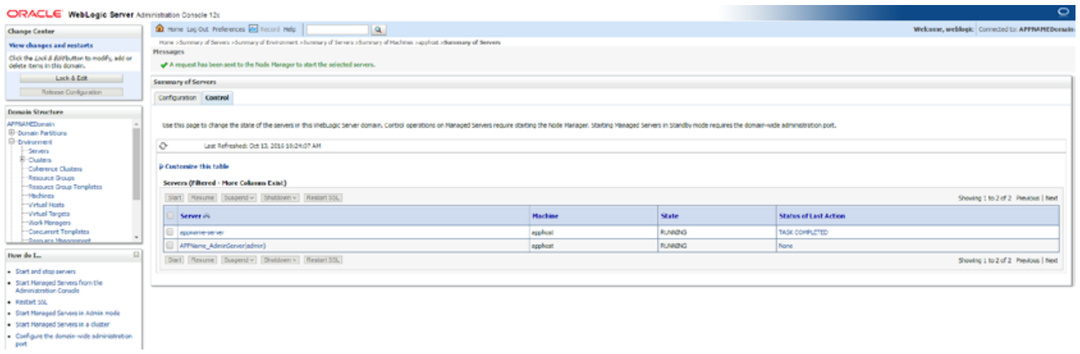
   In the below screen, provide username=weblogic and password=<weblogic password>


ORACLE WebLogic Server Administration Console 12c
12c
Welcome
Log in to work with the WebLogic Server domain
Username:
Password:
Login
WebLogic Server Version: 12.2.1.3.0

Start the Managed Server

After NodeManager is started, the managed servers can be started via the admin console.

Navigate to Environments -> Servers and click the Control tab. Select appname-server and click **Start**.


ORACLE WebLogic Server Administration Console 12c
Change Center
View changes and restarts
Lock & Edit
Release Configuration
Domain Structure
APPNAMEDomain
Domain Partitions
Environment
Servers
Clusters
Coherence Clusters
Resource Groups
Resource Group Templates
Machines
Virtual Hosts
Virtual Targets
Work Managers
Concurrent Templates
Resource Management
How do I...
Start and stop servers
Start Managed Servers from the Administration Console
Restart SSL
Start Managed Servers in Admin mode
Start Managed Servers in a cluster
Configure the domain-wide administration port
Home Log Out Preferences Record Help
Welcome, weblogic Connected to: APPNAMEDomain
Configuration
Control
Customize this table
Start Resume Suspend Shutdown Restart SSL

Click the Lock & Edit button to modify, add or delete items in this domain.

Home >Summary of Servers >Summary of Environment >Summary of Servers >Summary of Machines >apphost >Summary of Servers

Messages

✓ A request has been sent to the Node Manager to start the selected servers.

Summary of Servers

Use this page to change the state of the servers in this WebLogic Server domain. Control operations on Managed Servers require starting the Node Manager. Starting Managed Servers in Standby mode requires the domain-wide administration port.

Last Refreshed: Oct 13, 2016 10:24:07 AM

Servers (Filtered - More Columns Exist)

Showing 1 to 2 of 2 Previous | Next

	Server	Machine	State	Status of Last Action
☐	appname-server	apphost	RUNNING	TASK COMPLETED
☐	APPName_AdminServer(admin)	apphost	RUNNING	None

Showing 1 to 2 of 2 Previous | Next

Managed Server should be up and running before configuring further steps

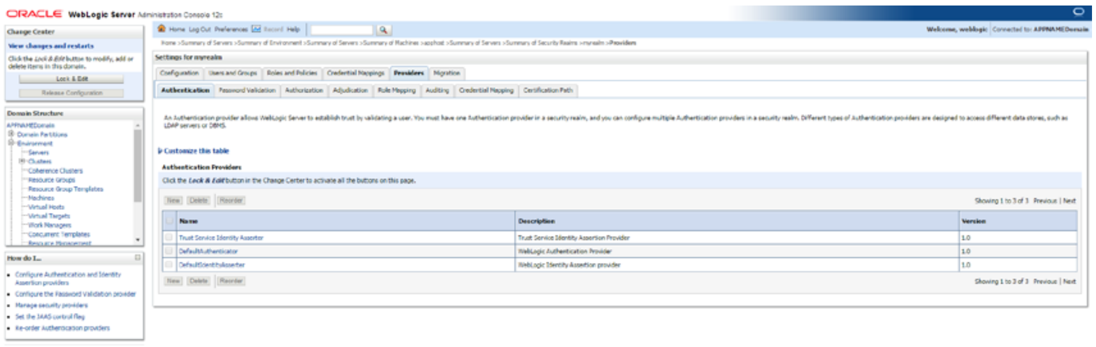
Configuration of OID LDAP Provider in WebLogic Domain

Perform the following procedure to create LDAP providers in the domains created in the previous steps

1. Log in to the Administration Console.

   `http://<HOSTNAME>:<ADMIN_PORT>/console`

2. In the Domain Structure frame, click **Security Realms**.
3. In the Realms table, click **myrealm**. The Settings for myrealm page is displayed.
4. Click the Providers tab.



Settings for myrealm

An Authentication provider allows WebLogic Server to establish trust by validating a user. You must have one Authentication provider in a security realm, and you can configure multiple Authentication providers in a security realm. Different types of Authentication providers are designed to access different data stores, such as LDAP servers or DBMS.

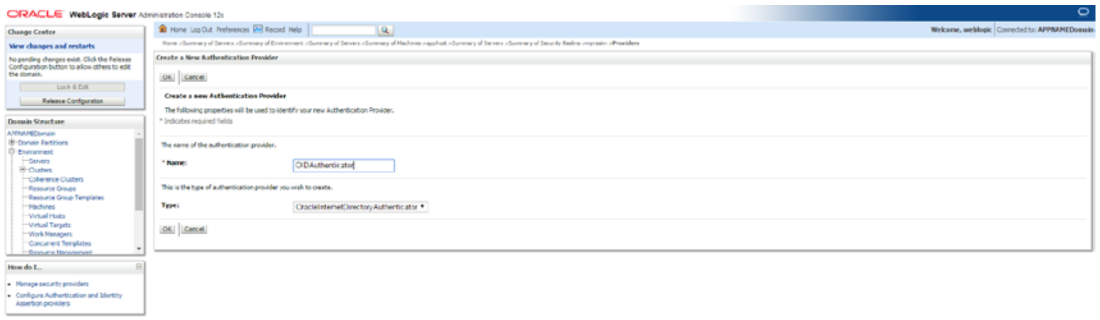
Authentication Providers

Click the *Lock & Edit* button in the Change Center to activate all the buttons on this page.

Showing 1 to 3 of 3 Previous | Next

Name	Description	Version
Trust Service Identity Asserter	Trust Service Identity Assertion Provider	1.0
DefaultAuthenticator	WebLogic Authentication Provider	1.0
DefaultIdentityAsserter	WebLogic Identity Assertion provider	1.0

5. Click **Lock & Edit** and then click **New**. The ‘Create a New Authentication Provider’ page is displayed.



Create a New Authentication Provider

Create a new Authentication Provider

The following properties will be used to identify your new Authentication Provider.

* Indicates required fields

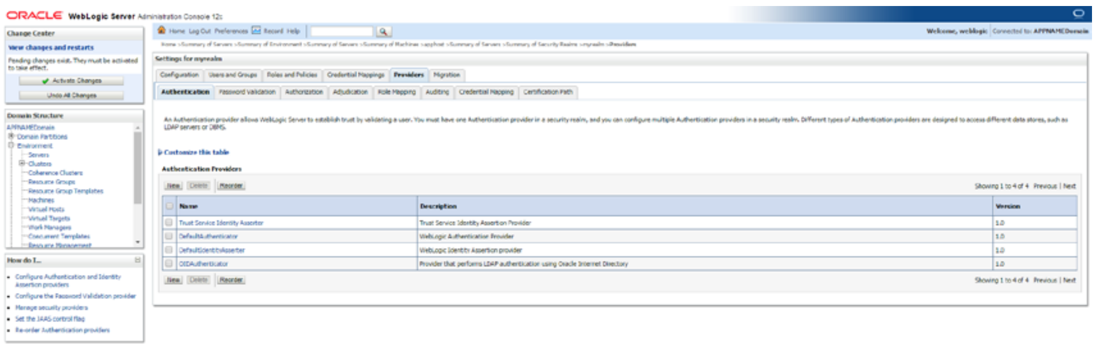
The name of the authentication provider.

* Name: OIDAuthenticator

This is the type of authentication provider you wish to create.

Type: OracleInternetDirectoryAuthenticator

6. Enter OIDAuthenticator in the Name field and select OracleInternetDirectoryAuthenticator as the type. Click **OK**.



Settings for myrealm

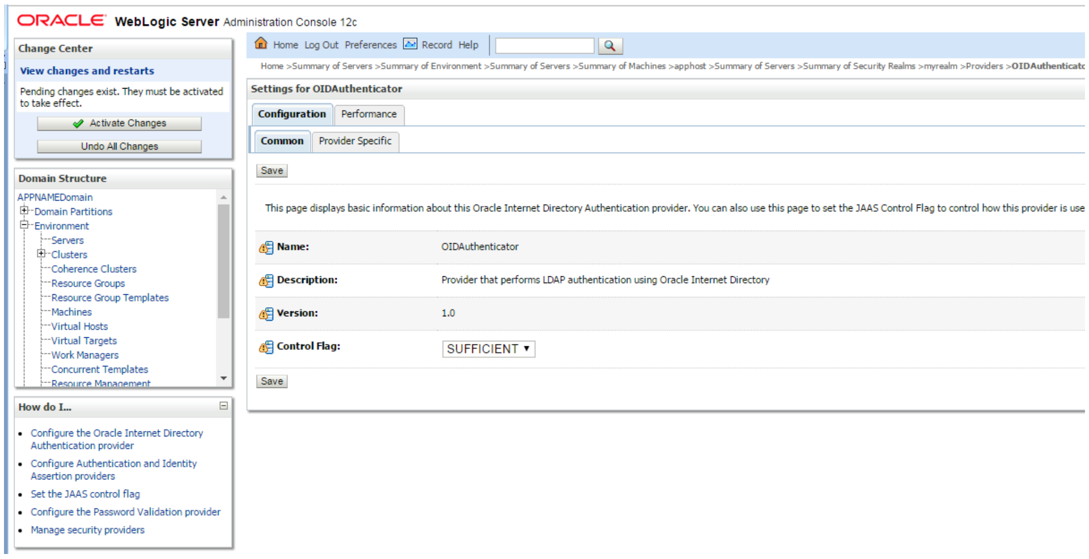
An Authentication provider allows WebLogic Server to establish trust by validating a user. You must have one Authentication provider in a security realm, and you can configure multiple Authentication providers in a security realm. Different types of Authentication providers are designed to access different data stores, such as LDAP servers or DBMS.

Authentication Providers

Showing 1 to 4 of 4 Previous | Next

Name	Description	Version
Trust Service Identity Asserter	Trust Service Identity Assertion Provider	1.0
DefaultAuthenticator	WebLogic Authentication Provider	1.0
DefaultIdentityAsserter	WebLogic Identity Assertion provider	1.0
OIDAuthenticator	Provider that performs LDAP authentication using Oracle Internet Directory	1.0

7. All the providers are displayed. Click **OID Authenticator**. Settings of OID Authenticator are displayed.



ORACLE WebLogic Server Administration Console 12c

Home Log Out Preferences Record Help

Home >Summary of Servers >Summary of Environment >Summary of Servers >Summary of Machines >apphost >Summary of Servers >Summary of Security Realms >myrealm >Providers >**OIDAuthenticatc**

Change Center

View changes and restarts

Pending changes exist. They must be activated to take effect.

Activate Changes

Undo All Changes

Domain Structure

APPNAMEDomain
- Domain Partitions
- Environment
  - Servers
  - Clusters
  - Coherence Clusters
  - Resource Groups
  - Resource Group Templates
  - Machines
  - Virtual Hosts
  - Virtual Targets
  - Work Managers
  - Concurrent Templates
  - Resource Management

How do I...

- Configure the Oracle Internet Directory Authentication provider
- Configure Authentication and Identity Assertion providers
- Set the JAAS control flag
- Configure the Password Validation provider
- Manage security providers

Settings for OIDAuthenticator

Configuration | Performance

Common | Provider Specific

Save

This page displays basic information about this Oracle Internet Directory Authentication provider. You can also use this page to set the JAAS Control Flag to control how this provider is use

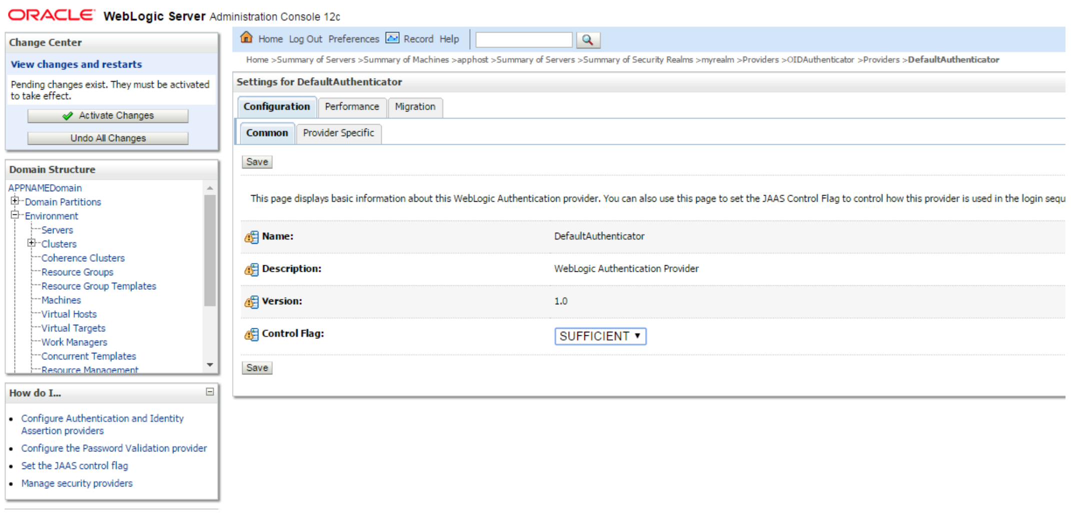
Name:	OIDAuthenticator
Description:	Provider that performs LDAP authentication using Oracle Internet Directory
Version:	1.0
Control Flag:	SUFFICIENT

Save

8. Set the Control Flag field to SUFFICIENT and click **Save**.

9. From the Providers tab, click on DefaultAuthenticator -> Configuration tab -> Common tab. Update the Control Flag to SUFFICIENT.

10. Click **Save**.



ORACLE WebLogic Server Administration Console 12c

Home Log Out Preferences Record Help

Home >Summary of Servers >Summary of Machines >apphost >Summary of Servers >Summary of Security Realms >myrealm >Providers >OIDAuthenticator >Providers >**DefaultAuthenticator**

Change Center

View changes and restarts

Pending changes exist. They must be activated to take effect.

Activate Changes

Undo All Changes

Domain Structure

APPNAMEDomain
- Domain Partitions
- Environment
  - Servers
  - Clusters
  - Coherence Clusters
  - Resource Groups
  - Resource Group Templates
  - Machines
  - Virtual Hosts
  - Virtual Targets
  - Work Managers
  - Concurrent Templates
  - Resource Management

How do I...

- Configure Authentication and Identity Assertion providers
- Configure the Password Validation provider
- Set the JAAS control flag
- Manage security providers

Settings for DefaultAuthenticator

Configuration | Performance | Migration

Common | Provider Specific

Save

This page displays basic information about this WebLogic Authentication provider. You can also use this page to set the JAAS Control Flag to control how this provider is used in the login sequ

Name:	DefaultAuthenticator
Description:	WebLogic Authentication Provider
Version:	1.0
Control Flag:	SUFFICIENT

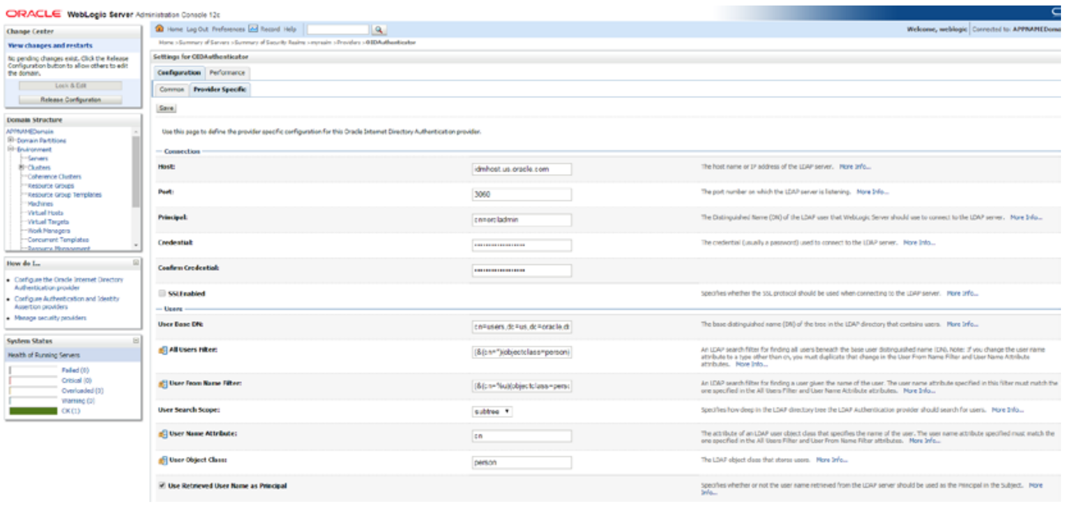
Save

11. From the Providers tab, click the “OIDAuthenticator” (you just created), in the configuration -> Provider Specific tab enter your LDAP connection details:

The values shown below are examples only. You should match the entries to your OID.

- Host: <*oidhost*>
- Port: <*oidport*>
- Principal: cn=orcladmin
- Credential: <*password*>

- Confirm Credential: <*password*>
- User Base DN: cn=users,dc=us,dc=oracle,dc=com
- Enable 'Use Retrieved User Name as principal.'



Settings for OIDAuthenticator

Configuration | Performance

Common | Provider Specific

Save

Use this page to define the provider specific configuration for this Oracle Internet Directory Authentication provider.

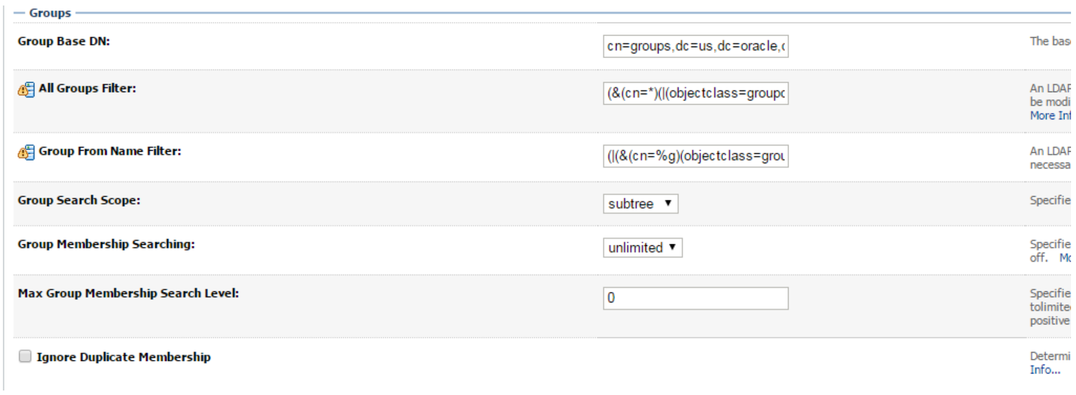
Connection

Host:	idmhost.us.oracle.com	The host name or IP address of the LDAP server. More Info...
Port:	3060	The port number on which the LDAP server is listening. More Info...
Principal:	cn=orcladmin	The Distinguished Name (DN) of the LDAP user that WebLogic Server should use to connect to the LDAP server. More Info...
Credential:	••••••••••••••••	The credential (usually a password) used to connect to the LDAP server. More Info...
Confirm Credential:	••••••••••••••••	
☐ SSLEnabled		Specifies whether the SSL protocol should be used when connecting to the LDAP server. More Info...

Users

User Base DN:	cn=users,dc=us,dc=oracle,d	The base distinguished name (DN) of the tree in the LDAP directory that contains users. More Info...
All Users Filter:	(&(cn=*)(objectclass=person))	An LDAP search filter for finding all users beneath the base user distinguished name (DN). Note: If you change the user name attribute to a type other than cn, you must duplicate that change in the User From Name Filter and User Name Attribute attributes. More Info...
User From Name Filter:	(&(cn=%u)(objectclass=pers	An LDAP search filter for finding a user given the name of the user. The user name attribute specified in this filter must match the one specified in the All Users Filter and User Name Attribute attributes. More Info...
User Search Scope:	subtree	Specifies how deep in the LDAP directory tree the LDAP Authentication provider should search for users. More Info...
User Name Attribute:	cn	The attribute of an LDAP user object class that specifies the name of the user. The user name attribute specified must match the one specified in the All Users Filter and User From Name Filter attributes. More Info...
User Object Class:	person	The LDAP object class that stores users. More Info...
☑ Use Retrieved User Name as Principal		Specifies whether or not the user name retrieved from the LDAP server should be used as the Principal in the Subject. More Info...

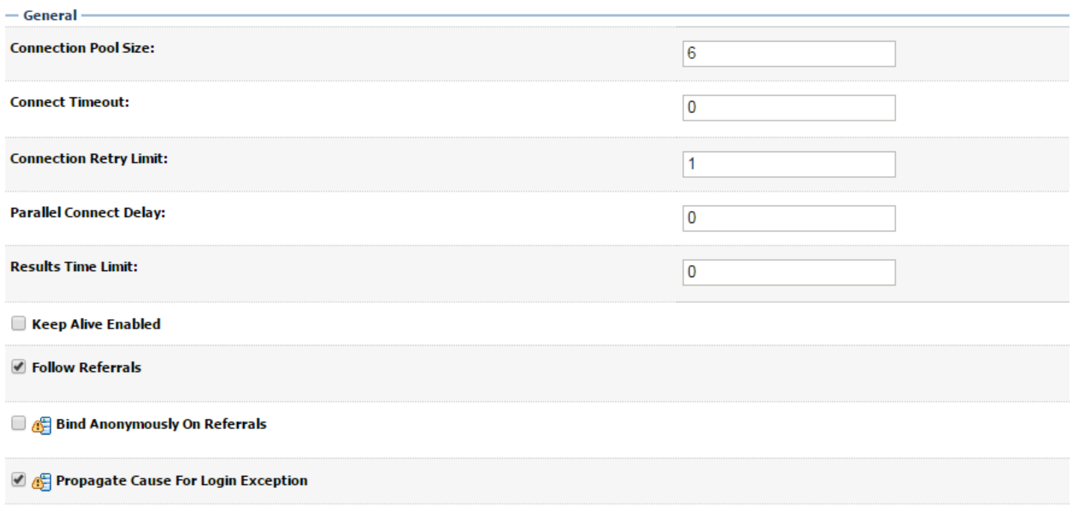
12. Modify the following:
    - Group Base DN: cn=Groups,dc=us,dc=oracle,dc=com



Groups

Group Base DN:	cn=groups,dc=us,dc=oracle,(	The bas
All Groups Filter:	(&(cn=*)(|(objectclass=groupc	An LDAF be modi More Inf
Group From Name Filter:	(|(&(cn=%g)(objectclass=grou	An LDAF necessa
Group Search Scope:	subtree	Specifie
Group Membership Searching:	unlimited	Specifie off. Mo
Max Group Membership Search Level:	0	Specifie tolimite positive
☐ Ignore Duplicate Membership		Determi Info...

13. Check Propagate Cause For Login Exception

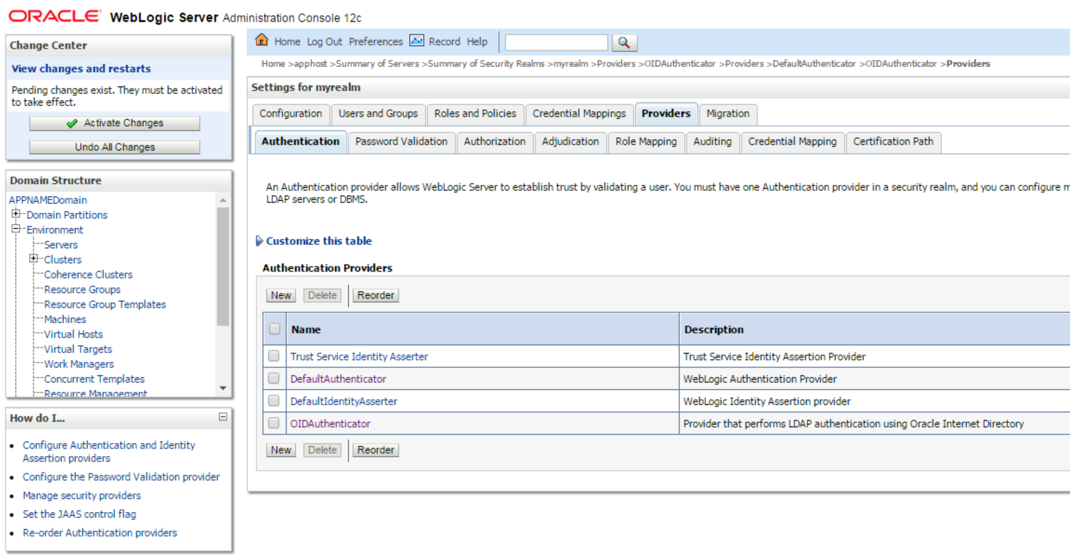


General

Connection Pool Size:	6
Connect Timeout:	0
Connection Retry Limit:	1
Parallel Connect Delay:	0
Results Time Limit:	0

- [ ] Keep Alive Enabled
- [x] Follow Referrals
- [ ] Bind Anonymously On Referrals
- [x] Propagate Cause For Login Exception

14. Click **Save**.
15. Click the Providers tab.



Pending changes exist. They must be activated to take effect.

- Configure Authentication and Identity Assertion providers
- Configure the Password Validation provider
- Manage security providers
- Set the JAAS control flag
- Re-order Authentication providers

Home >apphost >Summary of Servers >Summary of Security Realms >myrealm >Providers >OIDAuthenticator >Providers >DefaultAuthenticator >OIDAuthenticator >**Providers**

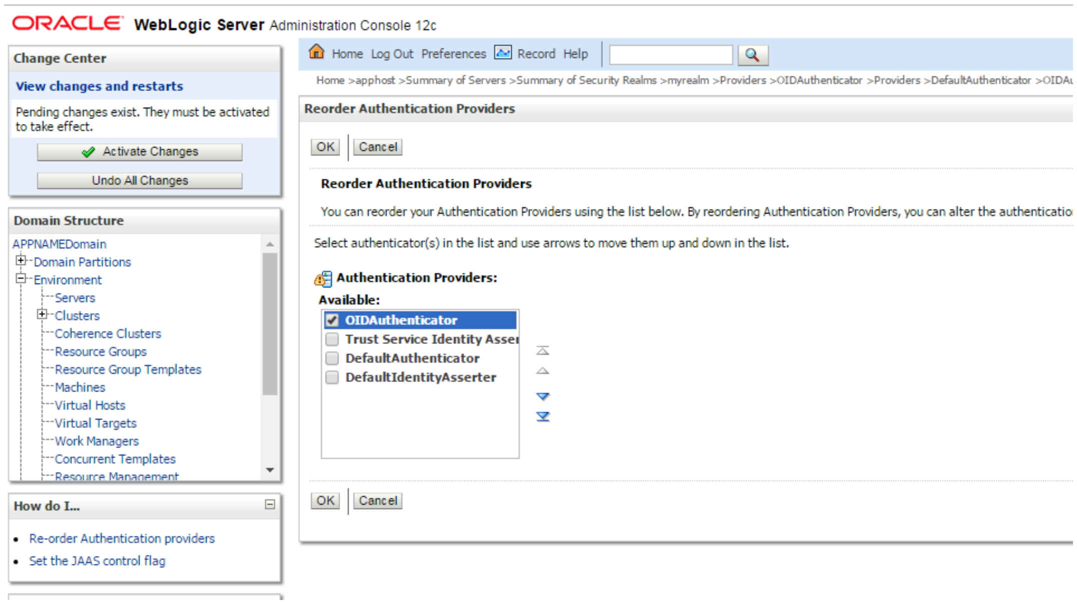
Settings for myrealm

An Authentication provider allows WebLogic Server to establish trust by validating a user. You must have one Authentication provider in a security realm, and you can configure m
LDAP servers or DBMS.

Authentication Providers

	Name	Description
☐	Trust Service Identity Asserter	Trust Service Identity Assertion Provider
☐	DefaultAuthenticator	WebLogic Authentication Provider
☐	DefaultIdentityAsserter	WebLogic Identity Assertion provider
☐	OIDAuthenticator	Provider that performs LDAP authentication using Oracle Internet Directory

16. Click **Reorder**.
17. Move OIDAuthenticator to the top of the providers list.



Home >apphost >Summary of Servers >Summary of Security Realms >myrealm >Providers >OIDAuthenticator >Providers >DefaultAuthenticator >OIDAu

Pending changes exist. They must be activated to take effect.

Reorder Authentication Providers

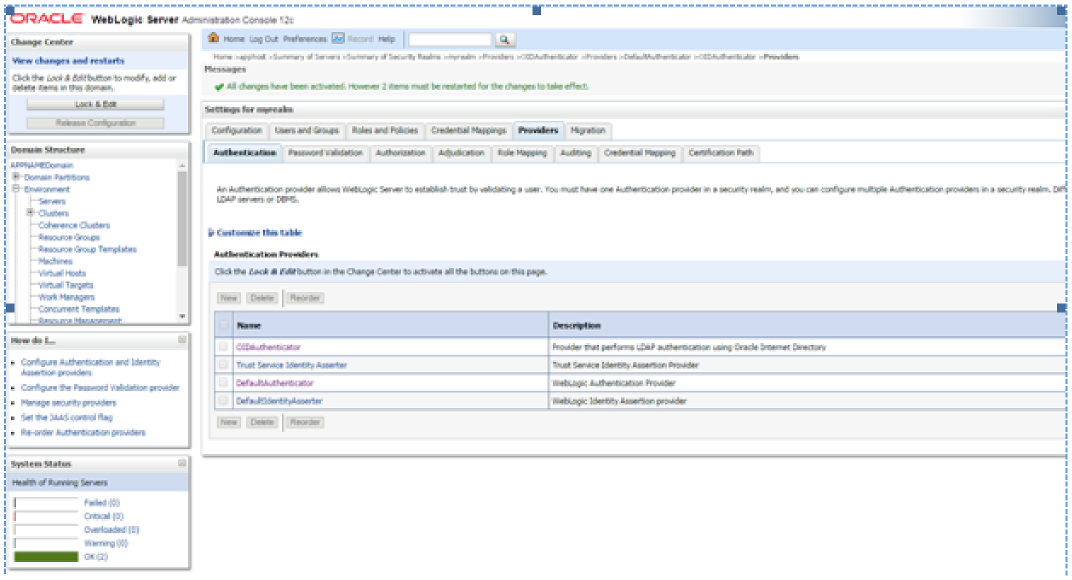
You can reorder your Authentication Providers using the list below. By reordering Authentication Providers, you can alter the authenticatio

Select authenticator(s) in the list and use arrows to move them up and down in the list.

- [✓] OIDAuthenticator
- [ ] Trust Service Identity Asser
- [ ] DefaultAuthenticator
- [ ] DefaultIdentityAsserter

18. Click **OK**.

19. Once your changes are saved, click **Activate Changes**.



Home >apphost >Summary of Servers >Summary of Security Realms >myrealm >Providers >OIDAuthenticator >Providers >DefaultAuthenticator >OIDAuthenticator >Providers

Click the *Lock & Edit* button to modify, add or delete items in this domain.

Messages

✓ All changes have been activated. However 2 items must be restarted for the changes to take effect.

Settings for myrealm

An Authentication provider allows WebLogic Server to establish trust by validating a user. You must have one Authentication provider in a security realm, and you can configure multiple Authentication providers in a security realm. Dif
LDAP servers or DBMS.

Authentication Providers

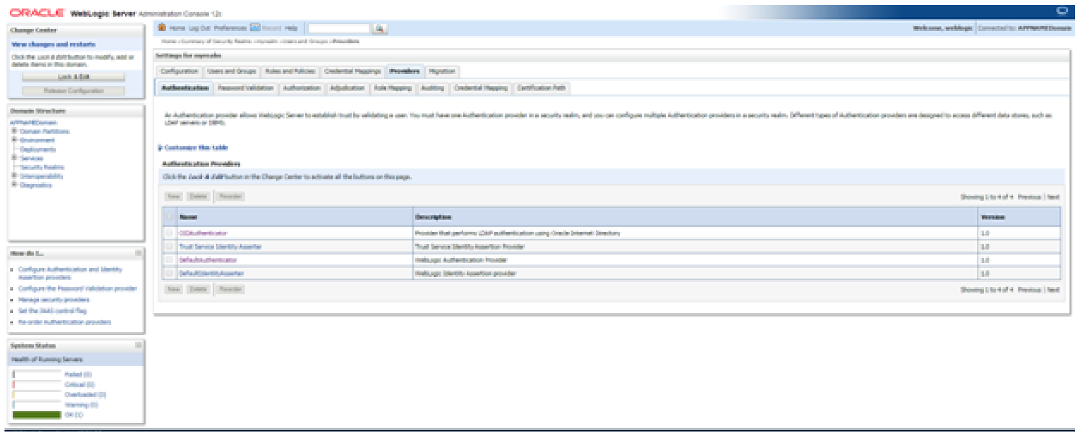
Click the *Lock & Edit* button in the Change Center to activate all the buttons on this page.

	Name	Description
☐	OIDAuthenticator	Provider that performs LDAP authentication using Oracle Internet Directory
☐	Trust Service Identity Asserter	Trust Service Identity Assertion Provider
☐	DefaultAuthenticator	WebLogic Authentication Provider
☐	DefaultIdentityAsserter	WebLogic Identity Assertion provider

20. Shutdown all servers and restart the admin server using startWebLogic.sh script. Login to Admin Console and restart Managed server.

Verify OID Authenticator

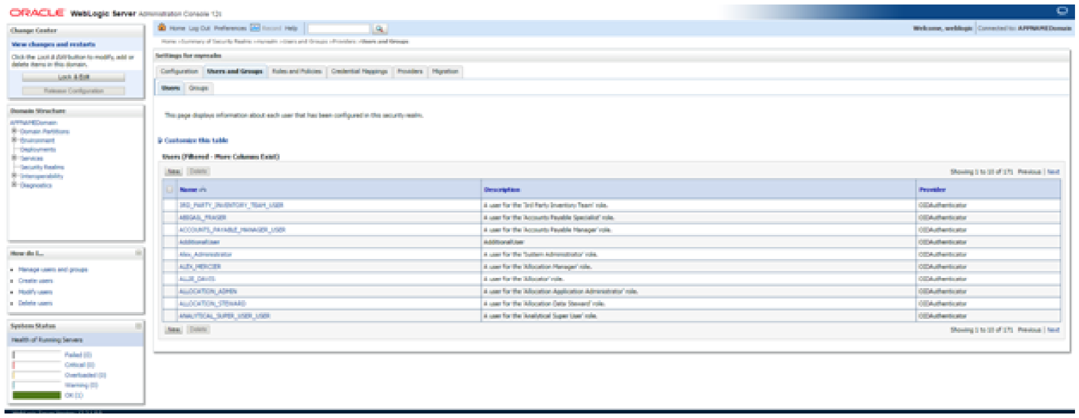
1. Log in to the Administration Console.
   http://<HOST_NAME>:<ADMIN_PORT>/console/
2. In the Domain Structure frame, click Security Realms.
3. In the Realms table, click Default Realm Name. The Settings page is displayed.
4. Click the Providers tab. You must see the OID Provider in that list.



Authentication Providers

	Name	Description	Version
	OIDAuthenticator	Provider that performs LDAP authentication using Oracle Internet Directory	1.0
	Trust Service Identity Asserter	Trust Service Identity Assertion Provider	1.0
	DefaultAuthenticator	WebLogic Authentication Provider	1.0
	DefaultIdentityAsserter	WebLogic Identity Assertion provider	1.0

5. Click the Users and Groups tab to see a list of users and groups contained in the configured authentication providers.



Users (Filtered - More Columns Exist)

	Name	Description	Provider
	3RD_PARTY_INVENTORY_TEAM_USER	A user for the '3rd Party Inventory Team' role.	OIDAuthenticator
	ABIGAIL_FRASER	A user for the 'Accounts Payable Specialist' role.	OIDAuthenticator
	ACCOUNTS_PAYABLE_MANAGER_USER	A user for the 'Accounts Payable Manager' role.	OIDAuthenticator
	AdditionalUser	AdditionalUser	OIDAuthenticator
	Alex_Administrator	A user for the 'System Administrator' role.	OIDAuthenticator
	ALEX_MERCIER	A user for the 'Allocation Manager' role.	OIDAuthenticator
	ALLIE_DAVIS	A user for the 'Allocator' role.	OIDAuthenticator
	ALLOCATION_ADMIN	A user for the 'Allocation Application Administrator' role.	OIDAuthenticator
	ALLOCATION_STEWARD	A user for the 'Allocation Data Steward' role.	OIDAuthenticator
	ANALYTICAL_SUPER_USER_USER	A user for the 'Analytical Super User' role.	OIDAuthenticator

Loading LDIF into the OID to Login to RPM Application

1. Make sure that you have access to a working LDAP server.
2. Create an LDAP connection user with the necessary rights to do sub-tree searches on your users and groups respectively. This user can be named anything but "RPM.ADMIN" is used in this document. This same user should be given as an input for 'Search User DN' on the 'LDAP Directory Server Details' screen while installing the RPM application. This is the user which RPM uses to login to LDAP and perform the necessary search in the LDAP.
3. Load the RPM LDIF files into the OID in order to login to the RPM application

   The RPM installation media contains of ldif files with rpm user and group used to login to the application. They are packed in the RPM installer directory:

   <INSTALL_DIR>/rpm/application/rpm/ldif

The LDIF files included are just templates and must be modified to fit the structure and conventions of the OID setup for your environment. Once the LDIFs are updated for your configuration they can be loaded into LDAP using the ldapadd tool that is included in the OID installation.

4. Login to OID host and follow the steps

```
# export ORACLE_HOME=/u00/webadmin/products/wls_idm/Oracle_IDM
# export PATH=$ORACLE_HOME/bin:$PATH
```

5. To load the RPM Users:

```
# ldapadd -v -c -h <OID_HOST> -p 3060 -w <ORCLADMIN PASSWORD> -D cn=orcladmin
-f  RPM_Users.ldif
```

6. To Load the RPM Group:

```
# ldapadd -v -c -h <OID_HOST> -p 3060 -w <ORCLADMIN PASSWORD> -D cn=orcladmin
-f  RPM_Group.ldif
```

Verify RPM Users and Groups loaded into the OID

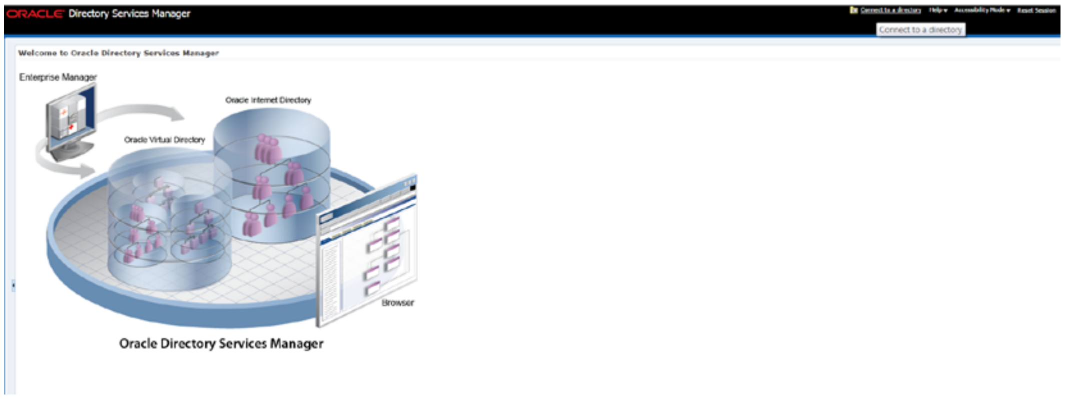
1. Login to OID using ODSM console and verify the loaded RPM users and groups as shown below.

   For Example:

   Login to ODSM

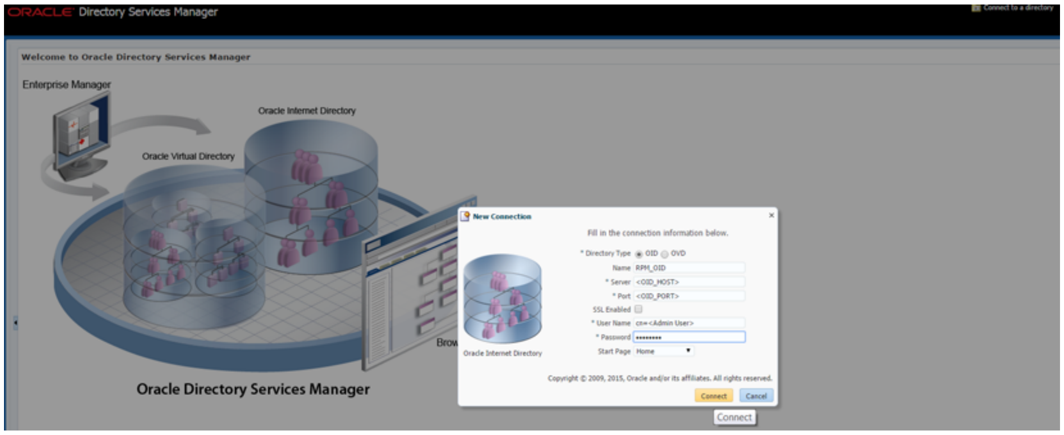
   `http://<OID_HOST>:<ManagedServer_PORT>/odsm`

2. Click **Connect to a directory**.


ORACLE Directory Services Manager
Connect to a directory
Help
Accessibility Mode
Reset Session
Connect to a directory
Welcome to Oracle Directory Services Manager
Enterprise Manager
Oracle Internet Directory
Oracle Virtual Directory
Browser
Oracle Directory Services Manager

3. Create a new connection with OID_HOST, OID_PORT and Admin username and password

Note: Provide SSL port and enable SSL if connection in a secure environment.


ORACLE Directory Services Manager
Welcome to Oracle Directory Services Manager
Enterprise Manager
Oracle Internet Directory
Oracle Virtual Directory
Oracle Directory Services Manager
Connect

New Connection

Fill in the connection information below.

* Directory Type [✓ OID] OVD
Name RPM_OID
* Server <OID_HOST>
* Port <OID_PORT>
SSL Enabled ☐
* User Name cn=<Admin User>
* Password ••••••••
Start Page Home

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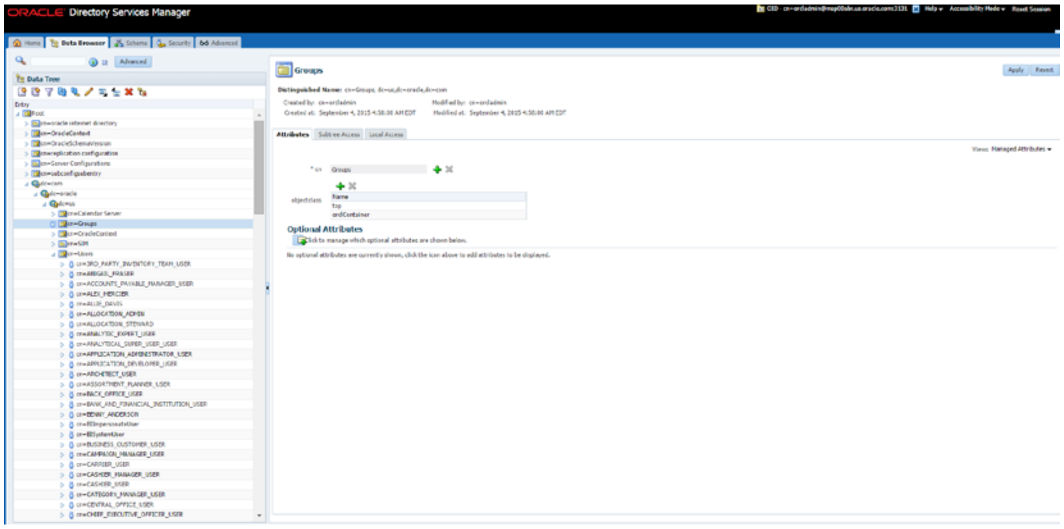
4. Navigate to Data browser tab and click on root in left pane data tree. Verify the loaded RPM Users and Groups are displaying under the tree as per data structure in your environment.



```
Entry
Root
  cn=oracle internet directory
  cn=OracleContext
  cn=OracleSchemaVersion
  cn=replication configuration
  cn=Server Configurations
  cn=subconfigsubentry
  dc=com
    dc=oracle
      dc=us
        cn=Calendar Server
        cn=Groups
        cn=OracleContext
        cn=SIM
        cn=Users
          cn=3RD_PARTY_INVENTORY_TEAM_USER
          cn=ABIGAIL_FRASER
          cn=ACCOUNTS_PAYABLE_MANAGER_USER
          cn=ALEX_MERCIER
          cn=ALLIE_DAVIS
          cn=ALLOCATION_ADMIN
          cn=ALLOCATION_STEWARD
          cn=ANALYTIC_EXPERT_USER
          cn=ANALYTICAL_SUPER_USER_USER
          cn=APPLICATION_ADMINISTRATOR_USER
          cn=APPLICATION_DEVELOPER_USER
          cn=ARCHITECT_USER
          cn=ASSORTMENT_PLANNER_USER
          cn=BACK_OFFICE_USER
          cn=BANK_AND_FINANCIAL_INSTITUTION_USER
          cn=BENNY_ANDERSON
          cn=BIImpersonateUser
          cn=BISystemUser
          cn=BUSINESS_CUSTOMER_USER
          cn=CAMPAIGN_MANAGER_USER
          cn=CARRIER_USER
          cn=CASHIER_MANAGER_USER
          cn=CASHIER_USER
          cn=CATEGORY_MANAGER_USER
          cn=CENTRAL_OFFICE_USER
          cn=CHIEF_EXECUTIVE_OFFICER_USER
```

Groups

Distinguished Name: cn=Groups, dc=us,dc=oracle,dc=com

Created by: cn=orcladmin   Modified by: cn=orcladmin
Created at: September 4, 2015 4:50:00 AM EDT   Modified at: September 4, 2015 4:50:00 AM EDT

* cn Groups

objectclass

Name
top
orclContainer

Optional Attributes

Click to manage which optional attributes are shown below.

No optional attributes are currently shown, click the icon above to add attributes to be displayed.

Expand the RPM Application Distribution

To expand the RPM application distribution, do the following.

1. Log into the UNIX server as the user who owns the WebLogic installation. Create a new staging directory for the RPM application distribution (rpm15application.zip). There should be a minimum of 2 GB disk space available for the application installation files.

   Example: /u00/webadmin/media/rpm

   This location is referred to as STAGING_DIR for the remainder of this chapter.
2. Copy rpm15application.zip to STAGING_DIR and extract its contents.

Clustered Installations – Preinstallation Steps

Skip this section if you are not clustering the application server.

If you are installing the RPM application to a clustered WebLogic Application Server environment, there are some extra steps you need to take before running the RPM application installer. In these instructions, the application server node with the ORACLE_HOME you used for the RPM installer is referred to as the *master node*. All other nodes are referred to as the *remote nodes*.

1. Before starting the RPM Application Installer, make sure that you are able to start and stop the managed servers that are part of the RPM Application Cluster from the WebLogic Administration Console.
2. When the RPM Application Installer displays the screen in which it asks for the information related to the JMS Provider, we recommend entering these values: input.jms.module = rpmJMSModule

   input.taskqueue.name = taskQueue

   input.chunkqueue.name = chunkQueue

   input.chunkControllerQueue.name = chunkControllerQueue
3. Insert into all remote nodes <MW_HOME>/wlserver/server/lib/weblogic.policy file changes, the same RPM entries for java security permissions you entered on the master node.

Provide the Hibernate 4.3.10 Jar File

The RPM application requires hibernate4 jar files to be installed. These files should be downloaded from http://www.hibernate.org.

Older releases can be downloaded here
http://sourceforge.net/projects/hibernate/files/hibernate4/4.3.10.Final

Extract the required Hibernate 4.3.10 jar files and place them within the application servers STAGING_DIR/rpm/application/hibernate4 directory before running the installer. The installer will then install the jar files within the application for you.

The required jars are as follows:

- hibernate-commons-annotations-4.0.*.jar
- hibernate-core-4.3.*.jar
- hibernate-ehcache-4.3.*.jar
- hibernate-jpa-2.1-api-1.0.*.jar

- jboss-logging-3.1.*.jar
- jboss-transaction-api_1.2_spec-1.0.*.jar

  The required jar files are located in the <HIBERNATE_EXTRACT_DIR>\hibernate-release-4.3.5.Final.tgz\hibernate-release-4.3.5.Final.tar\hibernate-release-4.3.5.Final\lib\required\directory.

Run the RPM Application Installer

Once you have a WebLogic instance that is configured and started, you can run the RPM application installer. This installer configures and deploys the RPM application and Java WebStart client files.

> **Note:** See Appendix: RPM Application Installer Screens for details on every screen and field in the application installer. The screenshots contain instructions that are necessary to result in a working application.

1. Change directories to STAGING_DIR/rpm/application.
2. Set the ORACLE_HOME, DOMAIN_HOME and JAVA_HOME environment variables. ORACLE_HOME should point to your WebLogic installation. JAVA_HOME should point to the Java 7.0 (1.7.) JDK . DOMAIN_HOME should point to your WebLogic domain.
3. If a secured datasource is going to be configured you also need to set “ANT_OPTS” so the installer can access the key and trust store that is used for the datasource security:

```
export ANT_OPTS="-Djavax.net.ssl.keyStore=<PATH TO KEY STORE> -
Djavax.net.ssl.keyStoreType=jks -Djavax.net.ssl.keyStorePassword=<KEYSTORE
PASSWORD> -Djavax.net.ssl.trustStore=<PATH TO TRUST STORE> -
Djavax.net.ssl.trustStoreType=jks -
Djavax.net.ssl.trustStorePassword=<TRUSTSTORE PASSWORD>"
```

An example of this would be:

```
export ANT_OPTS="-
Djavax.net.ssl.keyStore=<MW_HOME>/wlserver/server/lib/msp52278.keystore -
Djavax.net.ssl.keyStoreType=jks -Djavax.net.ssl.keyStorePassword=retail123 -
Djavax.net.ssl.trustStore=/ u00/webadmin/product/wls_retail
/wlserver_10.3/server/lib/msp2278.keystore -Djavax.net.ssl.trustStoreType=jks
-Djavax.net.ssl.trustStorePassword=retail123"
```

4. If you are using an X server such as Exceed, set the DISPLAY environment variable so that you can run the installer in GUI mode (recommended). If you are not using an X server, or the GUI is too slow over your network, unset DISPLAY for text mode.
5. Run the install.sh script. This launches the installer. After installation is complete, a detailed installation log file is created (rpm15install.<timestamp>.log).

> **Note:** The values you enter in the installer screen, “Setup Application Users,” have specific requirements for RPM to work properly. See the screen description in Appendix: RPM Application Installer Screens for more details. The screenshots contain instructions that are necessary to result in a working application.

6. The installer has an ‘analyze’ mode that will evaluate all files in the patch against the environment and report on the files that will be updated based on the patch. To run the installer in analyze mode, set the variable ORPATCH_ANALYZE to ‘true’.

7. After clicking "install", the Analyze tool will generate a report of the files that will be patched if you apply this patch to the selected RETAIL_HOME. A high level report can be found in the log file: STAGING_DIR/rpm/application/log/rpminstall.<timestamp>analyze. Log

   The detailed list of patch files can be found in RETAIL_HOME/ orpatch/logs/detail_logs/analyze/details/

   Note: Refer Appendix: RPM Application Installer Screens – Analyze Tool section for the installer screens in analyze mode

8. If you are using an X server such as Exceed, set the DISPLAY environment variable so that you can run the installer in GUI mode (recommended). If you are not using an X server, or the GUI is too slow over your network, unset DISPLAY for text mode.
9. Run the install.sh script. This launches the installer. After installation is completed, a detailed installation log file is created (rpminstall.<timestamp>.log).

Resolving Errors Encountered During Application Installation

If the application installer encounters any errors, it halts execution immediately. You can run the installer in silent mode so that you do not have to retype the settings for your environment. See Appendix: Installer Silent Mode in this document for instructions on silent mode.

See Appendix: Common Installation Errors in this document for some common installation errors.

Because the application installation is a full installation every time, any previous partial installations are overwritten by the successful installation.

Clustered Installations – Post-Installation Steps

If you are installing the RPM application to a clustered WebLogic Server environment, there are some extra steps you need to take to complete the installation. In these instructions, the application server with the ORACLE_HOME you used for the RPM installer is referred to as the master server. All other nodes are referred to as the remote servers.

1. The RPM batch files should be copied from the master node to each of the remote nodes under the same path as on the master node. You should take the $DOMAIN_HOME/retail/<rpmdir>/rpm-batch directory and copy it onto the remote nodes under the same path.
2. For retailers who install batch on either node of the cluster, launchRpmBatch.sh script should be modified on each remote node to point to the local RPM instance. The RPM URL is set in the PROVIDER_URL variable. This script is located at $DOMAIN_HOME/retail/<rpmdir>/rpm-batch/scripts/launchRpmBatch.sh.
3. The Oracle Retail Installation creates some security files on $DOMAIN_HOME/retail/<rpm_application_name>/config directory. Copy this directory to each remote node of the Cluster, matching the full path of the location of this directory on main node.
4. The Oracle Retail Installation creates some properties files on $DOMAIN_HOME/retail/<rpm_application_name>/properties directory. Copy this directory to each remote node of the Cluster, matching the full path of the location of this directory on main node.

Review and/or Configure Oracle Single Sign-On

Note: This step is only needed if you plan on setting up the RPM application using Single Sign On (SSO) authentication. This can be skipped if SSO is not going to be configured for this environment. The Oracle Access manager must be configured and the Oracle http server (Webtier and webgate) must be registered into the Oracle Access Manager.

Create the RPM SSO provider in the RPMdomain:

1. Shut down all the servers of the Weblogic Domain created.
2. Once you copy the contents to <INSTALL_DIR> copy the rpm15-security.zip present in <INSTALL_DIR>/ rpm/application/rpm15 to the DOMAIN_HOME/lib and extract its contents in the folder.
3. Start the domain admin server.
4. Log into the WebLogic console.
5. Navigate to: security realms -> myrealm (default realm) -> providers.
6. Start a Lock and Edit session.
7. Click New provider.
8. Select the provider type from the list: RpmWlsSsoAuthenticator.
9. Set the provider name (Default: RpmSsoAuthenticator).
10. Click **Ok**.
11. Open the new provider configuration.
12. Under Common, set the Control Flag to SUFFICIENT.
13. Click **Provider Specific**.
14. Check that the GroupName is set to the name of the group used for RPM secure users (rpm_secure_users by default).
15. All other values under the Provider Specific tab can be left as the default value.
16. Click **Ok**.
17. On the provider list, click **Reorder**.
18. Move the RpmWlsSsoAuthenticator to the top of the list, or above the DefaultAuthenticator.
19. Click **Ok**.
20. Click **Activate Changes**.
21. Shutdown the domain.
22. Start the admin and managed servers for the domain.

After the SSO provider is created in the RPMdomain, you will also have to set the protection of the RPM application resources correctly in the Application Domain that has been registered in the Oracle Access Manager.

In the Webtier/Webgate http server you need to set the mod_wl_ohs.conf file to redirect the http call to where the RPM application has been deployed.

For example, in mod_wl_ohs.conf set:

```
<Location /rpm-client >
 WebLogicCluster <RPMServerhost>:<RPMServerport>
 SetHandler weblogic-handler
 ErrorPage downtime.html
</Location>
```

Then in Oracle Access Manager, set the protection of the resources in the Application Domain that has been registered for the RPM application. You must protect the /rpm-client/launch resource and unprotect the rest:

Resource URL: / rpm-client/launch

Protection Level: Protected

Authentication Policy: Protected Resource Policy

Authorization Policy: Protected Resource Policy

Resource URL: / rpm-client/.../*

Protection Level: Excluded

Sign the RPM Client Configuration Jar File

There is some client-side configuration that the installer performs which results in a modified rpm_client_config.jar file after installation. Because of this, the jar file cannot be pre-signed by Oracle. The installer now provides an option to sign the jar by asking some details but if decide not to do it using the installer, the user must sign this jar file after the installer has completed.

The rpm_client_config.jar file is located in $DOMAIN_HOME/servers/<rpm-managedserver>/tmp/_WL_user/rpm/<38o5n1 >/war/lib. Use the jarsigner utility to sign the rpm_client_config.jar file using your alias and keystore.

Note: You cannot self-sign the JNLP launched jars with Java 1.8, you must sign them with a proper certificate. Consult the jarsigner documentation for more information.

If you are clustering the application server you need to copy the signed rpm_client_config.jar file to the same path under $ORACLE_HOME on all remote nodes.

Consult the **jarsigner** documentation from Sun for further information on the JAR signing process.

You also need to sign in same jar file inside WebLaunchServlet.war which can be found in the rpm15.ear location in the stage directory of the managed server. Copy the ear file in a temporary location extract the ear files sign the jar file and compress them again and replace it with the one in the staging directory. The above is needed to avoid unsigned entries in jar after restarting the server in the future. Once you restart the weblogic server, files will re-loaded from the once in stage directory. Hence these steps are needed.

Transaction Timeout

This section describes how to establish settings for a transaction timeout. A transaction timeout is the maximum duration, in seconds, for transactions on the application server. Any transaction that is not required to complete before this timeout is rolled back.
To set up transaction timeouts, complete these steps:

1. Log in to the WebLogic Server Administration Console.
2. Click on the Domain link.
3. Under Configuration, click **JTA**.
4. Click **Lock and Edit**.
5. Set the Timeout Seconds (for example, 600 seconds).
6. Click **Activate Changes**.

Backups Created by Installer

The RPM application installer backs up previous batch, JMS bindings, and WebStart client installations by renaming them with <timestamp> suffixes. This is done to prevent the removal of any custom changes you might have. These backup directories can be safely removed without affecting the current installation.

Examples: rpm-batch.200605011726, sbynjndi.200605011726, rpm.200605011726

Test the RPM Application

After the application installer finishes, a working RPM application installation should result, if the users were created properly.

For LDAP authentication, the application will not log you in properly unless you have a row for the users in question in the database on the rsm_user_role table. The following is an example of how to add rows if they have not been added.

```
insert into rsm_user_role
(id, user_id, role_id, start_date_time, end_date_time)
select rsm_user_role_seq.nextval,
       'retail.user',
       -1001,
       nvl(get_vdate,sysdate) - 365,
       null
  from dual;
```

If problems occur when trying to start the RPM application, ensure proxies are turned off.

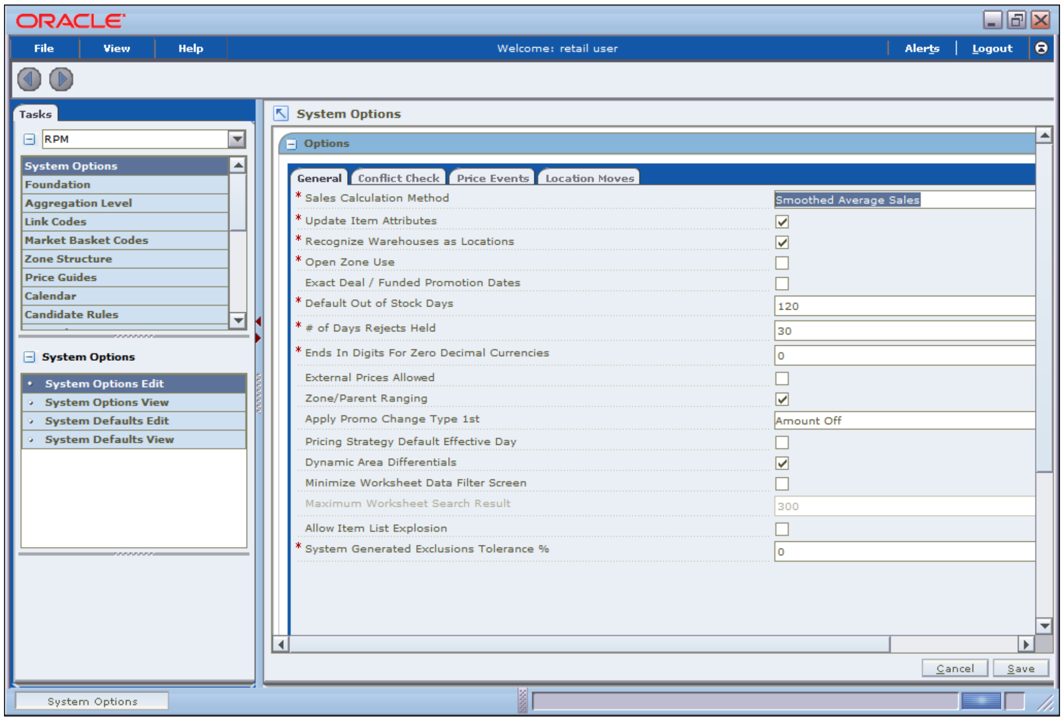
To launch the application client, open a Web browser and access the JnlpLaunchServlet, naming the RPM JNLP template file (rpm_jnlp_template.vm).

Example: http://appserver1:MS_PORT/rpm-client/launch?template=rpm_jnlp_template.vm

When you are in the RPM application, do the following to add a rpm_system_options row required by RPM for system use.

1. On the left side of the screen, select System Options.
2. Select **System Options Edit**.

3. In the lower right part of the screen, click **Save**.

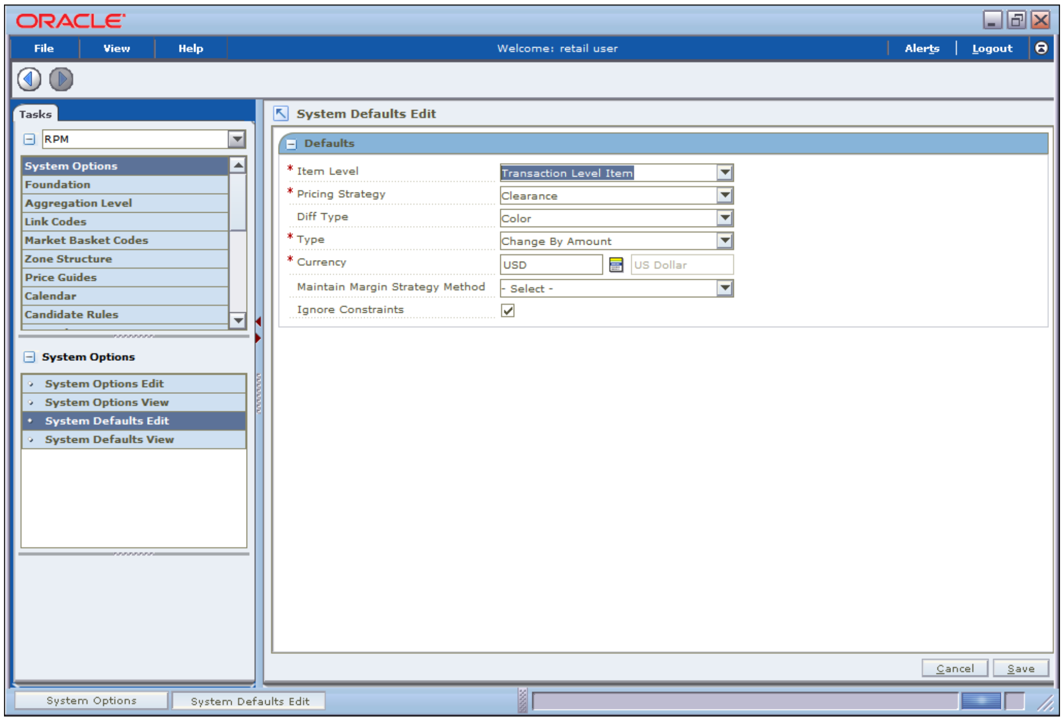


* Sales Calculation Method	Smoothed Average Sales
* Update Item Attributes	✓
* Recognize Warehouses as Locations	✓
* Open Zone Use	☐
Exact Deal / Funded Promotion Dates	☐
* Default Out of Stock Days	120
* # of Days Rejects Held	30
* Ends In Digits For Zero Decimal Currencies	0
External Prices Allowed	☐
Zone/Parent Ranging	✓
Apply Promo Change Type 1st	Amount Off
Pricing Strategy Default Effective Day	☐
Dynamic Area Differentials	✓
Minimize Worksheet Data Filter Screen	☐
Maximum Worksheet Search Result	300
Allow Item List Explosion	☐
* System Generated Exclusions Tolerance %	0

4. To add an rpm_system_options_def row required by RPM needs for system use, do the following.

5. Select System Defaults Edit.

6. In the lower right part of the screen, click **Save**.



* Item Level	Transaction Level Item
* Pricing Strategy	Clearance
Diff Type	Color
* Type	Change By Amount
* Currency	USD US Dollar
Maintain Margin Strategy Method	- Select -
Ignore Constraints	✓

RPM Batch Scripts

The RPM application installer configures and installs the batch scripts under <retail_home>/rpm-batch. . You will run the RPM java batch pgms with a java wallet alias (for example, RETAIL.USER1) that you created in the installer screens. The following is an example execution of a RPM java batch script.

```
./<RPMbatchscriptname>.sh RETAIL.USER1
```

Note: Make sure that JAVA_HOME is set to the appropriate Java JDK (the same JDK that has been used by WebLogic Server) and ORACLE_HOME is set to weblogic installation before running the RPM batch programs.

RPM Batch Scripts that call sqlplus (plsql batch)

In some RPM batch scripts sqlplus is called, so a profile should be set up for this user. A prerequisite for this would be Oracle database or Oracle client installed on the server. The below example assumes that a batch user rpmbatch was created in the Oracle Wallet (different from the Java wallet) and added to the tnsnames.ora, as explained in Appendix: Setting Up Password Stores with Oracle Wallet.
The batch scripts calling sqlplus are as follows:

```
clearancePriceChangePublishExport.sh
dataConversionSeedFutureRetail.sh
nightlyBatchCleanup.sh
priceEventExecutionForChunkCCEmergencyEvents.sh
priceEventItemListPurgeBatch.sh
primaryZoneModificationsBatch.sh
promotionPriceChangePublishExport.sh
purgeConCheckResultsErrorData.sh
purgeExpiredExecutedOrApprovedClearancesBatch.sh
purgePayloadsBatch.sh
purgeRPMBatchRunHistory.sh
purgeTxnExclusionSkulistWS.sh
purgeUnusedAndAbandonedClearancesBatch.sh
regularPriceChangePublishExport.sh
RPMtoORPOSPublishBatch.sh
RPMtoORPOSPublishExport.sh
stagePromosForExtDashboard.sh
```

Example profile.sh

```
#!/bin/sh

#Need the Oracle Home set to aim at ORACLE Client or db on which the
server RPM # is installed on
ORACLE_HOME=/u00/oracle/product/12.1.0.2

#Java Home for the Oracle install
JAVA_HOME=$ORACLE_HOME/jdk

#Add the Oracle and Java bin's to path
PATH=$ORACLE_HOME/bin:$JAVA_HOME/bin:$PATH

export PATH ORACLE_HOME JAVA_HOME

#Path to directory with tnsnames.ora, ewallet.p12, cwallet.sso &
#sqlnet.ora (You will build these files as explained in Appendix E Setting
#Up Password Stores with Oracle Wallet)
TNS_ADMIN=/u00/webadmin/product/10.3.x/WLS/user_projects/domains/APPDomain
/retail/rpm15/config/wallet
export TNS_ADMIN
    echo "ORACLE_HOME=${ORACLE_HOME}"
    echo "JAVA_HOME=${JAVA_HOME}"
    echo "PATH=${PATH}"
```

To source the profile above, do the following:

```
        $ . ./profile.sh
```

While running the plsql batch script the connect string as follows (/@rpmbatch that you created using the instructions in "Appendix: Setting Up Password Stores with Oracle Wallet."

```
        ./RPMtoORPOSPublishExport.sh /@rpmbatch 0 log error
```

Online Help

The application installer automatically installs online help to the proper location. It is accessible from the help links within the application.

Adding a User to the RPM Application

For LDAP authentication, complete the following steps.

1. Build/copy existing RPM user in LDAP to the new user name you desire. User in LDAP for RPM must have objectclass, retailUser, as there is a search filter on that objectclass name of retailUser.
2. Insert row to database table:

```
insert into rsm_user_role
(id, user_id, role_id, start_date_time, end_date_time)
select rsm_user_role_seq.nextval,
       'retail.user1',
       -1001,
       nvl(get_vdate,sysdate) - 365,
       null
  from dual;
```

5
Patching Procedures

Oracle Retail Patching Process

The patching process for many Oracle Retail products has been substantially revised from prior releases. Automated tools are available to reduce the amount of manual steps when applying patches. To support and complement this automation, more information about the environment is now tracked and retained between patches. This information is used to allow subsequent patches to identify and skip changes which have already been made to the environment. For example, the patching process uses a database manifest table to skip database change scripts which have already been executed.

The enhanced product patching process incorporates the following:

- Utilities to automate the application of Oracle Retail patches to environments.
- Unified patches so that a single patch can be applied against Database, Forms, Java applications, Batch, etc. installations.
- Database and Environment manifests track versions of files at a module level.
- Centralized configuration distinguishes installation types (Database, Forms, Java, Batch, etc.).
- Patch inventory tracks the patches applied to an environment.

These enhancements make installing and updating Oracle Retail product installations easier and reduce opportunities for mistakes. Some of these changes add additional considerations to patching and maintaining Oracle Retail product environments. Additional details on these considerations are found in later sections.

Supported Products and Technologies

With version 15.0, several products and technologies are supported by the enhanced patching process. The utilities, processes and procedures described here are supported with the following products and listed technologies:

Product	**Supported Technology**
Oracle Retail Merchandising System (RMS)	▪ Database scripts ▪ Batch scripts ▪ RETL scripts ▪ Data Conversion Scripts ▪ Forms ▪ BI Publisher Reports
Oracle Retail Warehouse Management System (RWMS)	▪ Database scripts ▪ Batch scripts ▪ Forms ▪ BI Publisher Reports

Product	Supported Technology
Oracle Retail Price Management (RPM)	▪ Database scripts (included with RMS) ▪ Java Application ▪ Batch scripts
Oracle Retail Invoice Matching (ReIM)	▪ Database scripts (included with RMS) ▪ Java Application ▪ Batch scripts
Oracle Retail Allocation	▪ Database scripts (included with RMS) ▪ Java Application ▪ Batch scripts
Oracle Retail Sales Audit (ReSA)	▪ Database scripts (included with RMS) ▪ Java Application
Oracle Retail Insights (RI) Previously called Oracle Retail Analytics (RA)	▪ Database scripts
Oracle Retail Advanced Science Engine (ORASE)	▪ Database scripts ▪ Batch scripts
Oracle Retail Data Extractor (RDE)	▪ Database scripts
Oracle Retail Application Admin Console (ORAAC). Previously called Oracle Retail Application Security Role Manager (RASRM)	▪ Java Application

Patch Concepts

During the lifecycle of an Oracle Retail environment, patches are applied to maintain your system. This maintenance may be necessary to resolve a specific issue, add new functionality, update to the latest patch level, add support for new technologies, or other reasons.

A patch refers to a collection of files to apply to an environment. Patches could be cumulative, such as the 15.0.1 release, or incremental, such as a hot fix for just a few modules. Patches may contain updates for some or all components of a product installation including database, application code, forms, and batch. In a distributed architecture the same patch may need to be applied to multiple systems in order to patch all of the components. For example, if a patch contains both database and application changes, the patch would need to be applied to both the database server and the application server.

The top-level directory for the installation of an Oracle Retail product is referred to as the RETAIL_HOME. Underneath RETAIL_HOME are all of the files related to that product installation, as well as configuration and metadata necessary for the Oracle Retail Patch Assistant to maintain those files. In some cases the runtime application files also exist under RETAIL_HOME. For example, the compiled RMS forms, compiled RMS batch files, or Java Application batch scripts.

Patching Utility Overview

Patches are applied and tracked using utilities that are specifically designed for this purpose. The primary utility is described briefly below and additional information is available in later sections.

Oracle Retail Patch Assistant (ORPatch)

ORPatch is the utility used to apply patches to an Oracle Retail product installation. It is used in the background by the installer when creating a new installation or applying a cumulative patch. It is used directly to apply an incremental patch to an environment.

Oracle Retail Merge Patch (ORMerge)

ORMerge is a utility to allow multiple patches to be combined into a single patch. Applying patches individually may require some steps to be repeated. Merging multiple patches together allows these steps to be run only once. For example, applying several incremental patches to database packages will recompile invalid objects with each patch. Merging the patches into a single patch before applying them will allow invalid objects to be recompiled only once.

Oracle Retail Compile Patch (ORCompile)

ORCompile is a utility to compile components of Oracle Retail products outside of a patch. It allows RMS Forms, RMS Batch, and RWMS Forms to be fully recompiled even if no patch has been applied. It also contains functionality to recompile invalid database objects in product schemas.

Oracle Retail Deploy Patch (ORDeploy)

ORDeploy is a utility to deploy components of Oracle Retail Java products outside of a patch. It allows RPM, ReIM, Allocation and ReSA java applications to be redeployed to WebLogic even if a patch has not been applied. It contains functionality to optionally include or not include Java customizations when redeploying.

Changes with 15.0

Some products and technologies are supported by the enhanced patching process for the first time in 15.0. In those cases all of the content in this chapter is new with 15.0.

Renamed Products

For the 15.0 release several products using Orpatch have been renamed. Oracle Retail Analytics (RA) is renamed to Oracle Retail Insights (RI) and Oracle Retail Application Security Role Manager (RASRM) is renamed to Oracle Retail Application Admin Console (ORAAC). The old product names are still used in the underlying Orpatch code, the Orpatch Action names, the Orpatch env_info.cfg, and the Orpatch wallet paths. Documentation for these products will refer to the new names.

Patching Considerations

Patch Types

Oracle Retail produces two types of patches for their products: cumulative and incremental.

Cumulative Patches

A cumulative patch includes all of the files necessary to patch an environment to a specific level or build a new environment at that level. Examples of cumulative patches would be 15.0.1, 15.0.3, and so on. Cumulative patches come with a standard Oracle Retail installer and so can be applied to an environment with the installer rather than with ORPatch or other utilities.

Incremental Patches

An incremental patch includes only selected files necessary to address a specific issue or add a feature. Examples of incremental patches would be a hot fix for a specific defect. Incremental patches do not include an installer and must be applied with ORPatch.

Incremental Patch Structure

An Oracle Retail incremental patch generally contains several files and one or more subdirectories. The subdirectories contain the contents of the patch, while the individual files contain information about the patch and metadata necessary for patching utilities to correctly apply the patch. The most important files in the top-level directory are the README.txt, the manifest files.

README File

The README.txt file contains information about the incremental patch and how to apply it. This may include manual steps that are necessary before, after or while applying the patch. It will also contain instructions on applying the patch with ORPatch.

Manifest Files

Each patch contains manifest files which contain metadata about the contents of a patch and are used by ORPatch to determine the actions necessary to apply a patch. Patches should generally be run against all installations a product in an environment, and ORPatch will only apply the changes from the patch that are relevant to that installation.

Note: Cumulative patches use a different patch structure because they include a full installer which will run ORPatch automatically.

Version Tracking

The patching infrastructure for 15.0 tracks version information for all files involved with a product installation. The RETAIL_HOME contains files which track the revision of all files within the RETAIL_HOME including batch, forms, database, Java archives and other files. In addition, records of database scripts that have been applied to the product database objects are kept within each database schema.

Apply all Patches with Installer or ORPatch

In order to ensure that environment metadata is accurate all patches must be applied to the Oracle Retail product installation using patching utilities. For cumulative patches this is done automatically by the installer. For incremental patches ORPatch must be used directly. This is especially important if database changes are being applied, in order to ensure that the database-related metadata is kept up-to-date.

Environment Configuration

A configuration file in $RETAIL_HOME/orpatch/config/env_info.cfg is used to define the details of a specific Oracle Retail environment. This file defines:

- The location of critical infrastructure components such as the ORACLE_HOME on a database or middleware server.
- The location of Oracle Wallets to support connecting to the database users.
- The type of file processing which is relevant to a particular host. For example, if this is a host where database work should be done, or a host where batch compilation should be done, a host where Java applications should be deployed, etc. This allows a single database, forms and batch patch to be run against all types of hosts, applying only the relevant pieces on each server.
- Other configuration necessary to determine proper behavior in an environment.

Retained Installation Files

The RETAIL_HOME location of an Oracle Retail product installation contains all of the files associated with that installation. This can include database scripts, Java files, Forms, Batch, RETL and Data Conversion files as with previous versions and also includes all database scripts. This allows objects to be reloaded during patching, including any necessary dependencies.

Reloading Content

In order to ensure that database contents and generated files exactly match patched versions, when applying cumulative patches some content is regenerated even if it does not appear to have changed.

On a cumulative patch this includes:

- All re-runnable database content will be reloaded
  - Packages and Procedures
  - Database Types (excluding RIB objects)
  - Control scripts
  - Triggers
  - WebService jars and packages
  - Form Elements
- All RMS and RWMS forms files will be recompiled
- All RMS batch files will be recompiled

When applying incremental patches, only changed files will be reloaded. However this does not apply to RMS batch, which is fully recompiled with any change.

Java Hotfixes and Cumulative Patches

When applying cumulative patches to Java applications components with ORPatch, all hotfixes related to base product ear files included with the patch will be rolled back. This increases the likelihood of a successful deployment because hotfixes may not be compatible with updated product ear files, or may already be included with the ear. Before applying a cumulative patch to Java applications, check the patch documentation to determine which hotfixes are not included in the ear. Then work with Oracle Support to obtain compatible versions of the fixes for the updated ear version. In some cases this may be the same hotfix, in which case it can be re-applied to the environment. In other cases a new hotfix may be required.

Backups

Before applying a patch to an environment, it is extremely important to take a full backup of both the RETAIL_HOME file system and the Oracle Retail database. Although ORPatch makes backups of files modified during patching, any database changes cannot be reversed. If a patch fails which contains database changes, and cannot be completed, the environment must be restored from backup.

Disk Space

When patches are applied to an environment, the old version of files which are updated or deleted are backed up to $RETAIL_HOME/backups/backup-<timestamp>. When applying large patches, ensure there is sufficient disk space on the system where you unzip the patch or the patching process may fail. Up to twice as much disk space as the unzipped patch may be required during patching.

In addition to backups of source files, the existing compiled RMS or RWMS Forms and RMS Batch files are saved before recompilation. These backups may be created during patches:

- Batch 'lib' directory in $RETAIL_HOME/oracle/lib/bin-<timestamp>
- Batch 'proc' directory in $RETAIL_HOME/oracle/proc/bin-<timestamp>
- Forms 'toolset' directory in $RETAIL_HOME/base/toolset/bin-<timestamp>
- Forms 'forms' directory in $RETAIL_HOME/base/forms/bin-<timestamp>

Periodically both types of backup files can be removed to preserve disk space.

Patching Operations

Running ORPatch

ORPatch is used to apply patches to an Oracle Retail product installation. When applying a patch which includes an installer, ORPatch does not need to be executed manually as the installer will run it automatically as part of the installation process. When applying a patch that does not include an installer, ORPatch is run directly.

ORPatch performs the tasks necessary to apply the patch:

- Inspects the patch metadata to determine the patch contents and patch type.
- Reads the environment configuration file to determine which product components exist in this installation.
- Assembles a list of patch actions which will be run on this host to process the patch.
- Executes pre-checks to validate that all patch actions have the necessary configuration to proceed.
- Compares version numbers of files from the patch against the files in the environment.
- Backs up files which will be updated.
- Copies updated files into the installation.
- Loads updated files into database schemas, if applicable.
- Recompiles RMS batch, if applicable.
- Recompiles RMS forms, if applicable.
- Recompiles RWMS forms, if applicable.
- Constructs updated Java archives and deploys them to WebLogic, if applicable
- Updates Java batch files and libraries, if applicable
- Records the patch in the patch inventory.

If a patch does not contain updated files for the database or system, no action may be taken. If a previously failed ORPatch session is discovered, it will be restarted.

Preparing for Patching

Before applying a patch to your system, it is important to properly prepare the environment.

Single Patching Session

It is extremely important that only a single ORPatch session is active against a product installation at a time. If multiple patches need to be applied, you can optionally merge them into a single patch and apply one patch to the environment. Never apply multiple patches at the same time.

Shutdown Applications

If a patch updates database objects, it is important that all applications are shutdown to ensure no database objects are locked or in use. This is especially important when applying changes to Oracle Retail Integration Bus (RIB) objects as types in use will not be correctly replaced, leading to “ORA-21700: object does not exist or marked for delete” errors when restarting the RIB.

Backup Environment

Before applying a patch to an environment, it is important to take a full backup of both the RETAIL_HOME file system and the retail database. Although ORPatch makes backups of files modified during patching, any database changes cannot be reversed. If a patch which contains database changes fails and cannot be completed, the environment must be restored from backup.

Log Files

When applying a patch, ORPatch will create a number of log files which contain important information about the actions taken during a patch and may contain more information in the event of problems. Log files are created in the $RETAIL_HOME/orpatch/logs directory. Logs should always be reviewed after a patch is applied.

After a patch session the log directory will contain at a minimum an ORPatch log file and may also contain other logs depending on the actions taken. The following table describes logs that may exist.

Log File	Used For
orpatch-<date>-<time>.log	Primary ORPatch log file
detail_logs/dbsql_<component>/invalids/*	Details on the errors causing a database object to be invalid
detail_logs/analyze/details	Detail logs of files that will be created/updated/removed when a patch is applied
detail_logs/compare/details	Detail logs of the differences between two sets of environment metadata
orpatch_forms_<pid>_child_<num>.log	Temporary logs from a child process spawned to compile forms in parallel. After the child process completes, the contents are append to the primary orpatch log file
detail_logs/forms/rms_frm_toolset/*	Detail logs of the compilation of each RMS Toolset file
detail_logs/forms/rms_frm_forms/*	Detail logs of the compilation of each RMS Forms file
detail_logs/rmsbatch/lib/*	Detail logs of the compilation of RMS Batch libraries
detail_logs/rmsbatch/proc/*	Detail logs of the compilation of RMS Batch programs
detail_logs/dbsql_rms/rms_db_ws_consumer_jars/*	Detail logs of the loadjava command to install RMS WebService Consumer objects
detail_logs/dbsql_rms/rms_db_ws_consumer_libs/*	Detail logs of the loadjava command to install RMS WebService Consumer libraries

Log File	Used For
detail_logs/forms/rwms_frm_forms/*	Detail logs of the compilation of each RWMS Forms file
detail_logs/dbsql_rwms/rwms_db_sp _jars/*	Detail logs of the loadjava command to install RWMS SP jars
detail_logs/javaapp_<product>/deploy/*	Detail logs of the deploy of a Java product

Unzip Patch Files

Before executing ORPatch, the patch files must be unzipped into a directory. This directory will be passed to ORPatch as the "-s <source directory>" argument on the command-line when applying or analyzing a patch.

Location of ORPatch

The ORPatch script will be located in $RETAIL_HOME/orpatch/bin.

Command Line Arguments

ORPatch behavior is controlled by several command-line arguments. These arguments may be actions or options. Command and option names can be specified in upper or lower case, and will be converted to upper-case automatically. Arguments to options, for example the source directory patch, will not be modified.

ORPatch command-line actions:

Action	Description
apply	Tells ORPatch to apply a patch, requires the –s option Example: orpatch apply -s $RETAIL_HOME/stage/patch123456
analyze	Tells ORPatch to analyze a patch, requires the –s option Example: orpatch analyze -s $RETAIL_HOME/stage/patch123456
lsinventory	Tells ORPatch to list the inventory of patches that have been applied to this installation
exportmetadata	Tells ORPatch to extract all metadata information from the environment and create a $RETAIL_HOME/support directory to contain it. Requires the –expname option.
diffmetadata	Tells ORPatch to compare all metadata from the current environment with metadata exported from some other environment. Requires the –expname and –srcname options.
revert	Tells ORPatch to revert the files related to a patch, requires the –s option Example: orpatch revert –s $RETAIL_HOME/backups/backup-09302013-153010

Note: An action is required and only one action can be specified at a time.

ORPatch command-line arguments:

Argument	Valid For Actions	Description
-s <source dir>	apply analyze	Specifies where to find the top-level directory of the patch to apply or analyze. The source directory should contain the manifest.csv and patch_info.cfg files.
-new	apply	Forces ORPatch to not attempt to restart a failed ORPatch session
-expname	exportmetadata diffmetadata lsinventory	Defines the top-level name to be used for the export or comparison of environment metadata. When used with lsinventory, it allows an exported inventory to be printed.
-srcname	diffmetadata	Defines the 'name' to use when referring to the current environment during metadata comparisons.
-dbmodules	diffmetadata	When comparing metadata at a module-level, compare the dbmanifest information rather than the environment manifest. This method of comparing metadata is less accurate as it does not include non-database files.
-jarmodules	analyze diffmetadata	When used with analyze, requests a full comparison of the metadata of Java archives included in the patch versus the metadata of the Java archives in the environment. This behavior is automatically enabled when Java customizations are detected in the environment. Analyzing the contents of Java archives allows for detailed investigation of the potential impacts of installing a new Java ear to an environment with customizations. When used with diffmetadata, causes metadata to be compared using jarmanifest information rather than the environment manifest. This provides more detailed information on the exact differences of the content of Java archives, but does not include non-Java files.
-selfonly	apply analyze	Only apply or analyze changes in a patch that relate to orpatch itself. This is useful for applying updates to orpatch without applying the entire patch to an environment.
-s <backup dir>	revert	Specifies the backup from a patch that should be reverted to the environment. This restores only the files modified during the patch, the database must be restored separately or the environment will be out-of-sync and likely unusable.

Analyzing the Impact of a Patch

In some cases, it may be desirable to see a list of the files that will be updated by a patch, particularly if files in the environment have been customized. ORPatch has an 'analyze' mode that will evaluate all files in the patch against the environment and report on the files that will be updated based on the patch.

To run ORPatch in analyze mode, include 'analyze' on the command line. It performs the following actions:

- Identifies files in the environment which the patch would remove.
- Compares version numbers of files in the patch to version numbers of files in the environment.
- Prints a summary of the number of files which would be created, updated or removed.
- Prints an additional list of any files that would be updated which are registered as being customized.
- Prints an additional list of any files which are in the environment and newer than the files included in the patch. These files are considered possible conflicts as the modules in the patch may not be compatible with the newer versions already installed. If you choose to apply the patch the newer versions of modules in the environment will NOT be overwritten.
- If a Java custom file tree is detected, prints a detailed analysis of the modules within Java ear files that differ from the current ear file on the system.
- Saves details of the files that will be impacted in $RETAIL_HOME/orpatch/logs/detail_logs/analyze/details.

This list of files can then be used to assess the impact of a patch on your environment.

To analyze a patch, perform the following steps:

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```
4. Set the JAVA_HOME environment variable if the patch contains Java application files.
   ```
   export JAVA_HOME=/u00/oretail/java_jdk
   ```
   Note: If the JAVA_HOME environment variable is not specified, the value from RETAIL_HOME/orpatch/config/env_info.cfg will be used.
5. Create a staging directory to contain the patch, if it does not already exist.
   ```
   mkdir –p $RETAIL_HOME/stage
   ```
6. Download the patch to the staging directory and unzip it.
7. Execute orpatch to analyze the patch.
   ```
   orpatch analyze -s $RETAIL_HOME/stage/patch123456
   ```
8. Repeat the patch analysis on all servers with installations for this product environment.
9. Evaluate the list(s) of impacted files.

For more information on registering and analyzing customizations, please see the Customization section later in this document.

Applying a Patch

Once the system is prepared for patching, ORPatch can be executed to apply the patch to the environment. The patch may need to be applied to multiple systems if it updates components that are installed on distributed servers.

To apply a patch, perform the following steps:

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```
4. Set the DISPLAY environment variable if the patch contains Forms.
   ```
   export DISPLAY=localhost:10.0
   ```
   Note: If the DISPLAY environment variable is not specified, the value from RETAIL_HOME/orpatch/config/env_info.cfg will be used.
5. Set the JAVA_HOME environment variable if the patch contains Java application files.
   ```
   export JAVA_HOME=/u00/oretail/java_jdk
   ```
   Note: If the JAVA_HOME environment variable is not specified, the value from RETAIL_HOME/orpatch/config/env_info.cfg will be used.
6. Create a staging directory to contain the patch, if it does not already exist.
   ```
   mkdir –p $RETAIL_HOME/stage
   ```
7. Download the patch to the staging directory and unzip it.
8. Review the README.txt included with the patch. If manual steps are specified in the patch, execute those steps at the appropriate time.
9. Shutdown applications.
10. Execute ORPatch to apply the patch.
    ```
    orpatch apply -s $RETAIL_HOME/stage/patch123456
    ```
11. After ORPatch completes, review the log files in $RETAIL_HOME/orpatch/logs.
12. Repeat the patch application on all servers with installations for this product environment.
13. Restart applications.

Restarting ORPatch

If ORPatch is interrupted while applying a patch, or exits with an error, it saves a record of completed work in a restart state file in $RETAIL_HOME/orpatch/logs. Investigate and resolve the problem that caused the failure, then restart ORPatch.

By default when ORPatch is started again, it will restart the patch process close to where it left off. If the patch process should **not** be restarted, add '-new' to the command-line of ORPatch.

Please note that starting a new patch session without completing the prior patch may have serious impacts that result in a patch not being applied correctly. For example, if a patch contains database updates and batch file changes and ORPatch is aborted during the load of database objects, abandoning the patch session will leave batch without the latest changes compiled in the installation.

Listing the Patch Inventory

After a patch is successfully applied by ORPatch the patch inventory in $RETAIL_HOME/orpatch/inventory is updated with a record that the patch was applied. This inventory contains a record of the patches applied, the dates they were applied, the patch type and products impacted.

To list the patch inventory, perform the following steps:

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```
4. Execute orpatch to list the inventory.
   ```
   orpatch lsinventory
   ```

Exporting Environment Metadata

ORPatch functionality is driven based on additional metadata that is stored in the environment to define what version of files are applied to the environment, and which database scripts have been applied to database schemas. This environment metadata is used to analyze the impact of patches to environments and controls what actions are taken during a patch. The metadata is stored in several locations depending on the type of information it tracks and in some cases it may be desirable to extract the metadata for analysis outside of ORPatch. For example, Oracle Support could ask for the metadata to be uploaded to assist them in triaging an application problem.

ORPatch provides a capability to export all of the metadata in an environment into a single directory and to automatically create a zip file of that content for upload or transfer to another system. The exact metadata collected from the environment depends on the products installed in the RETAIL_HOME.

ORPatch metadata exported:

Installed Product Component	Exported Metadata	Description
Any	orpatch/config/env_info.cfg orpatch/config/custom_hooks.cfg ORPatch inventory files	ORPatch configuration and settings
Any	All env_manifest.csv and deleted_env_manifest.csv files	Environment manifest files detailing product files installed, versions, customized flags and which patch provided the file
Database Schemas	DBMANIFEST table contents	Database manifest information detailing which database scripts were run, what version and when they were executed
Java Applications	All files from javaapp_<product>/config except jar files	Environment-specific product configuration files generated during installation

Installed Product Component	Exported Metadata	Description
Java Applications	Combined export of all META-INF/env_manifest.csv files from all product ear files	Jar manifest information detailing files, versions, customized flags and which patch provided the file
Java Applications	orpatch/config/javaapp_<product>/ant.deploy.properties	Environment properties file created during product installation and used during application deployment
Java Applications	<weblogic_home>/server/lib/weblogic.policy	WebLogic server java security manager policy file
RMS Batch	orpatch/config/rmsbatch_profile	Batch compilation shell profile
RMS Forms	orpatch/config/rmsforms_profile	Forms compilation shell profile
RWMS Forms	orpatch/cofngi/rwsmforms_profile	Forms compilation shell profile

Exports of environment metadata are always done to the $RETAIL_HOME/support directory. When exporting metadata, you must specify the –expname argument and define the name that should be given to the export. The name is used for the directory within $RETAIL_HOME/support and for the name of the zip file.

To extract an environment's metadata, perform the following steps:

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```
4. Execute orpatch to export the metadata.
   ```
   orpatch exportmetadata –expname test_env
   ```

This example would export all metadata from the environment to the $RETAIL_HOME/support/test_env directory. A zip file of the metadata would be created in $RETAIL_HOME/support/test_env.zip.

Note: The $RETAIL_HOME/support/<name> directory should be empty or not exist prior to running exportmetadata in order to ensure accurate results.

Comparing Environment Metadata

Once metadata has been exported from an environment, it can be used to compare the environment manifest metadata of two environments. ORPatch provides a capability to compare metadata of the current environment with the exported metadata of another environment. Note that even though there are many types of metadata exported by ORPatch, only environment manifest metadata is evaluated during comparisons. Metadata comparison happens in four phases: product comparison, patch comparison, ORPatch action comparison, and module-level comparison.

Product comparison compares the products installed in one environment with the products installed in another environment. Patch comparison compares the patches applied in one environment with the patches applied in another environment, for common products. This provides the most summarized view of how environments differ. Patches which only apply to products on one environment are not included in the comparison.

Since each patch may impact many files, the comparison then moves on to more detailed analysis. The third phase of comparison is to compare the enabled ORPatch actions between environments. These actions roughly correspond to the installed 'components' of a product. For example, one environment may have database and forms components installed while another has only forms. Action comparison identifies components that are different between environments. The final phase of comparison is at the module level for actions that are common between environments. Modules which exist only on one environment, or exist on both environments with different revisions, or which are flagged as customized are reported during the comparison.

Differences between environment metadata are reported in a summarized fashion during the ORPatch execution. Details of the comparison results are saved in $RETAIL_HOME/orpatch/logs/detail_logs/compare/details. One CSV file is created for each phase of comparison: product_details.csv, patch_details.csv, action_details.csv and module_details.csv.

In order to be compared by ORPatch, exported metadata must be placed in the $RETAIL_HOME/support directory. The metadata should exist in the same structure that it was originally exported in. For example, if the metadata was exported to $RETAIL_HOME/support/test_env on another system, it should be placed in $RETAIL_HOME/support/test_env on this system.

When reporting differences between two environments, ORPatch uses names to refer to the environments. These names are defined as part of the diffmetadata command. The –expname parameter, which defines the directory containing the metadata, is also used as the name when referring to the exported metadata. The –srcname parameter defines the name to use when referring to the current environment. As an example, if you had exported the 'test' environment's metadata and copied it to the 'dev' environment's $RETAIL_HOME/support/test_env directory, you could run "orpatch diffmetadata -expname test_env -srcname dev_env". The detail and summary output would then refer to things that exist on dev but not test, revisions in the test environment versus revisions in the dev environment, etc.

ORPatch will automatically export the environment's current metadata to $RETAIL_HOME/support/compare prior to starting the metadata comparison.

To compare two environment's metadata, perform the following steps:

1. Export the metadata from another environment using orpatch exportmetadata.
2. Transfer the metadata zip from the other system to $RETAIL_HOME/support.
3. Log in as the UNIX user that owns the product installation.
4. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/dev
   ```
5. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```
6. Unzip the metadata zip file.
   ```
   unzip test_env.zip
   ```
7. Execute orpatch to compare the metadata
   ```
   orpatch diffmetadata –expname test_env –srcname dev_env
   ```

This example would compare the current environment against the metadata extracted in $RETAIL_HOME/support/test_env directory.

Note: The $RETAIL_HOME/support/compare directory will be automatically removed before environment metadata is exported at the start of the comparison.

Reverting a Patch

In general it is best to either completely apply a patch, or restore the entire environment from the backup taken before starting the patch. It is important to test patches in test or staging environments before applying to production. In the event of problems, Oracle Retail recommends restoring the environment from backup if a patch is not successful.

Note: Reverting patches in an integrated environment can be extremely complex and there is no fully automated way to revert all changes made by a patch. Restoring the environment from a backup is the recommended method to remove patches.

It is, however, possible to revert small patches using the backups taken by ORPatch during a patch. This will restore only the files modified, and it is still necessary to restore the database if any changes were made to it.

Note: Reverting a patch reverts only the files modified by the patch, and does not modify the database, or recompile forms or batch files after the change.

When multiple patches have been applied to an environment, reverting any patches other than the most recently applied patch is strongly discouraged as this will lead to incompatible or inconsistent versions of modules applied to the environment. If multiple patches are going to be applied sequentially it is recommended to first merge the patches into a single patch that can be applied or reverted in a single operation.

To revert a patch, perform the following steps:

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```
4. Identify the backup directory in $RETAIL_HOME/backups that contains the backup from the patch you want to restore.
   - The backup directory will contain a patch_info.cfg file which contains the name of the patch the backup is from.
   - It is possible to have two directories for the same patch, if ORPatch was updated during the patch. It is not possible to revert the updates to ORPatch. Select the backup directory that does not contain orpatch files.
   - If it is not clear which backup directory to use, restore the environment from backup
5. Execute orpatch to revert the environment using the contents of the backup directory
   ```
   orpatch revert –s $RETAIL_HOME/backups/backup-11232013-152059
   ```
6. Restore the database from backup if the patch made database changes
7. Use the orcompile script to recompile forms if the patch included RMS or RWMS forms files

```
orcompile –a RMS –t FORMS
orcompile –a RWMS –t FORMS
```

8. Use the orcompile script to recompile batch if the patch included RMS batch files

```
orcompile –a RMS –t BATCH
```

9. Use the ordeploy script to redeploy the appropriate Java applications if the patch included Java files

```
ordeploy –a RPM –t JAVA
ordeploy –a REIM –t JAVA
ordeploy –a ALLOC –t JAVA
ordeploy –a RESA –t JAVA
```

Merging Patches

When patches are applied individually some ORPatch tasks such as compiling forms and batch files or deploying Java archives are performed separately for each patch. This can be time-consuming. An alternative is to use the ORMerge utility to combine several patches into a single patch, reducing application downtime by eliminating tasks that would otherwise be performed multiple times. Patches merged with ORMerge are applied with ORPatch after the merge patch is created.

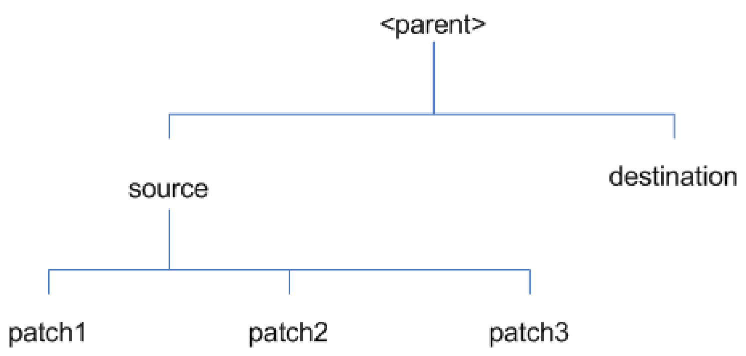
Source and Destination Directories

ORMerge uses source and destination areas in order to merge patch files. The source area is a single directory that contains the extracted patches to merge. The destination area is the location where the merged patch will be created. If a file exists in one or more source patches, only the highest revision will be copied to the merged patch.

The source and destination directories should exist under the same parent directory. That is, both the source and destination directories should be subdirectories of a single top-level directory.

The source directory must have all patches to be merged as immediate child directories. For example if three patches need to be merged the directory structure would look like this:

Source and Destination Directory Example



In the example above, the manifest.csv and patch_info.cfg files for each patch to be merged must exist in source/patch1, source/patch2, and source/patch3.

ORMerge Command-line Arguments

Argument	Required	Description
-s	Yes	Path to source directory containing patches to merge
-d	Yes	Path to destination directory that will contain merged patch
-name	No	The name to give the merged patch. If not specified, a name will be generated. When the merged patch is applied to a system, this name will appear in the Oracle Retail patch inventory.
-inplace	No	Used only when applying a patch to installation files prior to the first installation. See "Patching prior to the first install" in the Troubleshooting section later, for more information.

Running the ORMerge Utility

To merge patches, perform the following steps:

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```
4. Create a staging directory to contain the patches.
   ```
   mkdir –p $RETAIL_HOME/stage/merge/src
   ```
5. Download the patches to the staging directory and unzip them so that each patch is in a separate subdirectory.
6. Review the README.txt included with each patch to identify additional manual steps that may be required. If manual steps are specified in any patch, execute them at the appropriate time when applying the merged patch.
7. Create a destination directory to contain the merged patches.
   ```
   mkdir -p $RETAIL_HOME/stage/merge/dest
   ```
8. Execute ORMerge to merge the patches.
   ```
   ormerge -s $RETAIL_HOME/stage/merge/src –d $RETAIL_HOME/stage/merge/dest –name
   merged_patch
   ```

The merged patch can now be applied as a single patch to the product installation using ORPatch.

Compiling Application Components

In some cases it may be desirable to recompile RMS Forms, RWMS Forms or RMS Batch outside of a product patch. The ORCompile utility is designed to make this easy and remove the need to manually execute 'make' or 'frmcmp' commands which can be error-prone. ORCompile leverages ORPatch functions to ensure that it compiles forms and batch exactly the same way as ORPatch. In addition ORCompile offers an option to compile invalid database objects using ORPatch logic.

ORCompile takes two required command line arguments each of which take an option. Arguments and options can be specified in upper or lower case.

ORCompile Command Line Arguments

Argument	Description
-a <app>	The application to compile.
-t <type>	The type of application objects to compile

ORCompile Argument Options

Application	Type	Description
RMS	BATCH	Compile RMS Batch programs
RMS	FORMS	Compile RMS Forms
RWMS	FORMS	Compile RWMS Forms
RMS	DB	Compile invalid database objects in the primary RMS schema
RMS	DB-ASYNC	Compile invalid database objects in the RMS_ASYNC_USER schema
ALLOC	DB-ALC	Compile invalid database objects in the Allocations user schema
ALLOC	DB-RMS	Compile invalid database objects in the RMS schema
REIM	DB	Compile invalid database objects in the RMS schema
RME	DB	Compile invalid database objects in the RME schema
ASO	DB	Compile invalid database objects in the ASO schema
RI	DB-DM	Compile invalid database objects in the RI DM schema
RI	DB-RIBATCH	Compile invalid database objects in the RI batch schema
RI	DB-RMSBATCH	Compile invalid database objects in the RI RMS batch schema
RI	DB-FEDM	Compile invalid database objects in the RI front-end schema
RDE	DB-DM	Compile invalid database objects in the RDE DM schema
RDE	DB-RDEBATCH	Compile invalid database objects in the RDE batch schema
RDE	DB-RMSBATCH	Compile invalid database objects in the RDE RMS batch schema

Note: Compiling RMS type DB, ReIM type DB, and Allocation type DB-RMS, are all identical as they attempt to compile all invalid objects residing in the RMS schema.

Running the ORCompile utility

To compile files, perform the following steps:

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```

4. Execute orcompile to compile the desired type of files.
   ```
   orcompile –a <app> -t <type>
   ```

ORCompile Examples

Compile RMS Batch.

```
orcompile -a RMS -t BATCH
```

Compile RWMS Forms.

```
orcompile -a RWMS -t FORMS
```

Compile invalid objects in the RA DM schema.

```
orcompile -a RI -t DB-DM
```

Compile invalid objects in the RMS owning schema.

```
orcompile -a RMS -t DB
```

Deploying Application Components

In some cases it may be desirable to redeploy Java applications outside of a product patch. For example, when troubleshooting a problem, or verifying the operation of the application with different WebLogic settings. Another situation might include wanting to deploy the application using the same settings, but without customizations to isolate behavior that could be related to customized functionality.

The ordeploy utility is designed to make this easy and remove the need to re-execute the entire product installer when no configuration needs to change. ORDeploy leverages Oracle Retail Patch Assistant functions to ensure that it deploys applications exactly the same way as ORPatch. In addition ORDeploy offers an option to include or not include custom Java files, to ease troubleshooting.

ORDeploy takes two required command line arguments each of which take an option. Arguments and options can be specified in upper or lower case.

ORDeploy Command Line Arguments

Argument	Description
-a <app>	The application to deploy.
-t <type>	The type of application objects to deploy

ORDeploy Argument Options

Application	Type	Description
ALLOC	JAVA	Deploy the Allocations Java application and Java batch files, including any custom Java files.
ALLOC	JAVANOCUSTOM	Deploy the Allocations Java application and Java batch files, **NOT** including any custom Java files.
REIM	JAVA	Deploy the REIM Java application and Java batch files, including any custom Java files.
REIM	JAVANOCUSTOM	Deploy the REIM Java application and Java batch files, **NOT** including any custom Java files.

Application	Type	Description
RESA	JAVA	Deploy the RESA Java application, including any custom Java files.
RESA	JAVANOCUSTOM	Deploy the RESA Java application, **NOT** including any custom Java files.
RPM	JAVA	Deploy the RPM Java application and Java batch files, including any custom Java files.
RPM	JAVANOCUSTOM	Deploy the RPM Java application and Java batch files, **NOT** including any custom Java files.

Running the ORDeploy utility

To deploy Java applications, perform the following steps:

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```
4. Execute ORDeploy to deploy the desired Java application.
   ```
   ordeploy –a <app> -t <type>
   ```

ORDeploy Examples

Deploy RPM.

```
ordeploy -a RPM -t JAVA
```

Deploy ReIM without including Java customizations.

```
ordeploy -a REIM -t JAVANOCUSTOM
```

Maintenance Considerations

The additional information stored within the RETAIL_HOME and within database schemas adds some considerations when performing maintenance on your environment.

Database Password Changes

Oracle wallets are used to protect the password credentials for connecting to database schemas. This includes all database schemas used during an install. If the password for any of these users is changed the wallet's entry must be updated.

The wallet location is configurable but by default is in the following locations:

Location	Installation Type
$RETAIL_HOME/orpatch/rms_wallet	RMS Database RMS Batch
$RETAIL_HOME/orpatch/rms_wallet_app	RMS Forms
$RETAIL_HOME/orpatch/rwms_wallet	RWMS Database
$RETAIL_HOME/orpatch/rwms_wallet_app	RWMS Forms
$RETAIL_HOME/orpatch/oraso_wallet	ASO Database

Location	Installation Type
$RETAIL_HOME/orpatch/orme_wallet	RME Database
$RETAIL_HOME/orpatch/ra_wallet	RI (Previously RA) Database
$RETAIL_HOME/orpatch/rde_wallet	RDE Database

The wallet alias for each schema will be <username>_<dbname>. Standard mkstore commands can be used to update the password.

For example:

```
mkstore -wrl $RETAIL_HOME/orpatch/rms_wallet –modifyCredential rms_rmsdb rms01
rmspassword
```

This command will update the password for the RMS01 user to 'rmspassword' in the alias 'rms_rmsdb'.

The Oracle wallets are required to be present when executing ORPatch. Removing them will prevent you from being able to run ORPatch successfully. In addition the Oracle wallet location is referenced in the RMS batch.profile, and in the default RMS and RWMS Forms URL configuration, so removing them will require reconfiguration of batch and forms. If batch and forms were reconfigured after installation to use other wallet files, it is possible to backup and remove the wallets, then restore them when running ORPatch.

WebLogic Password Changes

Java wallets are used to protect the password credentials used when deploying Java products. This includes the WebLogic administrator credentials, LDAP connection credentials, batch user credentials and any other credentials used during an install. If the password for any of these users is changed the wallet's entry must be updated, or the Java product installation can be run again.

The wallet location is in the following locations:

Location	Installation Type
$RETAIL_HOME/orpatch/config/javapp_rpm	RPM Java
$RETAIL_HOME/orpatch/config/javapp_reim	ReIM Java
$RETAIL_HOME/orpatch/config/javapp_alloc	Allocation Java
$RETAIL_HOME/orpatch/config/javapp_resa	RESA Java
$RETAIL_HOME/orpatch/config/javaapp_rasrm	ORAAC (Previously RASRM) Java

The wallet aliases will be stored in the retail_installer partition. The names of the aliases will vary depending on what was entered during initial product installation.

The dump_credentials.sh script can be used to list the aliases in the wallet.

For example:

```
cd $RETAIL_HOME/orpatch/deploy/retail-public-security-api/bin
./dump_credentials.sh $RETAIL_HOME/orpatch/config/javapp_alloc

Apapplication level key partition name:retail_installer
User Name Alias:dsallocAlias User Name:rms01app
User Name Alias:BATCH-ALIAS User Name:SYSTEM_ADMINISTRATOR
User Name Alias:wlsAlias User Name:weblogic
```

The easiest way to update the credential information is to re-run the Java product installer. If you need to manually update the password for a credential, the save_credential.sh script can be used.

For example:

```
cd $RETAIL_HOME/orpatch/deploy/retail-public-security-api/bin
./save_credential.sh –l $RETAIL_HOME/orpatch/config/javapp_alloc –p
retail_installer –a wlsAlias –u weblogic
```

This command will prompt for the new password twice and update the aslias wlsAlias, username weblogic with the new password.

Infrastructure Directory Changes

The RETAIL_HOME/orpatch/config/env_info.cfg file contains the path to the database ORACLE_HOME on database or RMS Batch installations, to the WebLogic Forms and Reports ORACLE_HOME and ORACLE_INSTANCE on RMS or RWMS Forms installations, and to the WEBLOGIC_DOMAIN_HOME, WL_HOME and MW_HOME on Java product installations. If these paths change, the related configuration variables in the env_info.cfg file must be updated.

DBManifest Table

The table dbmanifest within Oracle Retail database schemas is used to track the database scripts which have been applied to the schema. It is critical not to drop or truncate this table. Without it, ORPatch will attempt to re-run scripts against the database which have already been applied which can destroy a working environment. Similarly, if copying a schema from one database to another database, ensure that the dbmanifest table is preserved during the copy.

RETAIL_HOME relationship to Database and Application Server

The RETAIL_HOME associated with an Oracle Retail product installation is critical due to the additional metadata and historical information contained within it. If a database or application installation is moved or copied, the RETAIL_HOME related to it should be copied or moved at the same time.

Jar Signing Configuration Maintenance

The RPM product installation includes an option to configure a code signing certificate so that jar files modified during installation or patching are automatically re-signed. This configuration is optional, but recommended. If it is configured, the code signing keystore is copied during installation to $RETAIL_HOME/orpatch/config/jarsign/orpkeystore.jks. The keystore password and private key password are stored in a Java wallet in the $RETAIL_HOME/orpatch/config/jarsign directory. The credentials are stored in a wallet partition called orpatch:

Alias	Username	Description
storepass	discard	Password for the keystore
keypass	discard	Password for the private key

The keystore file and passwords can be updated using the product installer. This is the recommended way to update the signing configuration.

If only the credentials need to be updated, the sign_jar.sh script can be used.

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your installation.

   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Change directories to the location of sign_jar.sh

   ```
   cd $RETAIL_HOME/orpatch/deploy/bin
   ```
4. Execute sign_jar.sh

   ```
   sign_jar.sh changepwd
   ```
5. When prompted, enter the new keystore password
6. When prompted, enter the new private key password

Customization

Patching Considerations with Customized Files and Objects

In general, the additional capabilities provided by the ORPatch should make it easier to evaluate the potential impacts of patches to your customizations of Oracle Retail products. However, the additional metadata maintained by the Oracle Retail patching utilities does add some considerations when making customizations.

General Guidelines

It is always preferred to customize applications by extension rather than by direct modification. For example, adding new database objects and forms rather than modifying existing Oracle Retail objects and forms. You can also leverage built-in extension points such as User Defined Attributes, the Custom Flexible Attribute Solution, or seeded customization points in ADF Applications.

It is strongly discouraged to directly modify Oracle Retail database objects, especially tables, as your changes may be lost during patching or may conflict with future updates. When adding or modifying database objects, Oracle Retail recommends that all objects be added with scripts to ensure that they can be rebuilt if necessary after a patch.

Custom Database Objects

When you create new database objects, Oracle Retail recommends placing them in an Oracle database schema specifically for your customizations. You must use synonyms and grants to allow the Oracle Retail product schema owner and other users to access your objects, and use synonyms and grants to allow your customizations to access Oracle Retail objects. A separate schema will ensure that your customizations are segregated from base Oracle Retail code.

ORPatch expects that there will be no invalid objects in the database schemas it manages after a patch is applied. For this reason adding extra objects to the product schema could result in failures to apply patches as changes to base objects may cause custom objects to go invalid until they are updated. In this situation, manually update the custom objects so that they compile, and restart the patch.

Custom Forms

When creating new custom forms, Oracle Retail recommends placing them in a separate directory specifically for your customizations. This directory should be added to the FORMS_PATH of your RMS or RWMS Forms URL configuration to allow the forms to be found by the Forms Server. This will ensure that your customizations are segregated from base Oracle Retail code. If you choose to place customizations in the Forms bin directory, then your custom forms will need to be recopied each time Forms are fully recompiled.

ADF Application Customization

Oracle Retail ADF-based applications such as Allocation and ReSA can be customized using a process called 'seeded customization'. The customization process involves using JDeveloper in Customizer mode to create changes to product configurations, and then building a MAR archive containing the changes. The generated MAR is deployed to the MDS repository used by the application and applied to the application at runtime. These types of customizations are handled outside of ORPatch and are not reported during patch analysis or tracked by the custom file registration utility. More information can be found in the respective product customization guides.

Custom Compiled Java Code

When customizing Oracle Retail Java-based products such as RPM and ReIM via product source code, ORPatch supports automatically adding compiled customizations into the application ear file prior to deployment. This allows customizations to be applied to the application without directly modifying the base product ear, enabling customizations and defect hotfixes to co-exist when they do not change the same file or a dependent file. See the later "Custom Compiled Java Code" section for additional information and considerations.

Analyze Patches when Customizations are Present

Whenever you have customized a product by directly modifying Oracle Retail files or database objects, it is important to ensure you analyze each the files that will be updated by a patch before applying the patch. This will allow you to identify any customized files which may be overwritten by the patch and either merge your customization with the new version of the file, or re-apply the customization after applying the patch.

Manifest Updates

If you choose to customize Oracle Retail files directly, it is extremely important **not** to update the revision number contained in the env_manifest.csv. This could cause future updates to the file to be skipped, invalidating later patch applications as only a partial patch would be applied. The customized revision number for modified files will need to be tracked separately.

Registering Customized Files

The ORPatch contains utilities and functionality to allow tracking of files that have been customized through direct modification. This process is referred to as 'registering' a customized file. Registration only works for files which are shipped by Oracle Retail. It is not possible to register new files created in the environment as part of extensions or customizations.

When patches are analyzed with ORPatch, special reporting is provided if any registered files would be updated or deleted by the patch. Customized files impacted by the patch are listed at the end of the analysis report from ORPatch. The detail files generated during the analyze will contain a column called 'customized' which will have a Y for any files which were registered as customized. This allows easier identification of customizations which will be overwritten by a patch.

All files delivered by Oracle Retail are considered 'base' and so when they are applied to an environment any registrations of those files as customized will revert back to un-customized. **Each time a patch overwrites customized files, you must re-register the files as customized once you have applied customizations.**

To register customized files, use the $RETAIL_HOME/orpatch/bin/orcustomreg script.

The orcustomerg script operates in one of two modes: registration and list.

- Registration mode registers or unregisters one or more files as customized.
- List mode lists all files in the environment that are registered as customized.

Command Line Arguments for Registration Mode

Argument	Description
-f <file>	Adds <file> to the list of files that will be registered. Can be specified more than once.

Argument	Description
-bulk <file>	Specifies a file to read, containing one filename per line. All filenames listed inside <file> will be registered.
-register	Files specified with -f or -bulk will be registered as 'customized'
-unregister	Files specified with -f or -bulk will be registered as 'base'

Notes:

- At least one of -f or -bulk is required.
- If neither -register nor -unregister is specified, the default is '-register'.
- File names specified with -f must either be fully-qualified or be relative to RETAIL_HOME. The same is true for filenames specified within a -bulk file.

Command Line arguments for list mode

Argument	Description
-list	List all files in the environment registered as customized

Running the orcustomreg Script

Perform the following procedure to run the orcustomreg script:

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```
4. Execute orcustomreg script to register the desired file(s).
   ```
   orcustomreg –register –f <file>
   ```

Examples of using the orcustomreg Script

Register $RETAIL_HOME/dbsql_rms/Cross_Pillar/control_scripts/source/oga.sql as customized.

```
orcustomreg -f dbsql_rms/Cross_Pillar/control_scripts/source/oga.sql
```

Unregister customizations for $RETAIL_HOME/dbsql_rwms/Triggers/Source/TR_WAVE.trg

```
orcustomreg –unregister –f $RETAIL_HOME/dbsql_rwms/Triggers/Source/TR_WAVE.trg
```

Bulk register several files as customized.

```
echo "$RETAIL_HOME/oracle/proc/src/mrt.pc" > custom.txt
echo "$RETAIL_HOME/oracle/proc/src/saldly.pc" >> custom.txt
echo "$RETAIL_HOME/oracle/proc/src/ccprg.pc" >> custom.txt
orcustomreg –bulk custom.txt
```

List all files registered as customized.

```
orcustomreg –list
```

Custom Compiled Java Code

When customizing Oracle Retail Java-based products such as RPM and ReIM via product source code, ORPatch supports automatically adding compiled customizations into the application ear file prior to deployment. This allows customizations to be applied to the application without directly modifying the base product ear, enabling customizations and defect hotfixes to co-exist when they do not change the same file or a dependent file

This functionality is enabled by creating a directory called $RETAIL_HOME/javaapp_<app>/custom, where <app> is the application the customizations apply to. Files stored within this directory will be combined with the base product ear files before the application is deployed to WebLogic. ORPatch will attempt to consider customizations stored within the 'custom' directory during patch analysis by triggering more detailed ear file change analysis to assist with identifying which customizations might be impacted by changes in the patches.

> **Note:** It is not possible, nor necessary, to register compiled Java customizations with the orcustomreg tool.

As with other customization techniques for other technologies, Oracle Retail recommends making Java customizations in new files as much as possible, versus overwriting base product or configuration files. In the past it was necessary to build complete replacement product ear files, but this method of customization is no longer required nor recommended. Replacement ear and jar files will not contain the META-INF/env_manifest.csv files which are required in order to be able to apply incremental patches. Instead, compile the specific Java classes being customized and place them along with any custom configuration files in $RETAIL_HOME/javaapp_<app>/custom.

Building Deployable ear files

When constructing the product ear file to deploy to WebLogic, ORPatch applies changes to the ear file in a specific order, with files from later steps overwriting files in earlier steps. The resulting ear is stored in $RETAIL_HOME/javaapp_<app>/deploy, and then deployed to WebLogic.

Sequence for ORPatch Java Product ear file updates

Order	File Type	Location
1	Base product ear	$RETAIL_HOME/javaapp_<app>/base
2	Updated configuration files	$RETAIL_HOME/javaapp_<app>/config
3	Oracle Retail-supplied hotfixes	$RETAIL_HOME/javaapp_<app>/internal
4	Compiled customizations	$RETAIL_HOME/javaapp_<app>/custom

Merging Custom Files

When merging files from the custom directory with the product ear, ORPatch uses the directory path of the files within custom to calculate where the file should be stored within the ear. This allows arbitrary nesting of files, even when placing files within jars stored in jars, stored within the ear. The following examples below use RPM, but apply to adding compiled customizations to any Java-based product.

Custom directory location and product ear location Examples

File path within javaapp_<app>/custom/	Final Ear File Location
rpm.ear/company/ui/MyCustom.class	In rpm.ear: /company/ui/MyCustom.class
rpm.ear/rpm.jar/company/bc/MyCustom2.class	In rpm.ear: In rpm.jar: /company/bc/MyCustom2.class
rpm.ear/lib/ourcustomlibs.jar	In rpm.ear /lib/ourcustomlibs.jar
rpm.ear/WebLaunchServlet.war/lib/ rpm.jar/company/bc/MyCustom2.class	In rpm.ear: In WebLaunchServlet.war: In lib/rpm.jar: /company/bc/MyCustom2.class

Analyzing patches when customizations are present

When analyzing a patch which contains a base product ear and the custom directory contains files, ORPatch will automatically trigger a more detailed analysis of the changes coming in a patch. This includes calculating what files inside the product ear have been added, removed or updated and which files appear to be customized based on the contents of the 'custom' directory. The detailed results of the ear file comparison during patch analysis will be saved in javaapp_<app>_archive_compare_details.csv. Any custom files which appeared to be impacted by the patch are saved in javapp_<app>_archive_custom_impacts.csv. Both files will be in the $RETAIL_HOME/orpatch/logs/detail_logs/analyze/details directory.

Note: This detailed analysis is not available when analyzing individual hotfixes, so special care must be taken when applying hotfixes to a customized product installation, to ensure there are no conflicts between customizations and hotfix changes.

Customizations and cumulative patches

By default, when applying a cumulative patch, ORPatch will not include customizations in the deployed product ear, even if they are present in the appropriate directory. This allows verification that the application is functioning properly using base code, before applying customizations. After verifying the initial deployment, use ORDeploy with the "-t JAVA" option to construct and deploy the product ear including customizations.

If customizations need to be removed outside of a patch, use ORDeploy with the "-t JAVANOCUSTOM" option to create and deploy an ear containing only Oracle Retail code. To force ORPatch to include customizations in the deployed ear even when applying a cumulative patch, set JAVAAPP_<app>_INCLUDE_CUSTOM=Y in the $RETAIL_HOME/orpatch/config/env_info.cfg file.

Changing configuration files

It is possible to directly change product configuration files in $RETAIL_HOME/javaapp_<app>/config. These updates can be deployed to the environment using the ORDeploy utility. However, the 'config' directory is completely recreated each time the product installer is used. This means that modifications will be lost and must be manually reapplied after each installer run. It is recommended to make configuration changes via the installer where possible, and retain the ant.install.properties file for use in later installer sessions.

Extending Oracle Retail Patch Assistant with Custom Hooks

The default ORPatch actions and processing logic is sufficient to install and patch the base Oracle Retail product code. However there may be situations where custom processing is desired during patching activities such as executing a shell script prior to the start of patching, or running a SQL script at the end of the patch.

ORPatch supports extensions in the form of custom hooks. These hooks allow external scripts to be run at specific points during ORPatch processing.

ORPatch Processing

Action

ORPatch supports a variety of 'actions' which define the steps necessary to apply updates to a particular area of the Oracle Retail application. Each action is generally specific to updates to a single technology or logical component of the environment. For example, one action might handle making updates to the RMS database schema, while a separate action is responsible for compiling RWMS forms, and a different action deploys the RPM Java application. These actions are enabled and disabled within the environment configuration file, allowing ORPatch to determine what types of changes to apply to each product installation.

ORPatch Actions

Order	Action Name	Description
1	DBSQL_RMS	Loads RMS and RPM database objects into the primary RMS schema
2	DBSQL_RMSASYNC	Loads database objects into the RMS_ASYNC_USER schema
3	DBSQL_RAF	Loads Retail Application Framework database objects into the RMS schema
4	DBSQL_REIM	Loads ReIM database objects into the RMS schema
5	DBSQL_ALCRMS	Loads Allocation database objects into the RMS schema
6	DBSQL_ALLOC	Loads Allocation database objects into the Allocation user schema
7	DBSQL_RMSDEMO	Used to create demo data in the RMS schema if demo data was selected during initial installation
8	DBSQL_RMSDAS	Loads database objects into the RMS Data Access Schema
9	RMSBATCH	Compiles RMS Batch
10	ORAFORMS_RMS	Compiles RMS Forms, copies RMS reports to $RETAIL_HOME
11	RMSRETLSCRIPTS	Copies Oracle Retail Extract and Load scripts for RMS
12	RMSDCSCRIPTS	Copies Oracle Retail Merchandising System data conversion scripts

Order	Action Name	Description
13	DBSQL_RWMS	Loads database objects into the primary RWMS schema
14	DBSQL_RWMSADF	Loads database objects into the RWMS ADF user schema
15	DBSQL_RWMSUSER	Loads database objects into the RWMS user schema
16	ORAFORMS_RWMS	Compiles RWMS Forms, copies RWMS batch scripts and reports to $RETAIL_HOME
17	JAVAAPP_RPM	Deploys the RPM Java application and batch scripts
18	JAVAAPP_REIM	Deploys the REIM Java application and batch scripts
19	JAVAAPP_ALLOC	Deploys the Allocation Java application and batch scripts
20	JAVAAPP_RESA	Deploys the ReSA Java application
21	JAVAAPP_RASRM	Deploys the ORAAC (previously called RASRM) Java application
22	DBSQL_RARMSBATCH	Loads database objects into the RMS Batch schema for RI (previously called RA)
23	DBSQL_RADM	Loads database objects into the RI (previously called RA) Data Mart schema
24	DBSQL_RAFEDM	Loads database objects into the RI (previously called RA) Front-end schema
25	DBSQL_RABATCH	Loads database objects into the RI (previously called RA) Batch schema
26	DBSQL_RDERMSBATCH	Loads database objects into the RMS Batch schema for RDE
27	DBSQL_RDEDM	Loads database objects into the RDE Data Mart schema
28	DBSQL_RDEBATCH	Loads database objects into the RDE Batch schema
29	DBSQL_RASECORE	Loads core database objects into the ORASE schema
30	DBSQL_RASEASO	Loads ASO database objects into the ORASE schema
31	DBSQL_RASECDT	Loads CDT database objects into the ORASE schema
32	DBSQL_RASECIS	Loads CIS database objects into the ORASE schema
33	DBSQL_RASEDT	Loads DT database objects into the ORASE schema
34	DBSQL_RASEMBA	Loads MBA database objects into the ORASE schema
35	RASECOREBATCH	Copies ORASE core batch scripts and libraries
36	RASEASOBATCH	Copies ORASE ASO batch scripts and libraries
37	RASECDTBATCH	Copies ORASE CDT batch scripts and libraries
38	RASECISBATCH	Copies ORASE CIS batch scripts and libraries
39	RASEDTBATCH	Copies ORASE DT batch scripts and libraries
40	RASEMBABATCH	Copies ORASE MBA batch scripts and libraries

Phase

ORPatch processes patches in phases. Each action relevant to a patch and host is provided an opportunity to process the patch for each phase. The standard phases which allow hooks are:

Restart Phase Number	Phase Name	Description
N/A	PRECHECK	Actions verify that their configuration appears complete and correct. This phase and the associated hooks will be run every time orpatch is executed, even if processing will be restarted in a later phase.
10	PREACTION	Actions do processing prior to when files are copied to the environment. Files are deleted during this phase.
20	COPYPATCH	Actions copy files included in a patch into the destination environment and the environment manifest is updated.
30	PATCHACTION	Actions take the more detailed steps necessary to apply the new files to the environment. For database actions in particular, this is the phase when new and updated sql files are loaded into the database.
40	POSTACTION	Actions do processing after files have been copied and PatchActions are completed. The Forms actions, for example, use this phase to compile the forms files as this must happen after database packages are loaded.
50	CLEANUP	Actions do any additional processing. Currently no actions implement activities in this phase.

Configuring Custom Hooks

Custom hooks are configured in a configuration file RETAIL_HOME/orpatch/config/custom_hooks.cfg. The configuration file is a simple text file where blank lines and lines starting with # are ignored and all other lines should define a custom hook.

To define a custom hook, a line is added to the file in the form:

```
<hook name>=<fully qualified script>
```

The hook name must be in upper case and is in the form:

```
<action name>_<phase name>_<sequence>
```

The action name is any action name understood by ORPatch. The phase name is one of the five phase names from the table above. The sequence is either 'START' or 'END'. Hooks defined with a sequence of 'START' are run before the action's phase is invoked. Hooks defined with a sequence of 'END' are run after the action's phase is invoked.

Multiple scripts can be associated with a single hook by separating the script names with a comma. If a hook name appears in the configuration file multiple times only the last entry will be used.

The script defined as a custom hook must be an executable shell script that does not take any arguments or inputs. The only environment variable that is guaranteed to be passed to the custom hook is RETAIL_HOME. The script must return 0 on success and non-zero on failure.

If an action is a DBSQL action (i.e. has a name like DBSQL_), the custom hook can optionally be a .sql file. In this case the SQL script will be run against the database schema that the DBSQL action normally executes against. The SQL script must not generate any ORA- or SP2- errors on success. In order to be treated as a database script, the extension of the file defined as the custom hook must be .sql in lower-case. Any other extension will be treated as if it is a shell script. If you have database scripts with different extensions, they must be renamed or wrapped in a .sql script.

When using the PRECHECK phase and START sequence, please note that the custom hook will be executed prior to any verification of the configuration. Invalid configuration, such as invalid database username/password or a non-existent ORACLE_HOME, may cause the custom hook to fail depending on the actions it tries to take. However in these cases, the normal orpatch PRECHECK activities would likely have failed as well. All that is lost is the additional context that orpatch would have provided about what was incorrect about the configuration.

Restarting with Custom Hooks

If a custom hook fails, for example a shell script hook returns non-zero or a sql script generates an ORA- error in its output, the custom hook will be treated as failing. A failing custom hook causes ORPatch to immediately stop the patching session.

When ORPatch is restarted it always restarts with the same phase and action, including any START sequence custom hooks. If the START sequence custom hook fails, the action’s phase is never executed. With an END sequence custom hook, the action’s phase is re-executed when ORPatch is restarted and then the custom hook is re-executed. When an action’s phase is costly, for example the DBSQL_RMS action which does a lot of work, this can mean a lot of duplicate processing.

For this reason it is preferred to use START sequence custom hooks whenever possible. If necessary, use a START sequence hook on a later phase or a later action, rather than an END sequence custom hook.

Patch-level Custom Hooks

In addition to action-specific hooks, there are two patch-level hook points available. These hooks allow scripts to be run before any patching activities start and after all patching activities are completed. The hooks are defined in the same configuration file, with a special hook name.

To run a script before patching, define:

```
ORPATCH_PATCH_START=<fully qualified script>
```

To run a script after patching, define:

```
ORPATCH_PATCH_END=<fully qualified script>
```

These hooks only support executing shell scripts, database scripts must be wrapped in a shell script. It is also important to note that these hooks are run on every execution of ORPatch to apply a patch, even when restarting a patch application. If the START sequence patch-level hook returns a failure, patching is aborted. If the END sequence patch-level hook returns a failure, it is logged but ignored as all patching activities have already completed.

Please note that the ORPATCH_PATCH_START hook is executed prior to any verification of the configuration. Invalid configuration may cause the custom hook to fail depending on the actions it tries to take. However in these cases, the normal ORPatchactivities would likely fail as well.

Example Custom Hook Definitions

A shell script that is executed prior to the Pre-Action phase of RMS Batch:

```
RMSBATCH_PREACTION_START=/u00/oretail/prepare_custom_header.sh
```

A shell script that is executed after RETL script files are copied into the RETAIL_HOME:

```
RETLSCRIPTS_COPYPATCH_END=/u00/oretail/copy_custom_files.sh
```

A SQL script that is executed against the RWMS owning schema at the start of the Clean-up Phase:

```
DBSQL_RWMS_CLEANUP_START=/dba/sql/recompile_synonyms.sql
```

Troubleshooting Patching

There is not a general method for determining the cause of a patching failure. It is important to ensure that patches are thoroughly tested in a test or staging system several times prior to attempting to apply the patch to a production system, particularly if the patch is a large cumulative patch. After the test application is successful, apply the patch to the production system.

ORPatch Log Files

ORPatch records extensive information about the activities during a patch to the log files in RETAIL_HOME/orpatch/logs. This includes a summary of the actions that are planned for a patch, information about all files that were updated by the patch, and detailed information about subsequent processing of those files. The ORPatch log files also contain timestamps to assist in correlating log entries with other logs.

Even more detailed logs are available in RETAIL_HOME/orpatch/logs/detail_logs for some activities such as forms compilation, invalid database object errors, and output from custom hooks. If the standard ORPatch log information is not sufficient, it might be helpful to check the detailed log if it exists.

Restarting ORPatch

The restart mechanism in ORPatch is designed to be safe in nearly any situation. In some cases to ensure this, a portion of work may be redone. If the failure was caused by an intermittent issue that has been resolved, restarting ORPatch may be sufficient to allow the patch to proceed.

Manual DBManifest Updates

A possible cause for database change script failures is that a database change was already made manually to the database. In this event, you may need to update the dbmanifest table to record that a specific script does not need to be run. Before doing this, it is extremely important to ensure that all statements contained in the script have been completed.

Use the $RETAIL_HOME/orpatch/bin/ordbmreg script to register database scripts in the dbmanifest table.

Command Line Arguments for ordbmreg

Argument	Description
-f <file>	Adds <file> to the list of files that will be registered. Can be specified more than once.
-bulk <file>	Specifies a file to read, containing one filename per line. All filenames listed inside <file> will be registered.
-register	Files specified with -f or -bulk will be registered in the dbmanifest table
-unregister	Files specified with -f or -bulk will be removed from the dbmanifest table

Notes:

- At least one of -f or -bulk is required.
- If neither -register nor -unregister is specified, the default is '-register'.
- File names specified with -f must either be fully-qualified or be relative to RETAIL_HOME. The same is true for filenames specified within a -bulk file.
- Registering a file in the dbmanifest table will cause it to be completely skipped. Before doing so, ensure that all commands contained in it have been completed.
- Removing a file from the dbmanifest table will cause it to be run again. This will fail if the commands in the script cannot be re-run. For example if they create a table that already exists.

Running the ordbmreg Script

Perform the following procedure to run the ordbmreg script:

1. Log in as the UNIX user that owns the product installation.
2. Set the RETAIL_HOME environment variable to the top-level directory of your product installation.
   ```
   export RETAIL_HOME=/u00/oretail/15.0/tst
   ```
3. Set the PATH environment variable to include the orpatch/bin directory
   ```
   export PATH=$RETAIL_HOME/orpatch/bin:$PATH
   ```
4. Execute ordbmreg script to register the desired file(s).
   ```
   ordbmreg –register –f <file>
   ```

Examples of using the ordbmreg Script

Register $RETAIL_HOME/dbsql_rms/Cross_Pillar/db_change_scripts/source/000593_system_options.sql with the dbmanifest table.

```
ordbmreg -f
dbsql_rms/Cross_Pillar/db_change_scripts/source/000593_system_options.sql
```

Remove the dbmanifest row for $RETAIL_HOME/dbsql_radm/ra_db/radm/database_change_scripts/000035_s12733240_w_party_per_d.sql.

```
ordbmreg –unregister –f
$RETAIL_HOME/dbsql_radm/ra_db/radm/database_change_scripts/000035_s12733240_w_part
y_per_d.sql
```

Bulk register several files in the dbmanifest table.

```
echo "$RETAIL_HOME/dbsql_rwms/DBCs/Source/000294_container.sql" > dbcs.txt
echo "$RETAIL_HOME/dbsql_rwms/DBCs/Source/000457_drop_object.sql" >> dbcs.txt
ordbmreg –bulk dbcs.txt
```

Restarting after registration

Once the row has been added to the dbmanifest table, restart ORPatch and the script will be skipped. If the file is not skipped there are several possibilities:

- The script registered is not the failing script.
- The file type is not a type that is filtered by the dbmanifest. The only file types that skip files listed in the dbmanifest are:
  - Initial install DDL Files
  - Installation scripts that cannot be rerun
  - Database Change Scripts

Manual Restart State File Updates

Oracle Retail strongly discourages manually updating the ORPatch restart state files. Updating the file improperly could cause necessary steps in the patching process to be skipped or patches to be incorrectly recorded as applied.

DISPLAY Settings When Compiling Forms

When compiling RMS or RWMS forms, it is necessary to have a valid X-Windows Display. ORPatch allows this setting to come from one of two places:

- DISPLAY environment variable set before executing ORPatch

  or
- DISPLAY setting in RETAIL_HOME/orpatch/config/env_info.cfg

The DISPLAY variable in the environment overrides the env_info.cfg, if both are set. The destination X-Windows display must be accessible to the user running ORPatch, and for best compilation performance it should be on the network 'close' to the server where RMS Forms are installed and compiled. Using a local display or VNC display is preferred. Compiling forms across a Wide-Area Network will greatly increase the time required to apply patches to environments.

JAVA_HOME Setting

When working with Java application jar, ear or war files, it is necessary to have a valid JAVA_HOME setting. ORPatch allows this setting to come from one of two places:

- JAVA_HOME environment variable set before executing ORPatch

  or
- JAVA_HOME setting in RETAIL_HOME/orpatch/config/env_info.cfg

The JAVA_HOME variable in the environment overrides the env_info.cfg, if both are set. The specified Java home location must be accessible to the user running ORPatch and be a full Java Development Kit (JDK) installation. The JAVA_HOME must contain the jar utility and if automatic Jar file signing is configured, must also contain the keytool and jarsigner utilities.

Patching Prior to First Install

In some situations, it may be necessary to apply a patch to product installation files before the initial install. For example, if there is a defect with a script that would be run during the install and prevent proper installation. In this rare situation, it may be necessary to apply a patch to the installation files prior to starting installation.

Note: These steps should only be undertaken at the direction of Oracle Support.

Perform the following steps to patch installation files prior to starting an installation. The steps assume an RMS installation, but apply to any product supported by ORPatch:

1. Unzip the installation files to a staging area.

   > **Note:** The following steps assume the files are in /media/oretail15.0

2. Locate the patch_info.cfg within the product media. The directory it resides in will be used for later steps.

   ```
   find /media/oretail15.0/rms/installer –name patch_info.cfg
   ```

   Output Example:

   /media/oretail15.0/rms/installer/mom15/patch_info.cfg

3. Get the PATCH_NAME for the standard product installation. The patch name to use in subsequent steps will be the portion following the "=" sign.

   ```
   grep "PATCH_NAME=" /media/oretail15.0/rms/installer/mom15/patch_info.cfg
   ```

   Output Example:

   PATCH_NAME=**MOM_15_0_0_0**

4. Create a directory that will contain the patch that must be applied, next to the directory with the product installation files.

   > **Note:** The following steps assume this directory is in /media/patch.

5. Unzip the patch into the directory created in step 2.

   > **Note:** This should place the patch contents in /media/patch/<patch num>.

6. Export RETAIL_HOME to point within the installation staging area.

   ```
   export RETAIL_HOME=/media/oretail15.0/rms/installer/mom15/Build
   ```

7. Create a logs directory within the installation staging area

   ```
   mkdir $RETAIL_HOME/orpatch/logs
   ```

8. Ensure the ORMerge shell script is executable.

   ```
   chmod u+x $RETAIL_HOME/orpatch/bin/ormerge
   ```

9. Run ORMerge to apply the patch to the installation media, using a –name argument that is the same as what was found in step 3.

   ```
   $RETAIL_HOME/orpatch/bin/ormerge -s /media/patch -d
   /media/oretail15.0/rms/installer/mom15 –name MOM_15_0_0_0 –inplace
   ```

   > **Note:** The –inplace argument is critical to ensure that the patching replaces files in the mom15 directory.

10. Unset the RETAIL_HOME environment variable.

    ```
    unset RETAIL_HOME
    ```

At this point, the installation files will have been updated with the newer versions of files contained within the patch. Log files for the merge will be in /media/oretail15.0/rms/installer/mom15/Build/orpatch/logs.

Providing Metadata to Oracle Support

In some situations, it may be necessary to provide details of the metadata from an environment to Oracle support in order to assist with investigating a patching or application problem. ORPatch provides built-in functionality through the 'exportmetadata' action to extract and consolidate metadata information for uploading to

Oracle Support or for external analysis. For more information, see the ORPatch 'Exporting Environment Metadata' section.

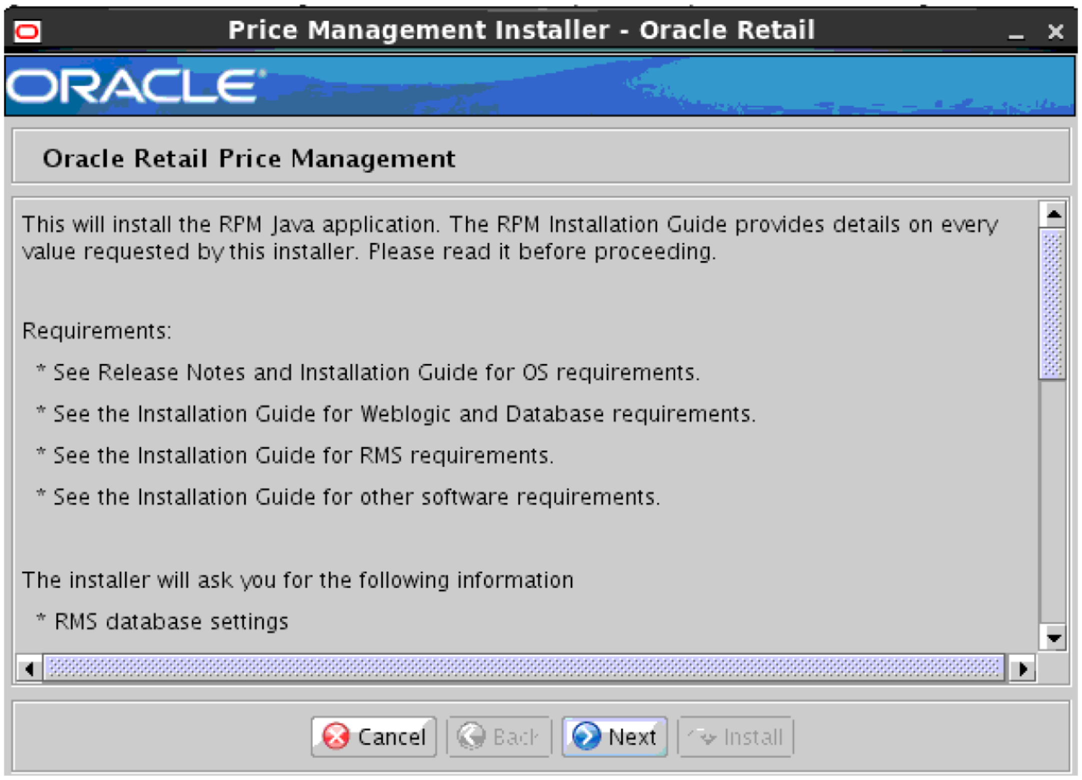
A

Appendix: RPM Application Installer Screens

You need the following details about your environment for the installer to successfully deploy the RPM application. Depending on the options you select, you may not see some screens or fields.

Screen: Installation Introduction Screen

The following screens will only appear if the variable ORPATCH_ANALYZE has not been set in the environment


Price Management Installer - Oracle Retail
ORACLE
Oracle Retail Price Management
Cancel
Back
Next
Install

This will install the RPM Java application. The RPM Installation Guide provides details on every value requested by this installer. Please read it before proceeding.

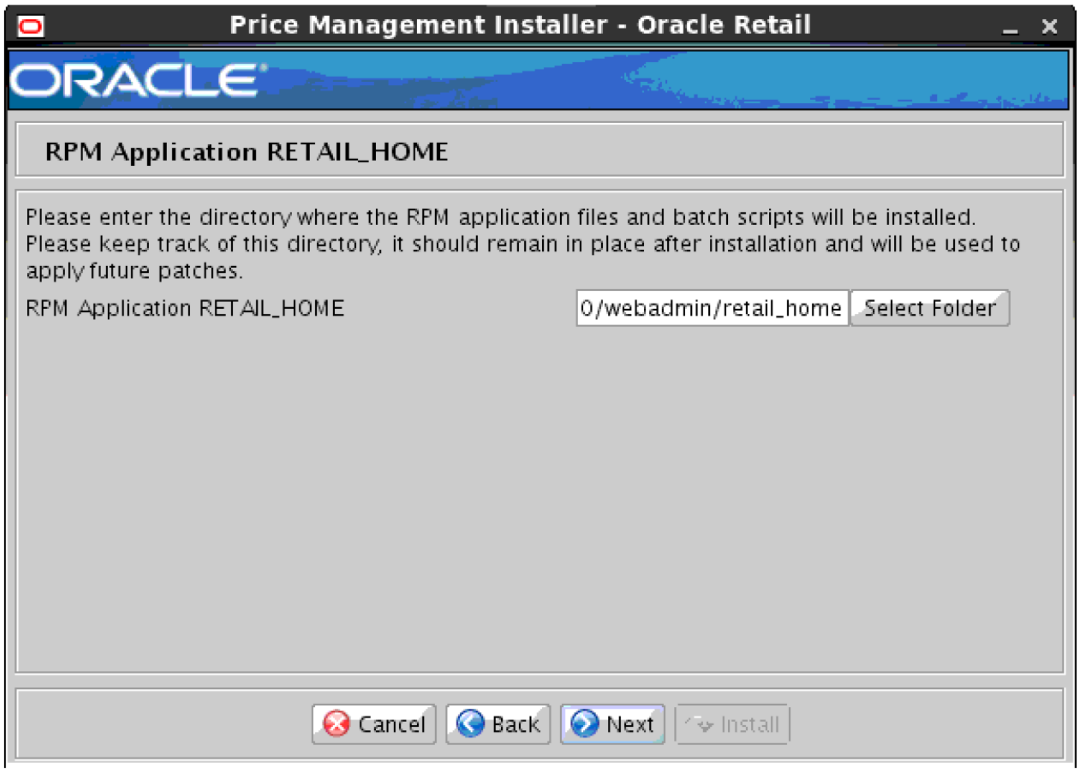
Requirements:

* See Release Notes and Installation Guide for OS requirements.
* See the Installation Guide for Weblogic and Database requirements.
* See the Installation Guide for RMS requirements.
* See the Installation Guide for other software requirements.

The installer will ask you for the following information

* RMS database settings

Screen: RPM Application RETAIL HOME



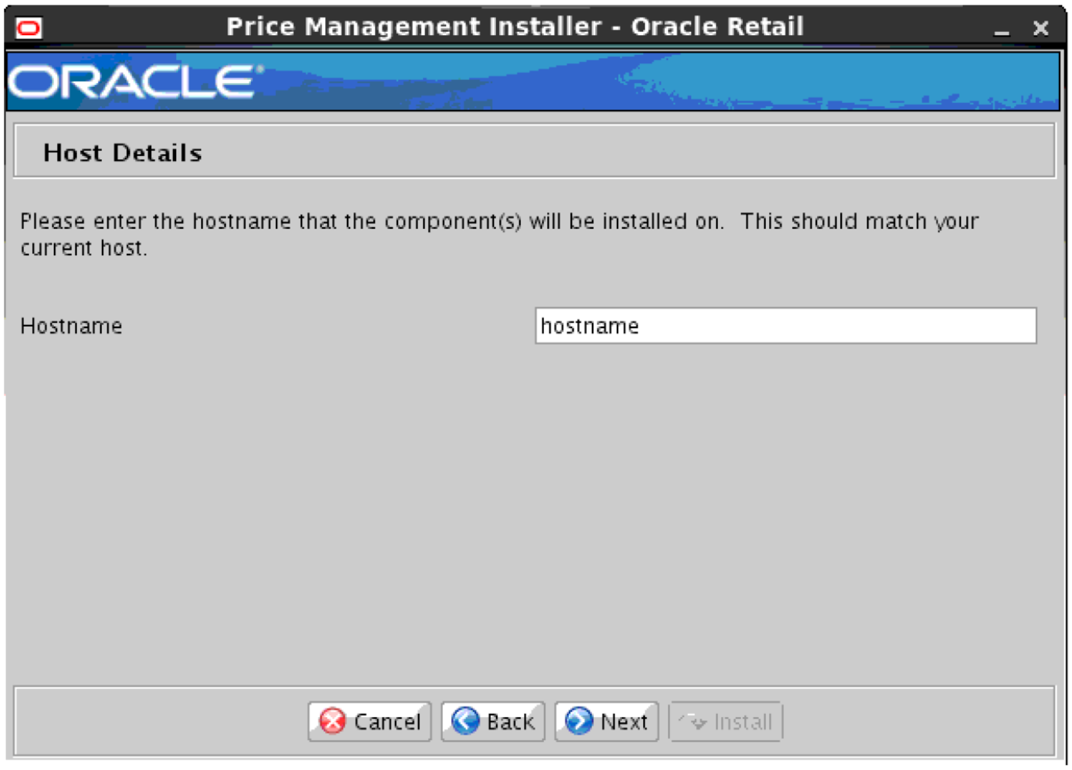
RPM Application RETAIL_HOME

Please enter the directory where the RPM application files and batch scripts will be installed. Please keep track of this directory, it should remain in place after installation and will be used to apply future patches.

RPM Application RETAIL_HOME 0/webadmin/retail_home

Field Title	RPM Application RETAIL HOME
Field Description	Retail Home is used to keep Orpatch related files, batches, etc. by default. Please keep track of this directory, it should remain in place after installation and will be used to apply future patches.
Examples	/path/to/rpm_retail_home

Screen: Host Details



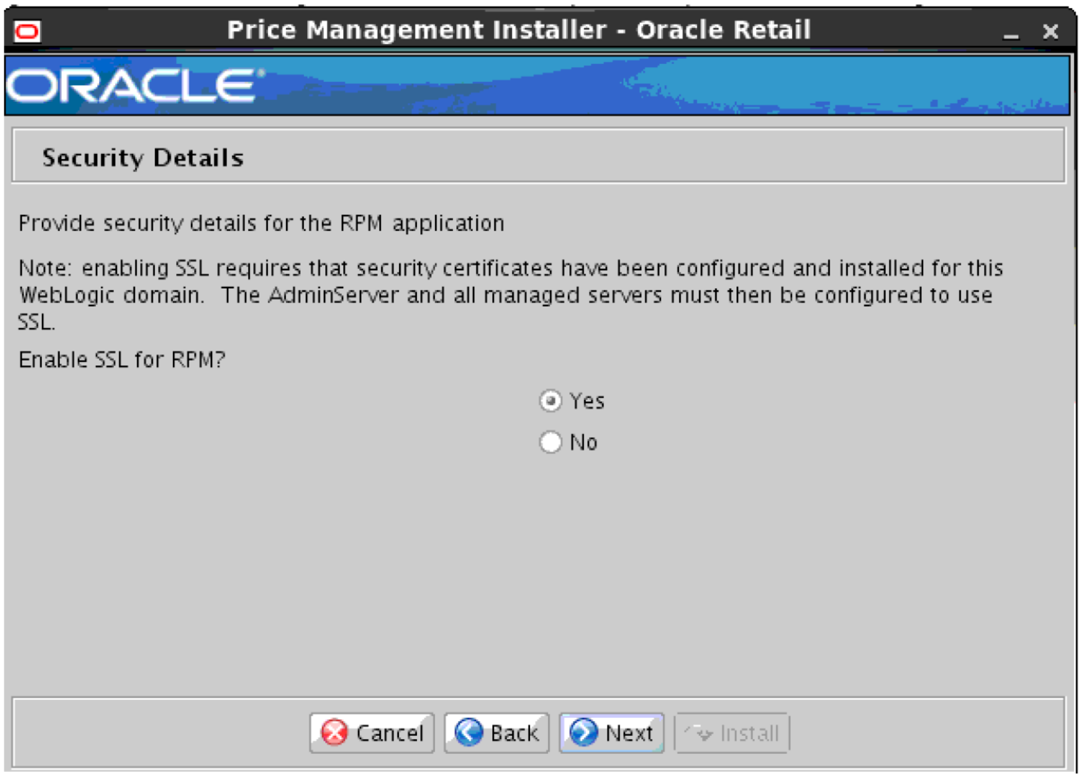
Host Details

Please enter the hostname that the component(s) will be installed on. This should match your current host.

Hostname: hostname

Field Title	Hostname
Field Description	Provide the hostname where the Retail Home, batches will be installed. This shall match your Application server hostname.
Examples	app-hostname.us.oracle.com

Screen: Security Details



Security Details

Provide security details for the RPM application

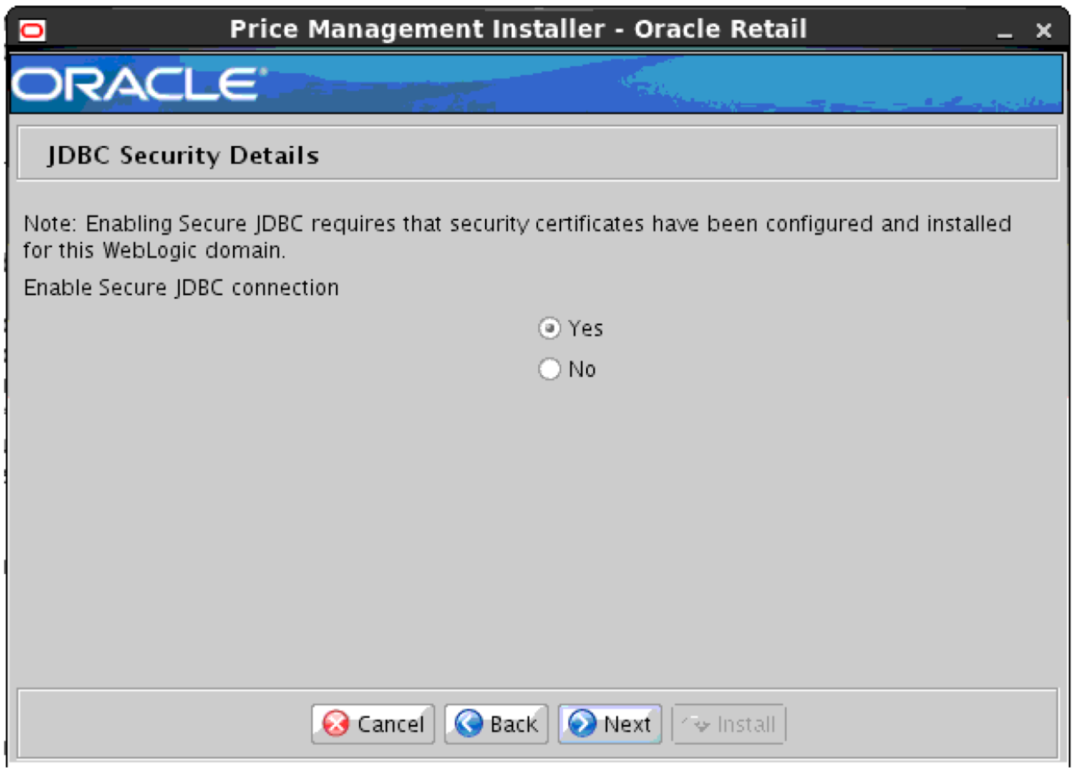
Note: enabling SSL requires that security certificates have been configured and installed for this WebLogic domain. The AdminServer and all managed servers must then be configured to use SSL.

Enable SSL for RPM?

[✓ Yes]
No

Field Title	Enable SSL for RPM?
Field Description	Choosing Yes will deploy RPM using SSL and configure RPM to use SSL. In this case, SSL must be configured and the ports must be enabled for the AdminServer and RPM managed servers. Choosing No will deploy and configure RPM without SSL. In this case the non-SSL ports must be enabled for the AdminServer and for the RPM managed servers.

Screen: JDBC Security Details



JDBC Security Details

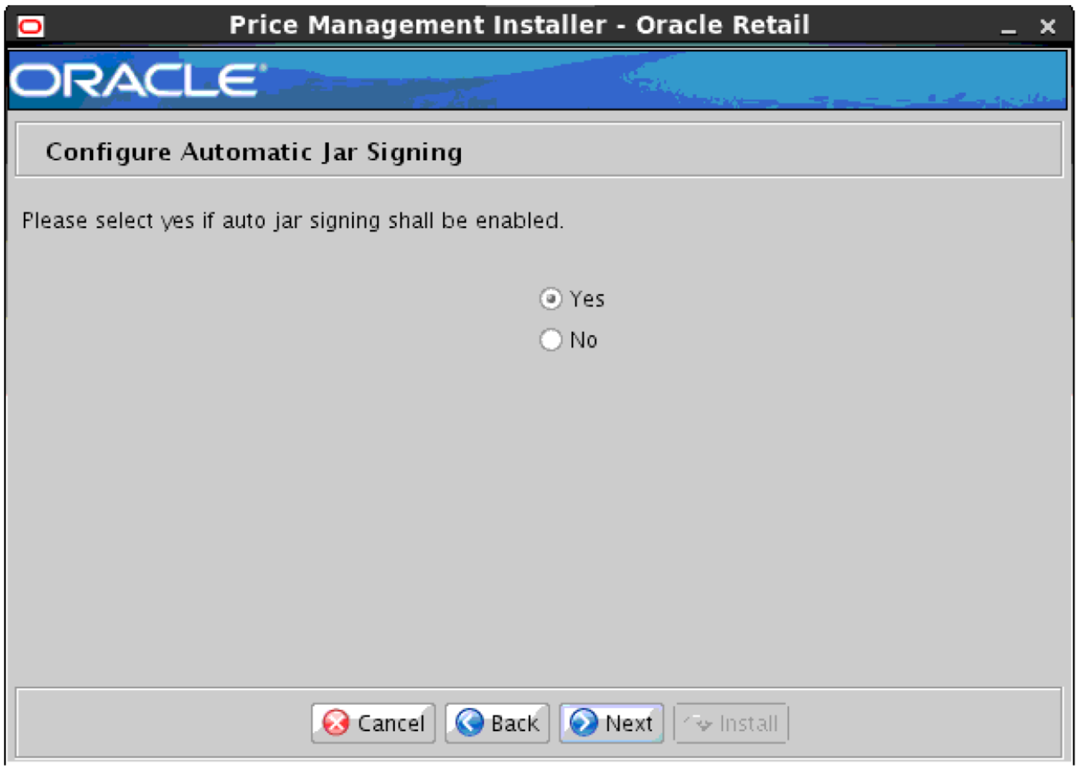
Note: Enabling Secure JDBC requires that security certificates have been configured and installed for this WebLogic domain.

Enable Secure JDBC connection

[✓ Yes] No

Field Title	Enable Secure JDBC connection
Field Description	Choose Yes to create secured data sources in WebLogic, otherwise choose No. A secure data base connection must already be set up if you want to create a secure data source.

Screen: Configure Automatic Jar Signing



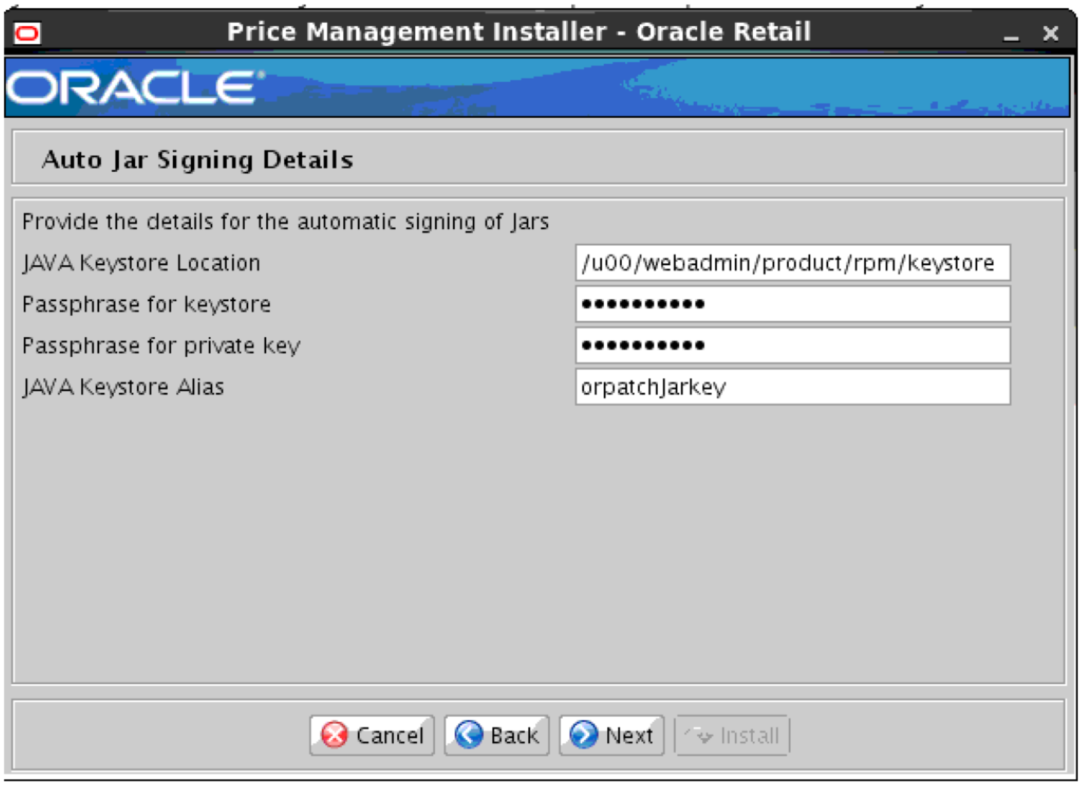
Configure Automatic Jar Signing

Please select yes if auto jar signing shall be enabled.

[✓ Yes] No

Field Title	Configure automatic jar signing
Field Description	Choosing Yes will enable the auto signing of the rpm client config jar with the keystore that will be asked in the next screen. Choosing No will skip the Auto Jar Signing Details. In this case, rpm client config jar shall be signed manually after the installation.

Screen: Auto Jar Signing Details



Provide the details for the automatic signing of Jars

JAVA Keystore Location	/u00/webadmin/product/rpm/keystore
Passphrase for keystore	•••••••••••
Passphrase for private key	•••••••••••
JAVA Keystore Alias	orpatchJarkey

Note: This screen will appear only if you select Configure automatic Jar signing in the above screen.

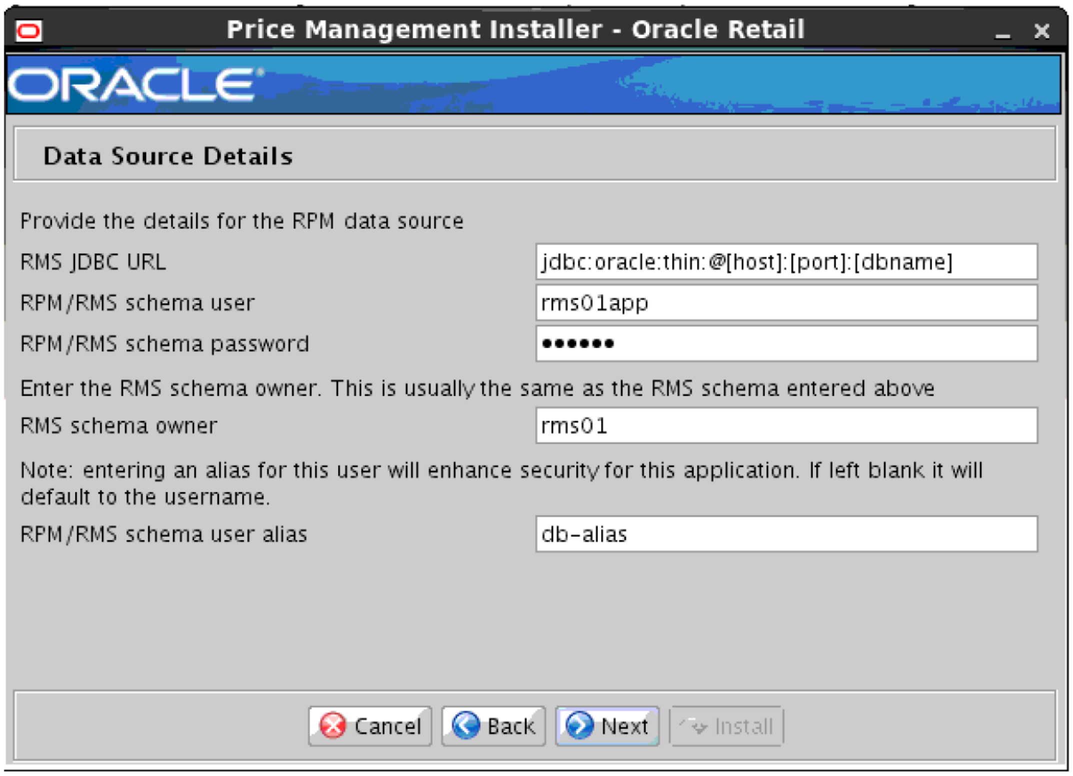
Field Title	Java Keystore Location
Field Description	This is the path of the keystore which contains the ssl identity certificates of the host as obtained from the certificate authority.
Example	/u00/webadmin/product/rpm_orp_keystore/orpkeystore.jks

Field Title	Passphrase for keystore
Field Description	The password for the keystore used

Field Title	Passphrase for private key
Field Description	The password for the private key used

Field Title	JAVA Keystore Alias
Field Description	Alias of the identity certificate inside the keystore file.
Example	orpatchjarkey

Screen: Data Source Details



Data Source Details

Provide the details for the RPM data source

RMS JDBC URL	jdbc:oracle:thin:@[host]:[port]:[dbname]
RPM/RMS schema user	rms01app
RPM/RMS schema password	••••••

Enter the RMS schema owner. This is usually the same as the RMS schema entered above

RMS schema owner	rms01

Note: entering an alias for this user will enhance security for this application. If left blank it will default to the username.

RPM/RMS schema user alias	db-alias

Field Title	RMS 15 JDBC URL
Field Description	URL used by the RPM application to access the RMS database schema. See Appendix: URL Reference for expected syntax. **Note:** The RPM database tables are a part of the RMS schema.
Examples	For Non Secure JDBC Connection: jdbc:oracle:thin:@hostname:1521/dbname For Secure JDBC Connection: jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=tcps)(HOST=dbhostname)(PORT=2484)))(CONNECT_DATA=(SERVICE_NAME=mydb)))

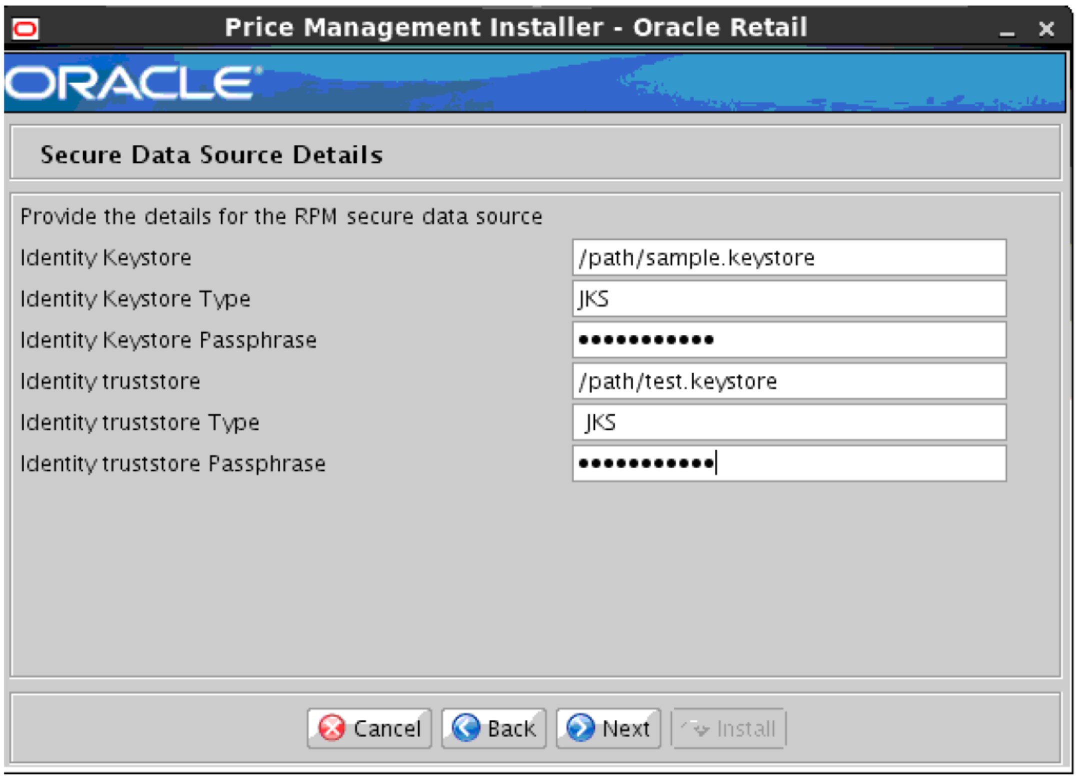
Field Title	RPM/RMS 15 schema user
Field Description	RMS database user for accessing the RPM tables. This should match what was given in the RMS schema field of the RMS database installer.
Example	rms01app

Field Title	RPM/RMS 15 schema password
Field Description	Password for the RMS database user entered above to access the RPM tables.

Field Title	RMS 15 schema owner
Field Description	Database user which owns the RMS and RPM tables. This is usually the same as the RMS 15 schema above.
Example	rms01

Field Title	RPM/RMS 15 schema alias
Field Description	The alias to store the schema credentials.
Example	db-alias
Notes	This alias must be unique. Do not use the same value for any other alias fields in the installer. If the same alias is used, entries in the wallet can override each other and cause problems with the application.

Screen: Secure Data Source Details



Secure Data Source Details

Provide the details for the RPM secure data source

Identity Keystore	/path/sample.keystore
Identity Keystore Type	JKS
Identity Keystore Passphrase	••••••••••••
Identity truststore	/path/test.keystore
Identity truststore Type	JKS
Identity truststore Passphrase	••••••••••••

Note: This screen will appear only if you select Secure JDBC in the above screens.

Field Title	Identity Keystore
Field Description	Keystores ensure the secure storage and management of private keys and trusted certificate authorities (CAs). This screen lets you provide the keystore to be used for datasource connection These settings help you to manage the security of message transmissions. For further information, please refer to the *Oracle Retail Merchandising Operations Management Security Guide.* Location or path where identity keystore file is stored.
Example	/path/sample.keystore

Field Title	Identity Keystore Type
Field Description	The type of the keystore used.
Example	JKS

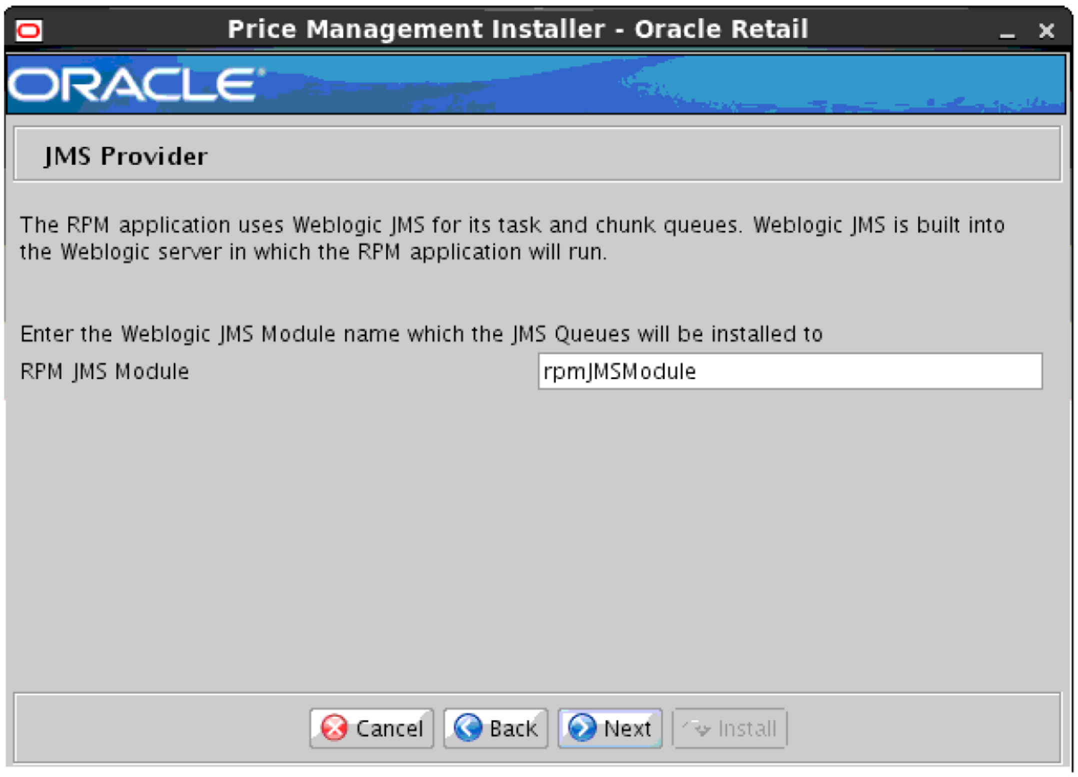
Field Title	Identity Keystore PassPhrase
Field Description	Please provide password to access the keystore mentioned above.

Field Title	Identity TrustStore
Field Description	This is the path of the keystore which contains the ssl root and optionally intermediate certificates as obtained from the certificate authority.
Example	/path/test.keystore

Field Title	Identity TrustStore Type
Field Description	The type of the truststore used
Example	JKS

Field Title	Identity TrustStore PassPhrase
Field Description	Please provide password to access the truststore mentioned above.

Screen: JMS Provider



JMS Provider

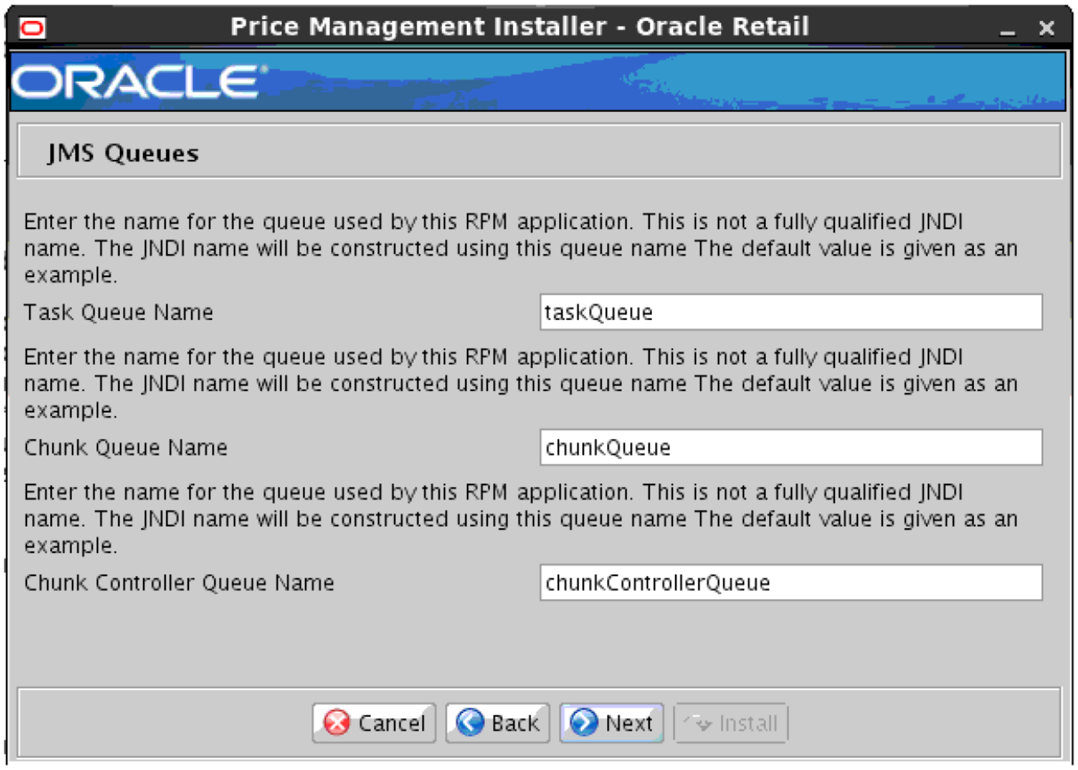
The RPM application uses Weblogic JMS for its task and chunk queues. Weblogic JMS is built into the Weblogic server in which the RPM application will run.

Enter the Weblogic JMS Module name which the JMS Queues will be installed to

RPM JMS Module: rpmJMSModule

Field Title	RPM JMS Module
Field Description	The WebLogic JMS Module name to which the JMS Queues will be installed.
Example	rpmJMSModule

Screen: Queue Details



JMS Queues

Enter the name for the queue used by this RPM application. This is not a fully qualified JNDI name. The JNDI name will be constructed using this queue name The default value is given as an example.

Task Queue Name: taskQueue

Enter the name for the queue used by this RPM application. This is not a fully qualified JNDI name. The JNDI name will be constructed using this queue name The default value is given as an example.

Chunk Queue Name: chunkQueue

Enter the name for the queue used by this RPM application. This is not a fully qualified JNDI name. The JNDI name will be constructed using this queue name The default value is given as an example.

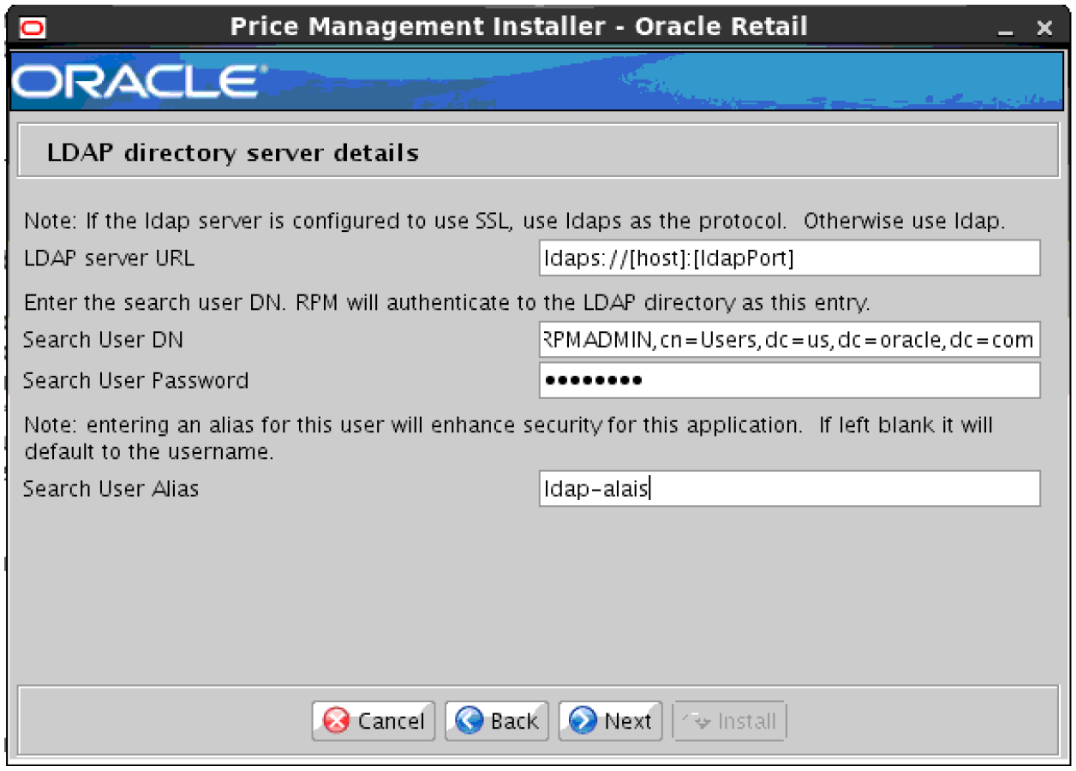
Chunk Controller Queue Name: chunkControllerQueue

Field Title	Task Queue Name
Field Description	Name by which the task queue will be identified. If this is a new RPM environment, choose a queue name that is not already in use in the JMS server. If you have already created the queue in the JMS server as part of the Clustering Preinstallation steps, you must provide the same name in this field (without the jms/ prefix).
Example	taskQueue

Field Title	Chunk Queue Name
Field Description	Name by which the task queue will be identified. If this is a new RPM environment, choose a queue name that is not already in use in the JMS server. If you have already created the queue in the JMS server as part of the Clustering Preinstallation steps, you must provide the same name in this field (without the jms/ prefix).
Example	chunkQueue

Field Title	Chunk Controller Queue Name
Field Description	Name by which the task queue will be identified. If this is a new RPM environment, choose a queue name that is not already in use in the JMS server. If you have already created the queue in the JMS server as part of the Clustering Preinstallation steps, you must provide the same name in this field (without the jms/ prefix).
Example	chunkControllerQueue

Screen: LDAP directory server details



LDAP directory server details

Note: If the ldap server is configured to use SSL, use ldaps as the protocol. Otherwise use ldap.

LDAP server URL: ldaps://[host]:[ldapPort]

Enter the search user DN. RPM will authenticate to the LDAP directory as this entry.

Search User DN: RPMADMIN,cn=Users,dc=us,dc=oracle,dc=com

Search User Password: ●●●●●●●●●

Note: entering an alias for this user will enhance security for this application. If left blank it will default to the username.

Search User Alias: ldap-alais

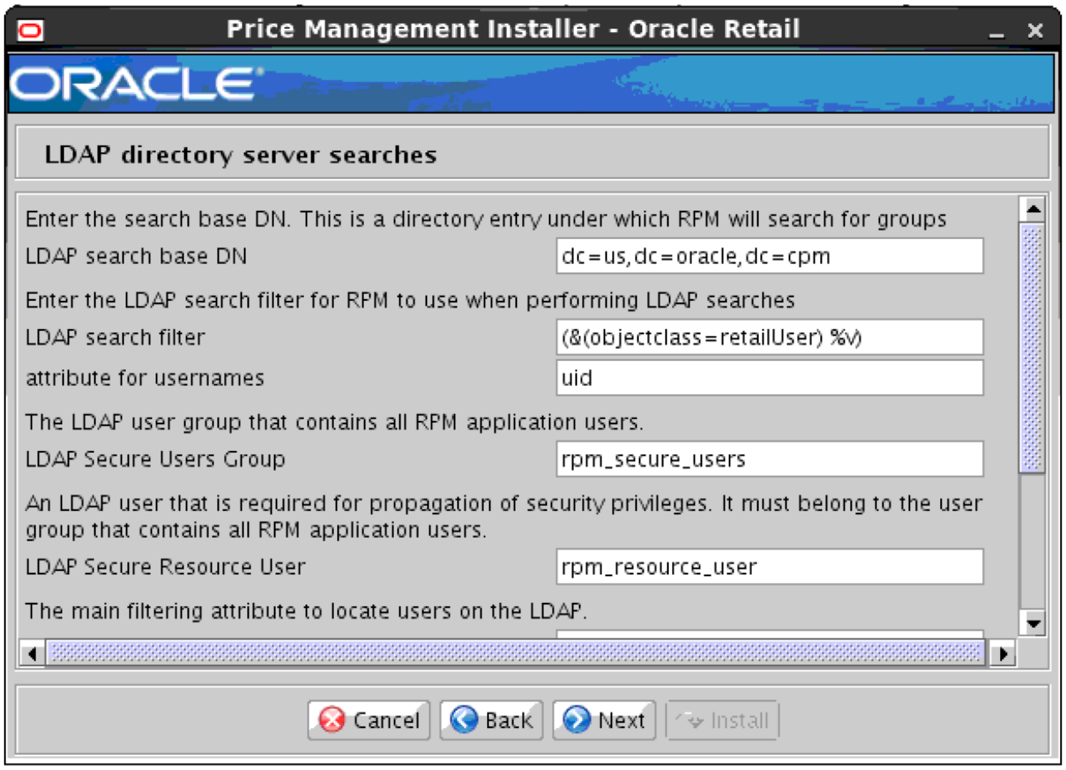
Field Title	LDAP server URL
Field Description	URL for your LDAP directory server.
Example	For Non Secure LDAP: ldap://hostname:3060 For Secure LDAP: ldaps:// hostname:389

Field Title	Search User DN
Field Description	Distinguished name of the user that RPM uses to authenticate to the LDAP directory.
Example	cn=rpm.admin,cn=Users,dc=us,dc=oracle,dc=com

Field Title	Search User Password
Field Description	Password for the search user DN.

Field Title	Search User Alias
Field Description	The alias for the search user DN.
Example	Ldap-alias
Notes	This alias must be unique. Do not use the same value for any other alias fields in the installer. If the same alias is used, entries in the wallet can override each other and cause problems with the application.

Screen: LDAP directory server searches



LDAP directory server searches

Enter the search base DN. This is a directory entry under which RPM will search for groups

LDAP search base DN: dc=us,dc=oracle,dc=cpm

Enter the LDAP search filter for RPM to use when performing LDAP searches

LDAP search filter: (&(objectclass=retailUser) %v)

attribute for usernames: uid

The LDAP user group that contains all RPM application users.

LDAP Secure Users Group: rpm_secure_users

An LDAP user that is required for propagation of security privileges. It must belong to the user group that contains all RPM application users.

LDAP Secure Resource User: rpm_resource_user

The main filtering attribute to locate users on the LDAP.

Field Title	LDAP search base DN
Field Description	Distinguished name of the LDAP directory entry under which RPM should search for users.
Example	dc=us,dc=oracle,dc=com

Field Title	LDAP search filter
Field Description	LDAP filter that determines which entries are returned to RPM when it conducts a directory search under the search base DN. See the *Oracle Retail Price Management Operations Guide* for additional information on configuring this field.
Example	(&(objectclass=retailUser) %v)

Field Title	attribute for usernames
Field Description	LDAP attribute where RPM should look for a user's username.
Example	Uid

Field Title	LDAP Secure Users Group
Field Description	The LDAP group that contains all the Users that can login into RPM.
Example	rpm_secure_users

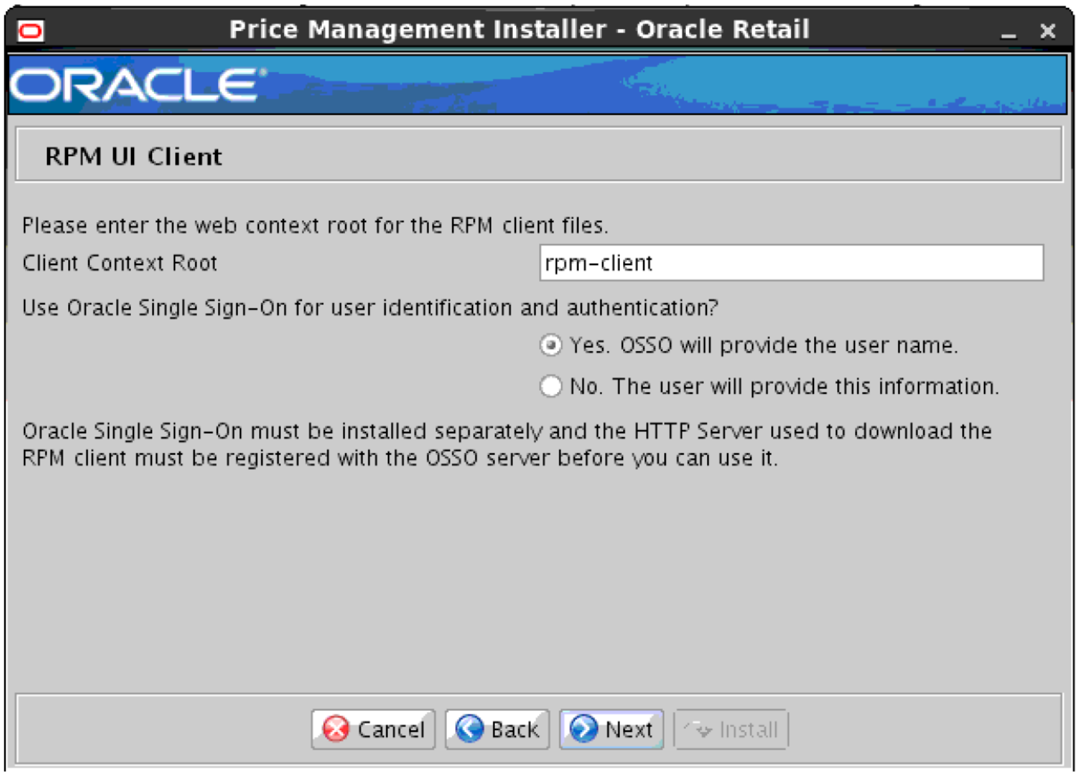
Field Title	LDAP Secure Resource USer
Field Description	Distinguished name of the user that RPM uses to authenticate to the LDAP directory and propagation of Security privileges. It must be in the user group that contains all RPM application users.
Example	rpm.admin

Field Title	LDAP Search Filter Attribute
Field Description	LDAP filtering attribute used by RPM to filter all the valid users.
Example	Objectclass

Field Title	LDAP Search Filter Value
Field Description	The criteria value of the LDAP filtering attribute that a valid user should match.
Example	retailUser

Field Title	LDAP Identity Story Factory Class
Field Description	The factory class that matches the LDAP Provider used to store identity information for the application.
Example	Oracle Internet Directory

Screen: RPM UI Client



RPM UI Client

Please enter the web context root for the RPM client files.

Client Context Root: rpm-client

Use Oracle Single Sign-On for user identification and authentication?

[✓ Yes. OSSO will provide the user name.]

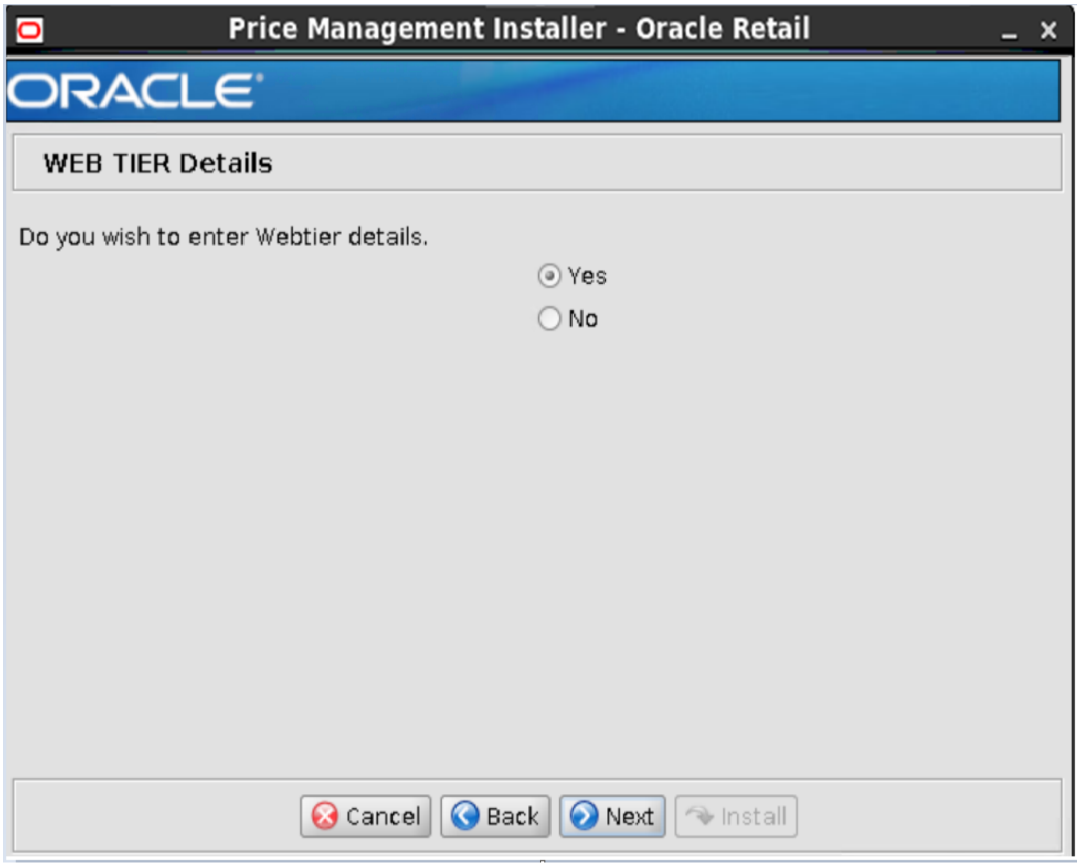
No. The user will provide this information.

Oracle Single Sign-On must be installed separately and the HTTP Server used to download the RPM client must be registered with the OSSO server before you can use it.

Field Title	Client Context Root
Field Description	The Client Context Root determines how the RPM client will be accessed from users' web browsers. The RPM client URL has the following format: http:/<hostname>:<port>/<rpm_client_ctx_root>/launch?template=rpm_jnlp_template.vm Example, with RPM Client Context Root value of rpm-client: http://apphostname:17011/rpm-client/launch?template=rpm_jnlp_template.vm
Example	rpm-client

Field Title	Use Oracle Single Sign-On for user identification and authentication?
Field Description	This version of RPM has the option to use Oracle Access Manager (Webgate Agent) technology to authenticate users. If OAM is being used in your environment, choose Yes. The No option configures RPM to use its own LDAP directory settings for authentication.
Example	No

Screen: WebTier Details



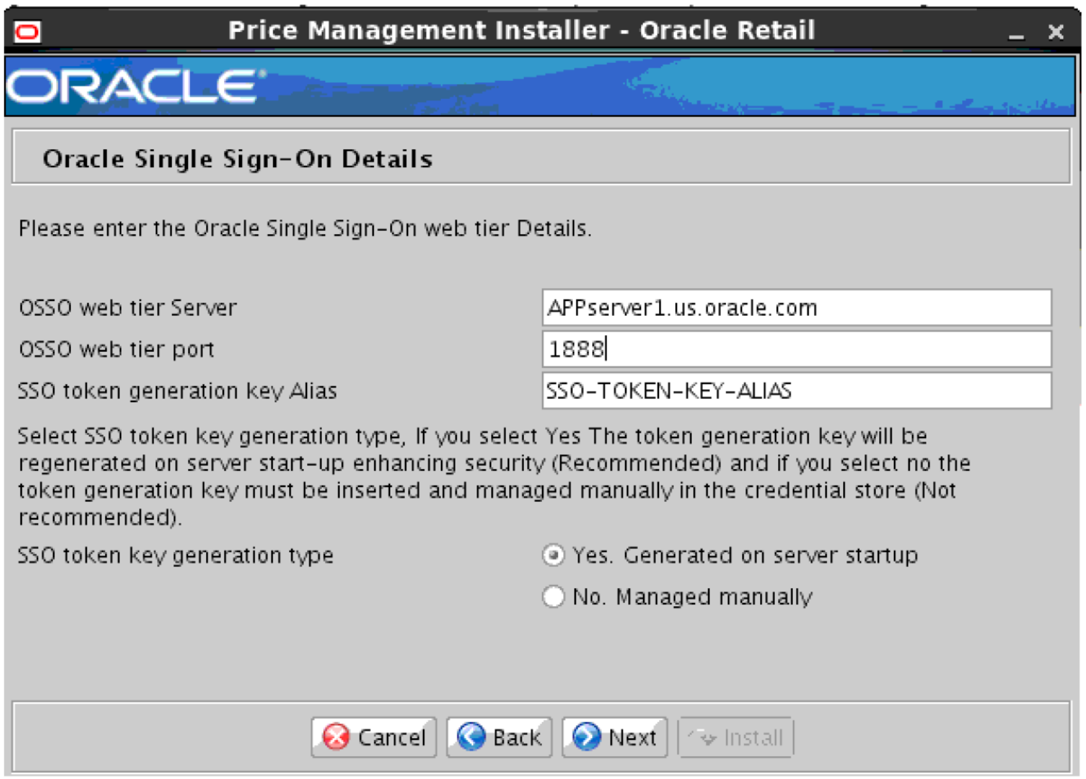
Do you wish to enter Webtier details.

[✓ Yes] No

Field Title	Do you wish to enter web-tier details ?
Field Description	Yes No

Screen Single Sign-On Details

Note: This screen will only be displayed if SSO option was selected in previous step.



Oracle Single Sign-On Details

Please enter the Oracle Single Sign-On web tier Details.

OSSO web tier Server: APPserver1.us.oracle.com
OSSO web tier port: 1888
SSO token generation key Alias: SSO-TOKEN-KEY-ALIAS

Select SSO token key generation type, If you select Yes The token generation key will be regenerated on server start-up enhancing security (Recommended) and if you select no the token generation key must be inserted and managed manually in the credential store (Not recommended).

SSO token key generation type: [✓ Yes. Generated on server startup] No. Managed manually

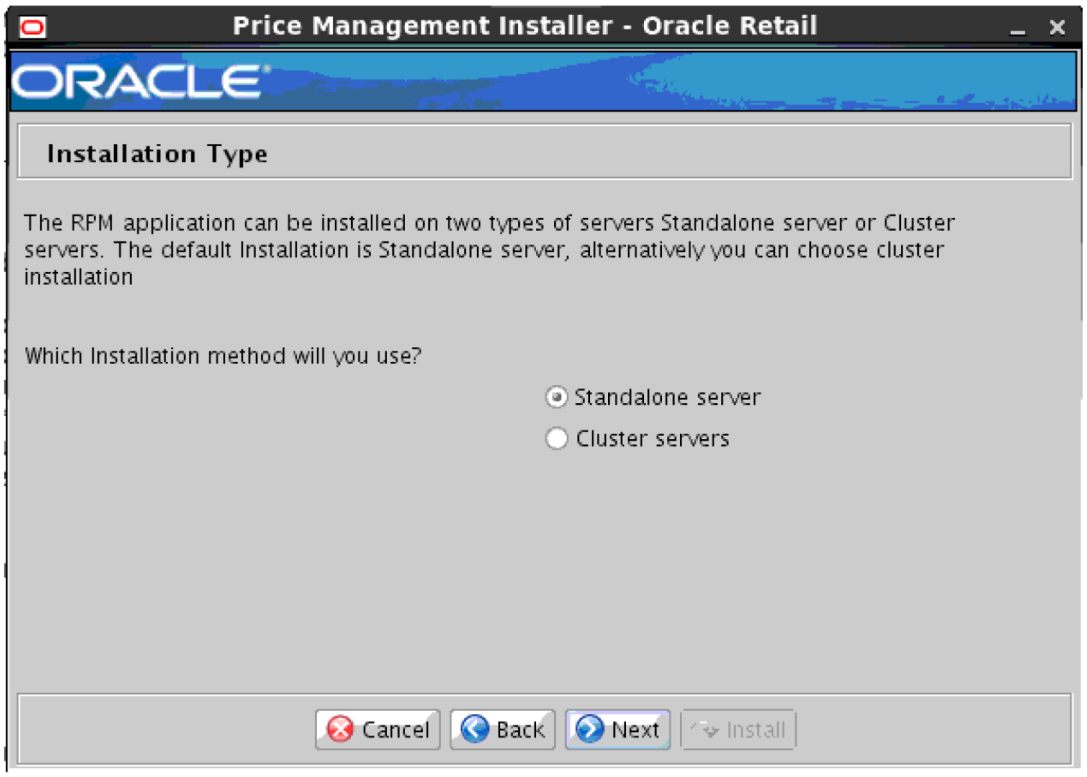
Field Title	OSSO Web Tier Server
Field Description	This should have the host name on which the web tier is deployed on.
Example	Appserver1.us.oracle.com

Field Title	OSS Web Tier port
Field Description	The HTTP port of the webtier installation must be mentioned here.
Example	18888

Field Title	SSO Token generation key alias
Field Description	SSO uses this to store its tokens that are used to verify authenticity of the SSO call.
Example	SSO-TOKEN-KEY-ALIAS

Field Title	SSO Token generation key type
Field Description	If you want to have the token generation by manual or by installer. If manual select No. else select Yes.
Example	Yes

Screen: Installation Type



Installation Type

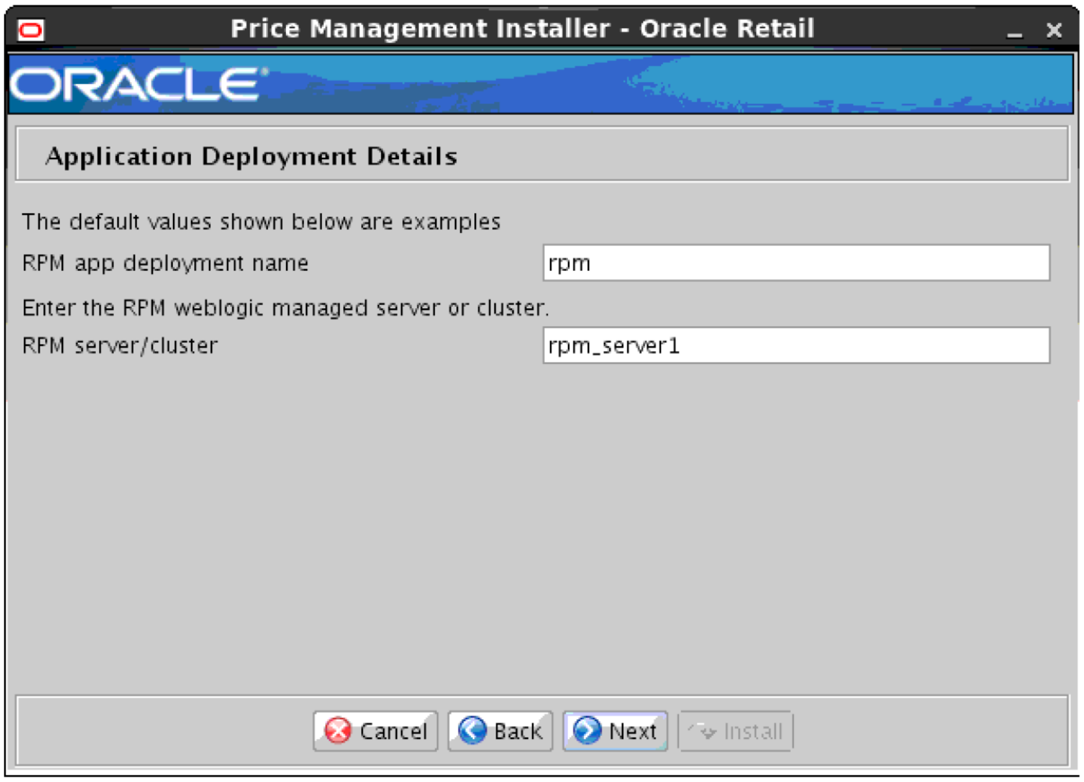
The RPM application can be installed on two types of servers Standalone server or Cluster servers. The default Installation is Standalone server, alternatively you can choose cluster installation

Which Installation method will you use?

[✓ Standalone server] Cluster servers

Field Title	Installation type
Field Description	The default installation type is standalone server. Alternatively you can choose cluster installation.

Screen: Application Deployment Details



Application Deployment Details

The default values shown below are examples

RPM app deployment name: rpm

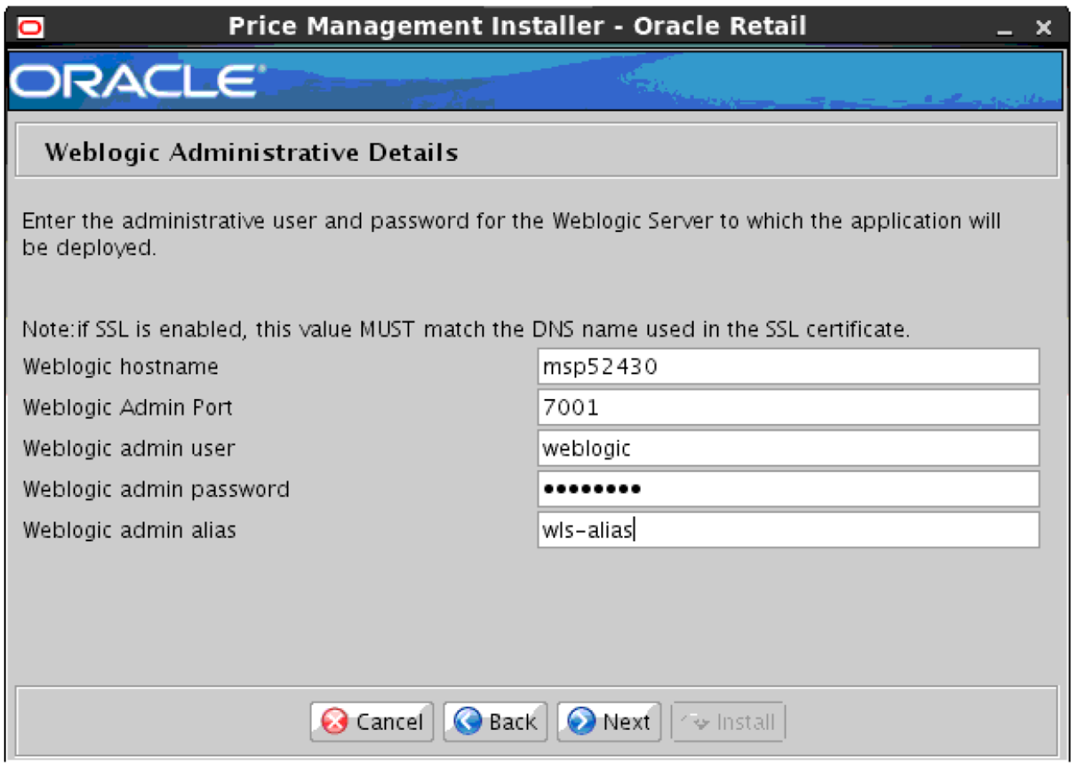
Enter the RPM weblogic managed server or cluster.

RPM server/cluster: rpm_server1

Field Title	RPM 15 app deployment name
Field Description	Name by which this RPM application is identified in the application server.
Example	rpm15

Field Title	RPM 15 server/cluster
Field Description	Name of the server/cluster that was created for this RPM application. The installer deploys the RPM application to all instances that are members of this server/cluster. For this reason, you should not use default_group. A new group dedicated to RPM should be created instead.
Example	Rpm_server1

Screen: WebLogic Administrative Details



Weblogic Administrative Details

Enter the administrative user and password for the Weblogic Server to which the application will be deployed.

Note:if SSL is enabled, this value MUST match the DNS name used in the SSL certificate.

Weblogic hostname	msp52430
Weblogic Admin Port	7001
Weblogic admin user	weblogic
Weblogic admin password	●●●●●●●●●
Weblogic admin alias	wls-alias

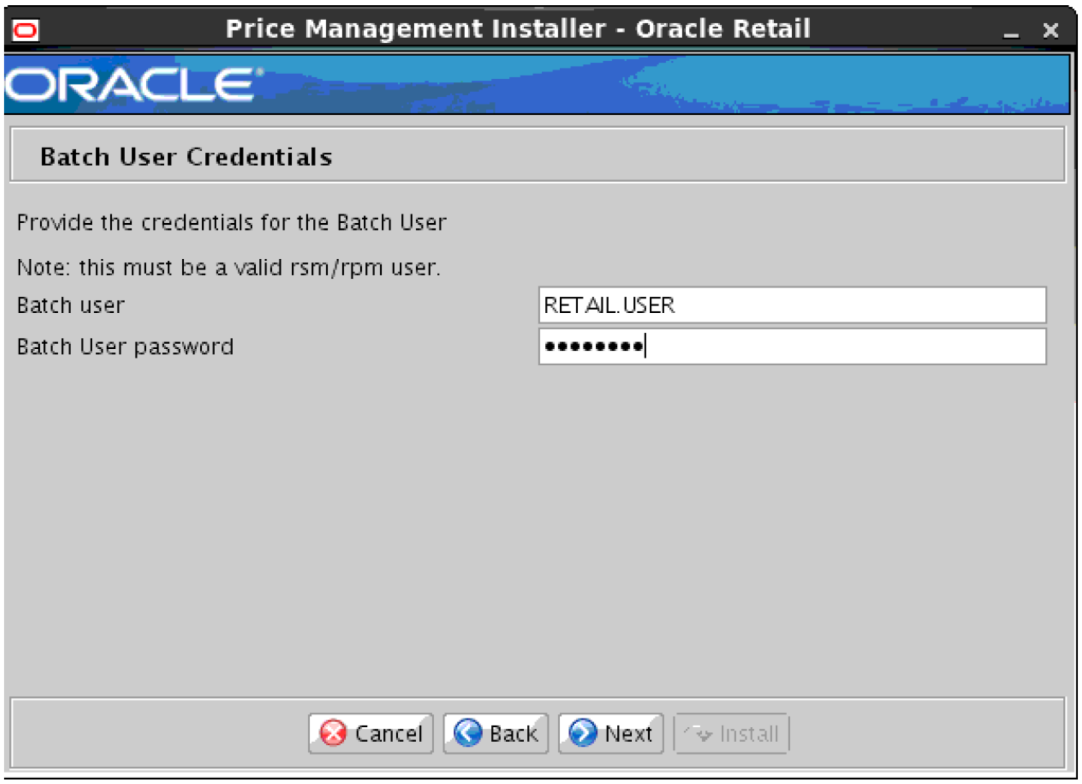
Field Title	Hostname
Field Description	The Hostname of the application server.
Example	Apphostname

Field Title	WebLogic admin user
Field Description	Username of the admin user for the WebLogic instance to which the RPM application is being deployed.
Example	weblogic

Field Title	WebLogic admin password
Field Description	Password for the WebLogic admin user. You chose this password when you created the WebLogic instance or when you started the instance for the first time.

Field Title	WebLogic admin alias
Field Description	An alias for the WebLogic admin user that is used for ORACLE java wallet.
Example	wls-alias
Notes	This alias must be unique. Do not use the same value for any other alias fields in the installer. If the same alias is used, entries in the wallet can override each other and cause problems with the application.

Screen: Batch User Credentials



Batch User Credentials

Provide the credentials for the Batch User

Note: this must be a valid rsm/rpm user.

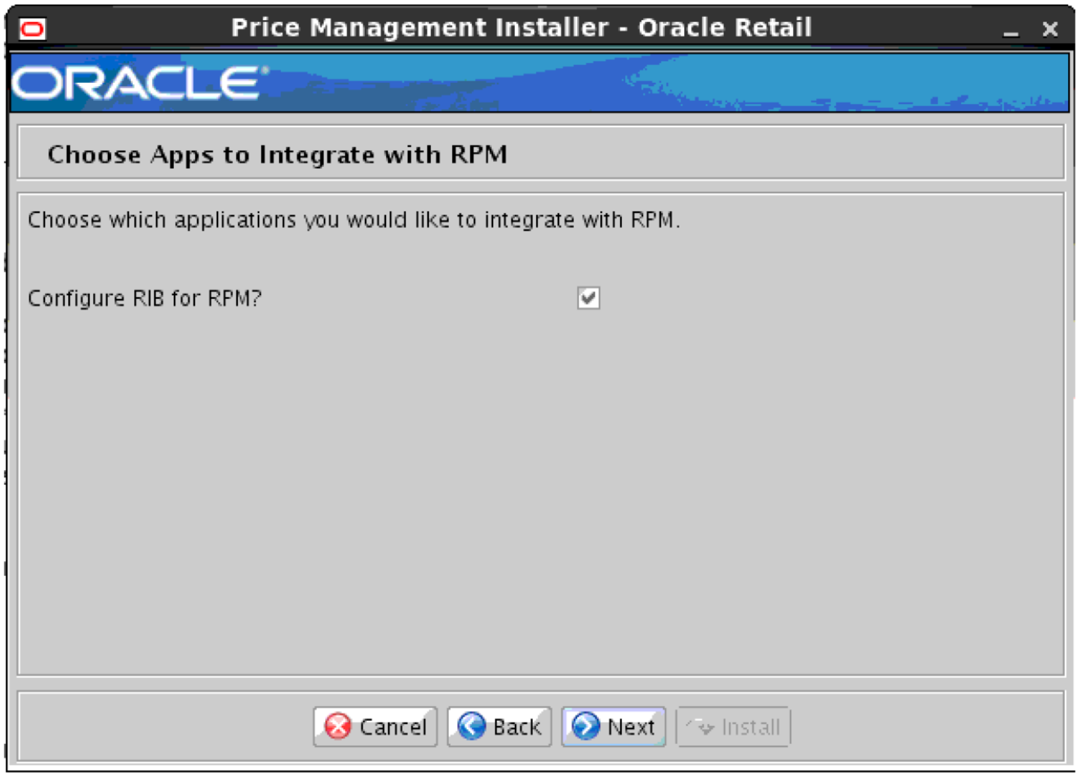
Batch user: RETAIL.USER

Batch User password: •••••••••

Field Title	Batch User
Field Description	The RPM user name of the person running RPM batch. It must be a valid RPM user that will be coming through LDAP.
Example	RETAIL.USER

Field Title	Batch User Password
Field Description	The password of the batch user.

Screen: Choose Apps to Integrate with RPM



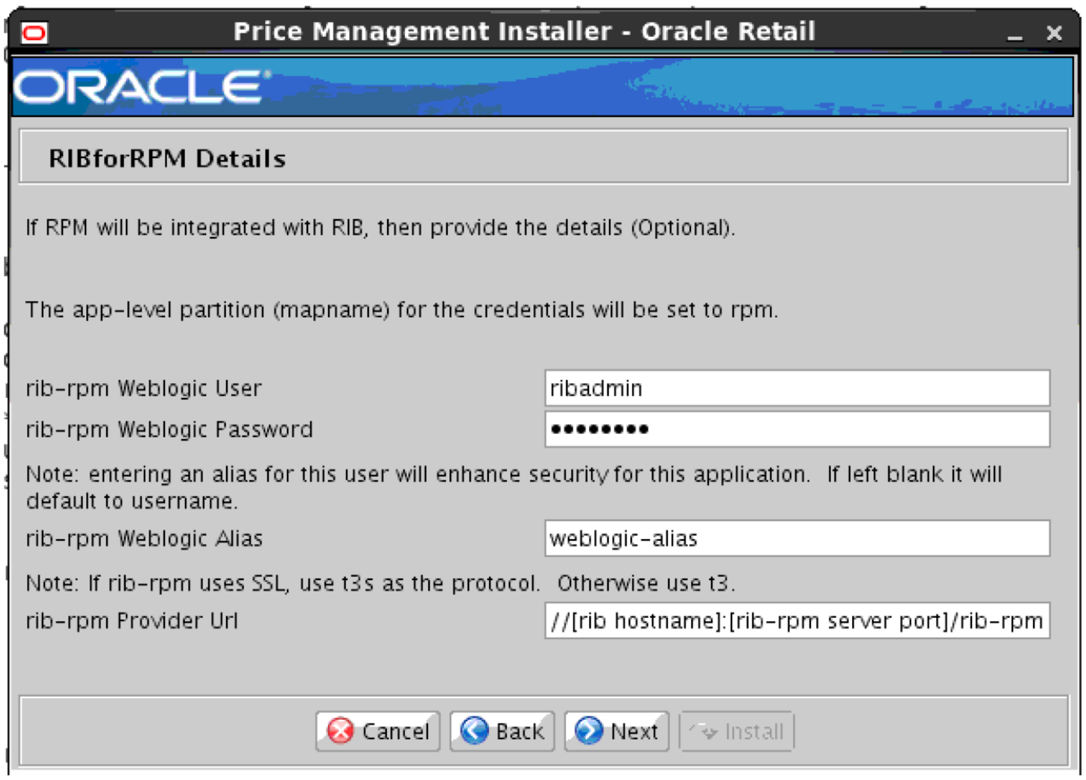
Choose Apps to Integrate with RPM

Choose which applications you would like to integrate with RPM.

Configure RIB for RPM? ✓

Field Title	Configure RIB for RPM?
Field Description	Select this option if you will be using RIB with RPM.

Screen: RIBforRPM Details



RIBforRPM Details

If RPM will be integrated with RIB, then provide the details (Optional).

The app-level partition (mapname) for the credentials will be set to rpm.

rib-rpm Weblogic User	ribadmin
rib-rpm Weblogic Password	●●●●●●●●●

Note: entering an alias for this user will enhance security for this application. If left blank it will default to username.

rib-rpm Weblogic Alias	weblogic-alias

Note: If rib-rpm uses SSL, use t3s as the protocol. Otherwise use t3.

rib-rpm Provider Url	//[rib hostname]:[rib-rpm server port]/rib-rpm

Note: This screen will only be displayed if the check box was checked in the screen prior to this one.

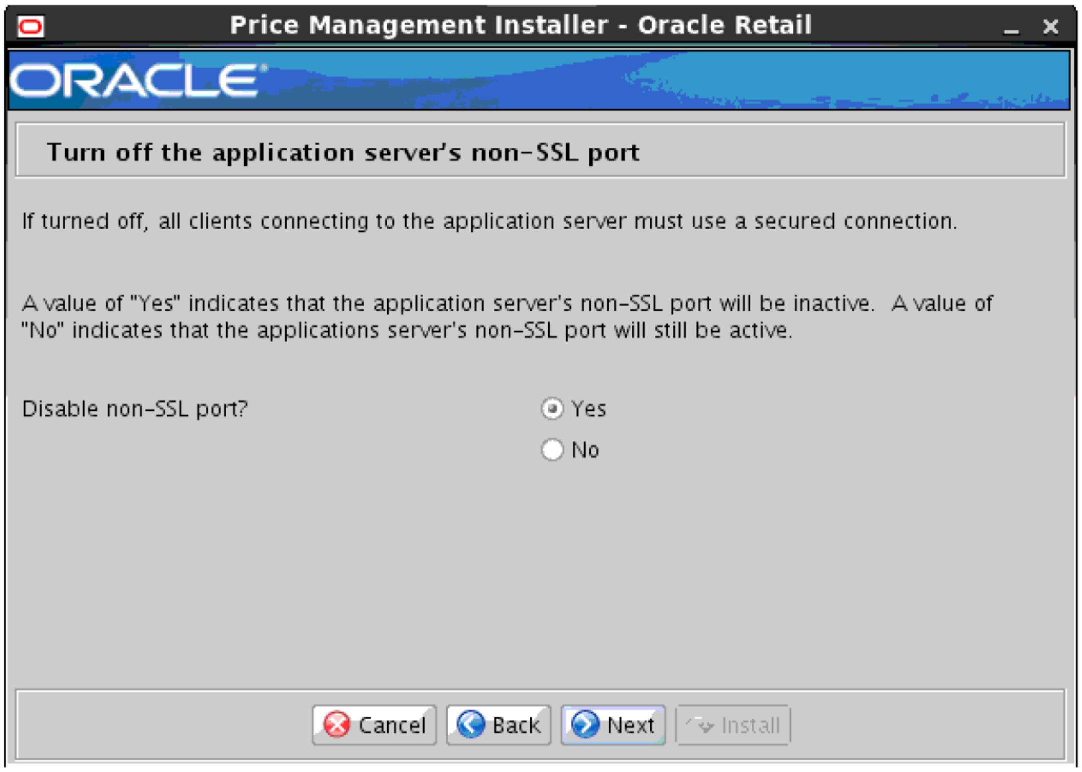
Field Title	rib-rpm WebLogic User
Field Description	The username of the server where rib-rpm is configured.
Example	ribadmin

Field Title	rib-rpm WebLogic password
Field Description	Password for the server where rib-rpm is configured.

Field Title	rib-rpm WebLogic Alias
Field Description	The alias for the rib-rpm WebLogic credentials.
Example	rib-wls-alias
Notes	This alias must be unique. Do not use the same value for any other alias fields in the installer. If the same alias is used, entries in the wallet can override each other and cause problems with the application.

Field Title	rib-rpm Provider URL
Field Description	RPM provider URL for rib-rpm server.
Examples	t3s://myhost:8005/rib-rpm

Screen: Turn off the application server's non-SSL port



Turn off the application server's non-SSL port

If turned off, all clients connecting to the application server must use a secured connection.

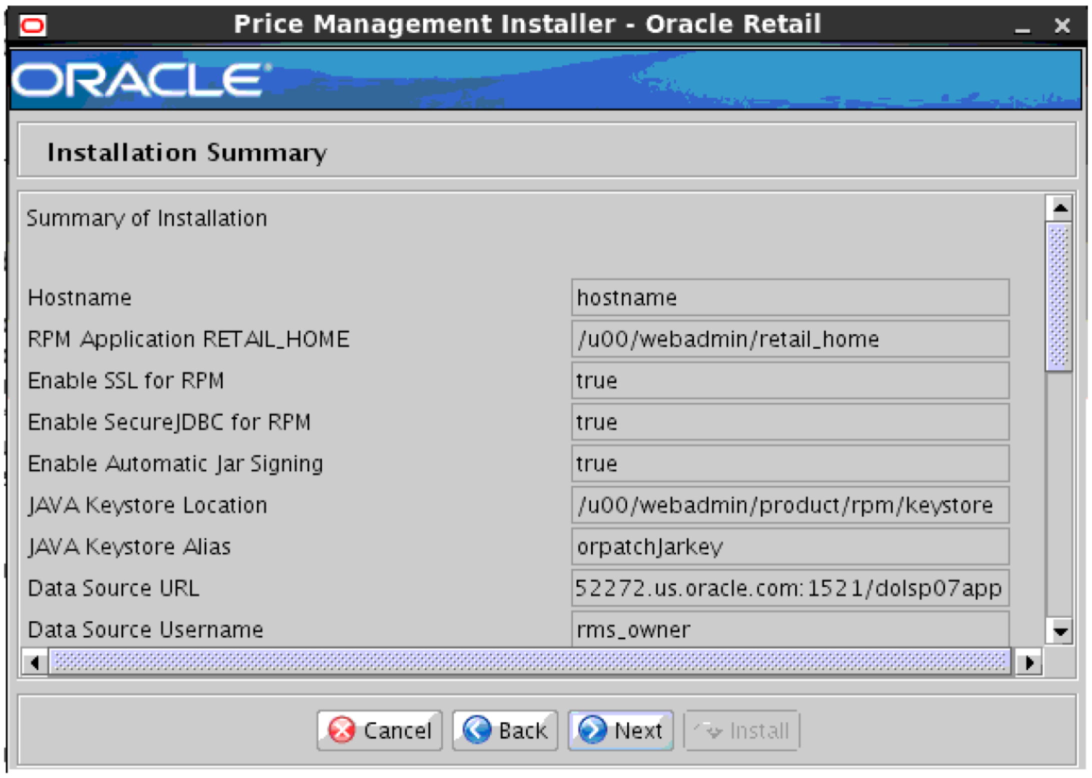
A value of "Yes" indicates that the application server's non-SSL port will be inactive. A value of "No" indicates that the applications server's non-SSL port will still be active.

Disable non-SSL port? [✓ Yes] No

Note: This screen appears only if you have enabled SSL for RPM. Ignore this step in case you have not enabled SSL for RPM.

Field Title	Disable non-SSL port?
Field Description	Choosing Yes disables the non SSL port on the managed server. Choosing no will the leave the non SSL port of the managed server active.

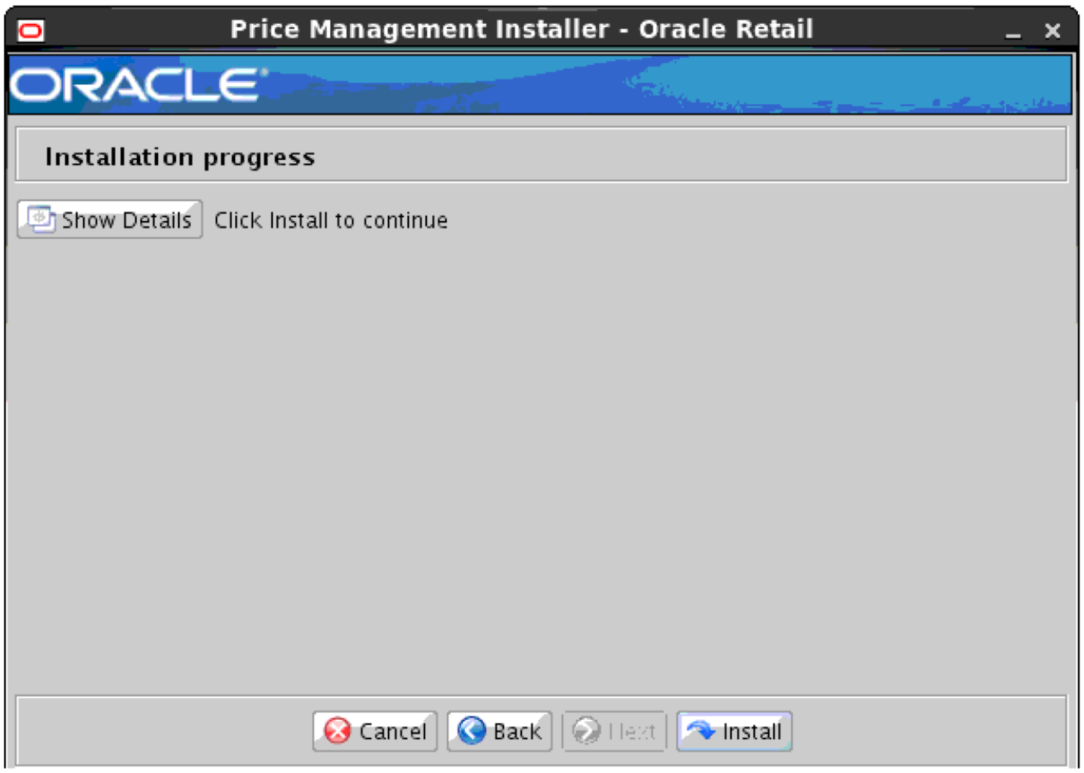
Screen: Installation Summary



Summary of Installation

Hostname	hostname
RPM Application RETAIL_HOME	/u00/webadmin/retail_home
Enable SSL for RPM	true
Enable SecureJDBC for RPM	true
Enable Automatic Jar Signing	true
JAVA Keystore Location	/u00/webadmin/product/rpm/keystore
JAVA Keystore Alias	orpatchJarkey
Data Source URL	52272.us.oracle.com:1521/dolsp07app
Data Source Username	rms_owner

Screen: Installation Progress



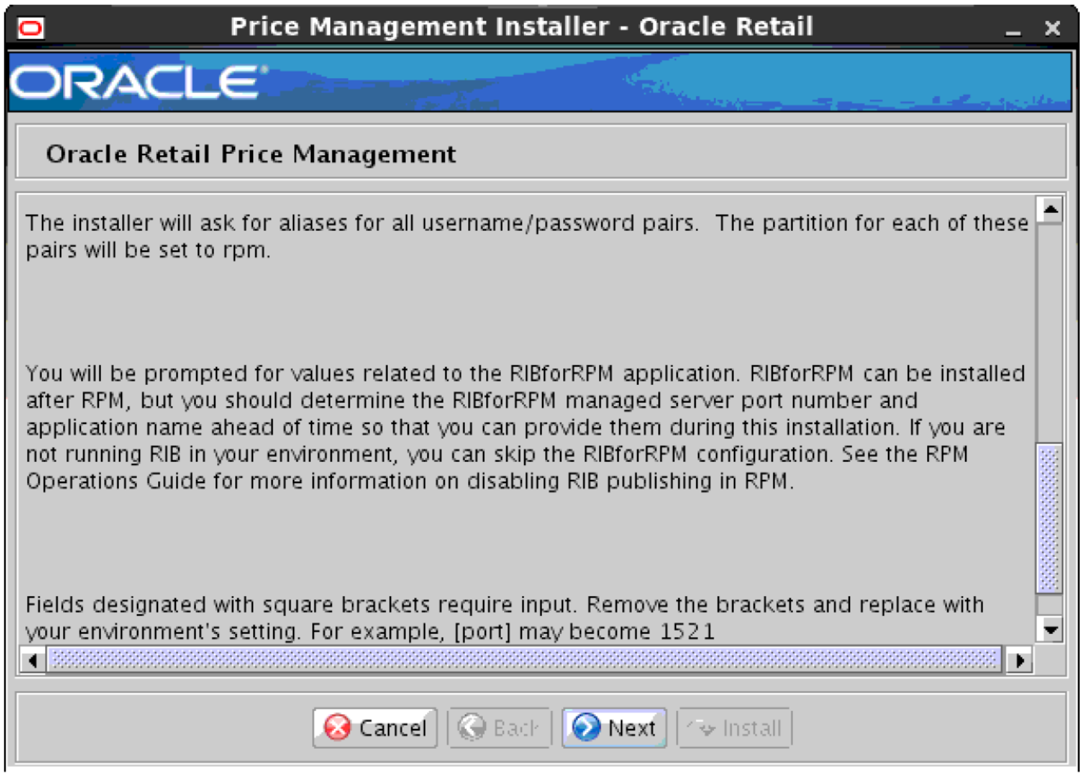
Click Install to continue

B

Appendix: ORPatch Analyze Tool

The following screens will only appear if the variable ORPATCH_ANALYZE has been set to true in the environment

Screen: Introduction Screen

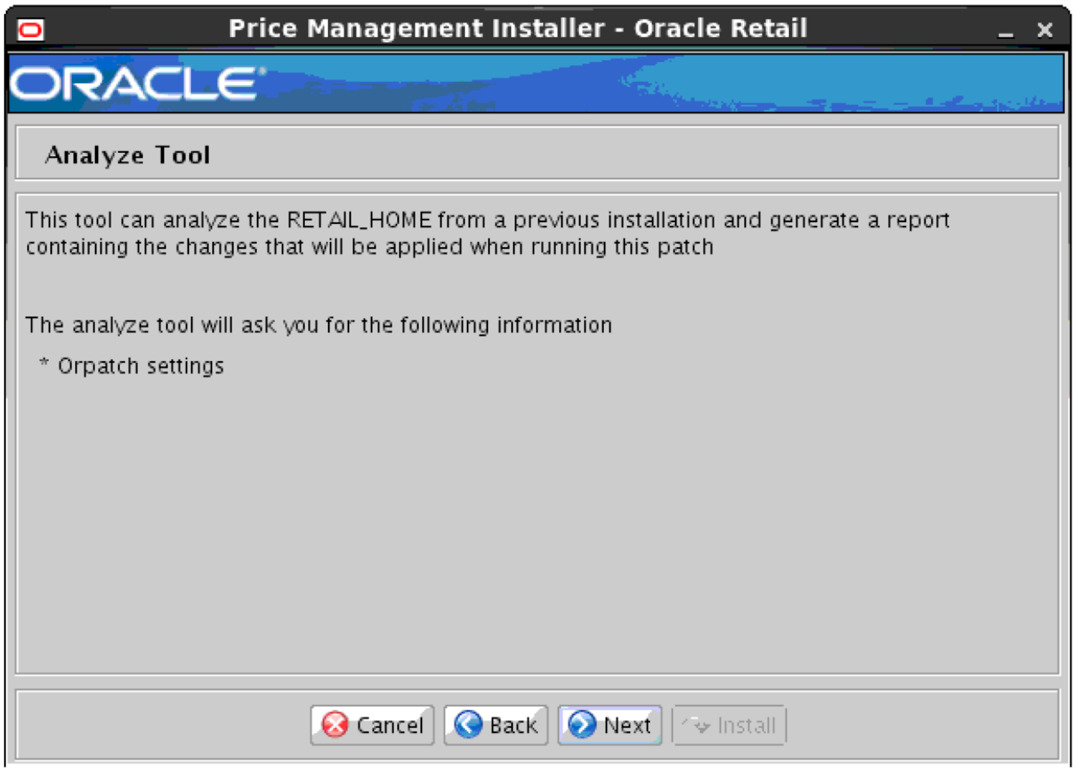

Price Management Installer - Oracle Retail
ORACLE
Oracle Retail Price Management
Cancel
Back
Next
Install

The installer will ask for aliases for all username/password pairs. The partition for each of these pairs will be set to rpm.

You will be prompted for values related to the RIBforRPM application. RIBforRPM can be installed after RPM, but you should determine the RIBforRPM managed server port number and application name ahead of time so that you can provide them during this installation. If you are not running RIB in your environment, you can skip the RIBforRPM configuration. See the RPM Operations Guide for more information on disabling RIB publishing in RPM.

Fields designated with square brackets require input. Remove the brackets and replace with your environment's setting. For example, [port] may become 1521

Screen: Analyze Tool

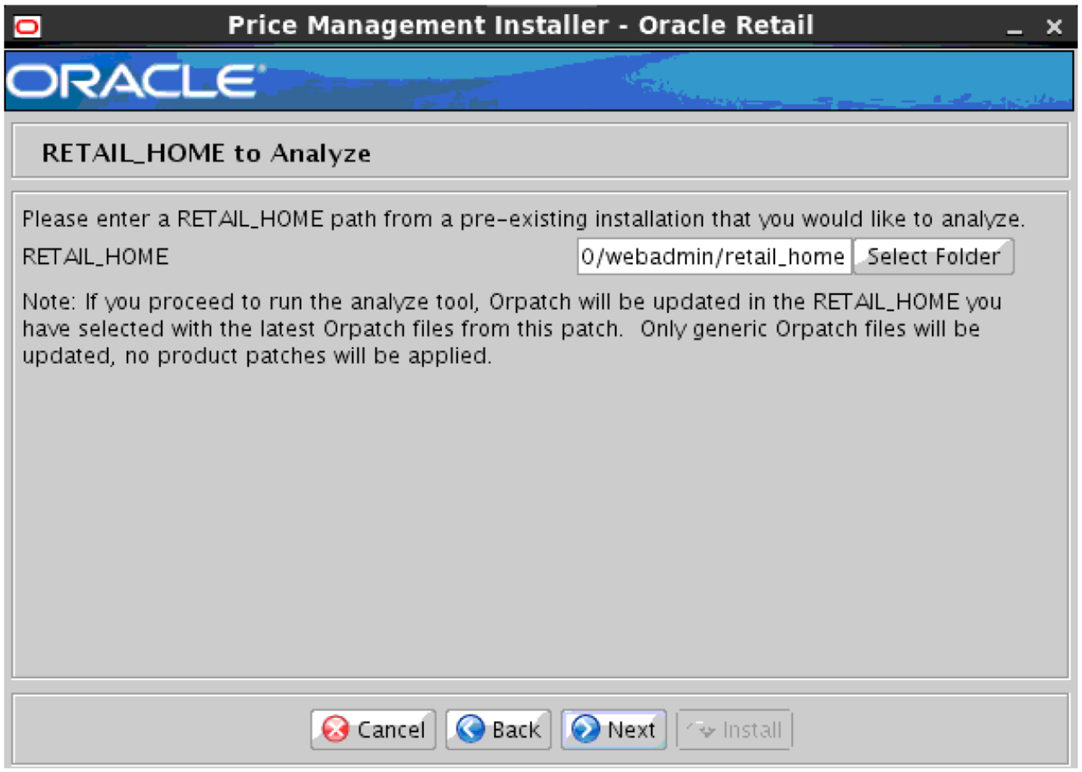


This tool can analyze the RETAIL_HOME from a previous installation and generate a report containing the changes that will be applied when running this patch

The analyze tool will ask you for the following information

* Orpatch settings

Screen: Analyze Retail Home



RETAIL_HOME to Analyze

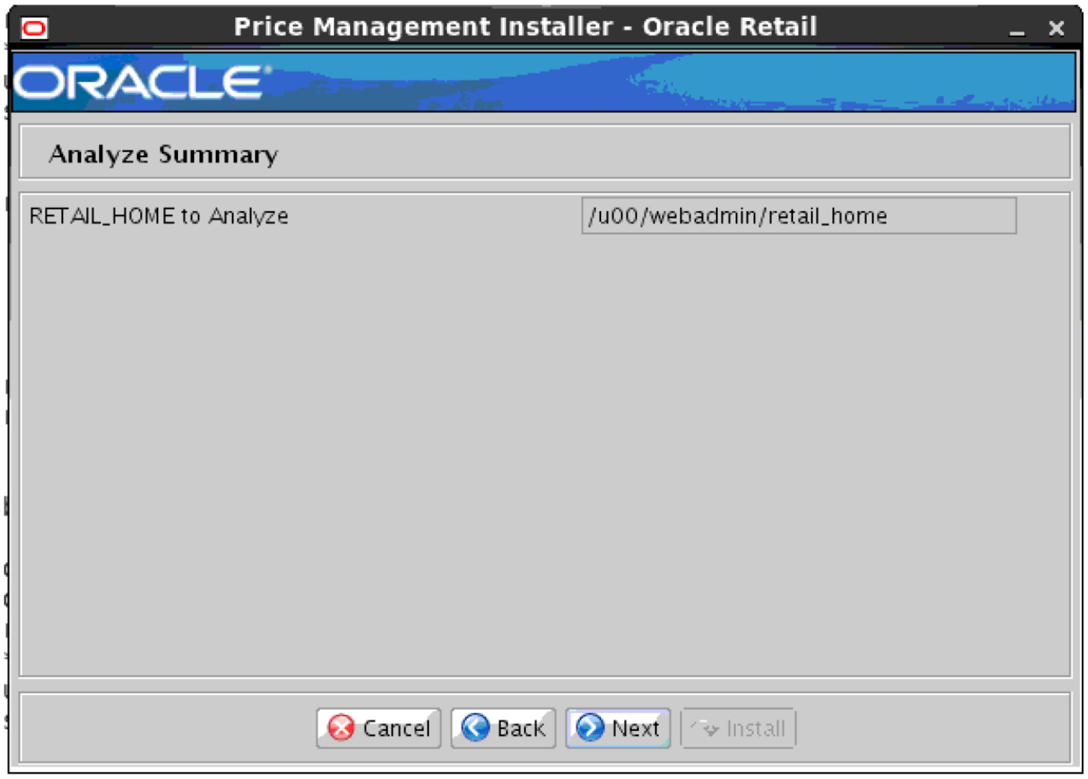
Please enter a RETAIL_HOME path from a pre-existing installation that you would like to analyze.

RETAIL_HOME 0/webadmin/retail_home

Note: If you proceed to run the analyze tool, Orpatch will be updated in the RETAIL_HOME you have selected with the latest Orpatch files from this patch. Only generic Orpatch files will be updated, no product patches will be applied.

Field Title	RPM Application RETAIL HOME
Field Description	The pre-existing RETAIL_HOME location created and used during RPM installation. This location should contain directories with your installed files as well as the “orpatch” directory.
Examples	/path/to/rpm_retail_home

Screen: Analyze Screen



Analyze Summary

RETAIL_HOME to Analyze: /u00/webadmin/retail_home

C
Appendix: Installer Silent Mode

Once you have a managed server that is configured and started, you can run the RPM application installer. This installer configures and deploys the RPM application.

> **Note:** It is recommended that the installer be run as the same UNIX account which owns the application server ORACLE_HOME files.

1. Change directories to INSTALL_DIR/rpm/application.
2. Set the ORACLE_HOME, JAVA_HOME, and WEBLOGIC_DOMAIN_HOME environment variables. ORACLE_HOME should point to your WebLogic installation. . JAVA_HOME should point to the Java JDK 1.7+. This is typically the same JDK which is being used by the WebLogic domain where Application is getting installed. WEBLOGIC_DOMAIN_HOME should point to the full path of the domain into which RPM will be installed.
3. If a secured datasource is going to be configured you also need to set "ANT_OPTS" so the installer can access the key and trust store that is used for the datasource security:

   ```
   export ANT_OPTS="-Djavax.net.ssl.keyStore=<PATH TO KEY STORE> -
   Djavax.net.ssl.keyStoreType=jks -Djavax.net.ssl.keyStorePassword=<KEYSTORE
   PASSWORD> -Djavax.net.ssl.trustStore=<PATH TO TRUST STORE> -
   Djavax.net.ssl.trustStoreType=jks -
   Djavax.net.ssl.trustStorePassword=<TRUSTSTORE PASSWORD>"
   ```

   An example of this would be:

   ```
   export ANT_OPTS="-
   Djavax.net.ssl.keyStore/u00/webadmin/product/identity.keystore -
   Djavax.net.ssl.keyStoreType=jks -Djavax.net.ssl.keyStorePassword=retail123 -
   Djavax.net.ssl.trustStore/u00/webadmin/product/identity.truststore -
   Djavax.net.ssl.trustStoreType=jks -
   Djavax.net.ssl.trustStorePassword=retail123"
   ```

   - If you are using an X server such as Exceed, set the DISPLAY environment variable so that you can run the installer in GUI mode (recommended). If you are not using an X server, or the GUI is too slow over your network, unset DISPLAY for text mode.
   - Copy the ant.install.properties.sample to ant.install.properties. Provide values for each property including the passwords.
   - Run the installation command "./install.sh silent". This launches the installer in silent mode. A detailed installation log file is created (rpminstall.<timestamp>.log).

D

Appendix: Common Installation Errors

This section provides some common errors encountered during installation of RPM.

Keystore errors when signing rpm_client_config.jar

Error message

keytool error: java.io.IOException: Keystore was tampered with, or password was incorrect

This message may be encountered when you use the **keytool** utility to create an alias for signing the rpm_client_config.jar file. This usually happens when the alias for which you are generating a key already exists in the keystore file.

Solution

Delete or rename the ~/.keystore file and run the keytool command again. This creates a fresh keystore file.

Unreadable buttons in the Installer

If you are unable to read the text within the installer buttons, it could mean that your JAVA_HOME is pointed to an older version of the JDK that is supported by the installer. "Set JAVA_HOME with the appropriate JDK (the same jdk that has been used by WebLogic Server)."

Left menu buttons missing in RPM Client

Symptom

You can log into the RPM application but the left-side menus do not show up on the screen.

Solution

The RSM (Security Manager) schema has not been loaded with RPM security data. There is a set of RPM data scripts that is shipped with RMS 15(See Chapter 2, "RAC and Clustering." Run these scripts in the RSM schema and try logging into RPM again.

Warning: Could not find X Input Context

Symptom

The following text appears in the console window during execution of the installer in GUI mode:

```
Couldn't find X Input Context
```

Solution

This message is harmless and can be ignored.

Failed RPM Login

Symptom

You will receive errors when the RPM client tries to connect to the ldap server to authenticate the user.

Solution

Add the following tag to the **server start parameters** of the rpm managed server.

```
-Djava.security.auth.login.config=<domain_path>/servers/<managed_server>
/rpm_jaas.config
```

Validate the location of rpm_jaas.config. Make sure weblogic.policy has the appropriate values, as specified in the Start the Managed Servers section.

GUI screens fail to open when running Installer

Symptom

When running the installer in GUI mode, the screens fail to open and the installer ends, returning to the console without an error message. The ant.install.log file contains this error:

```
Fatal exception: Width (0) and height (0) cannot be <= 0
java.lang.IllegalArgumentException: Width (0) and height (0) cannot be <= 0
```

Solution

This error is encountered when Antinstaller is used in GUI mode with certain X Servers. To work around this issue, copy ant.install.properties.sample to ant.install.properties and rerun the installer.

E

Appendix: URL Reference

The application installer for the RPM product asks for several different URLs. These include the following.

JDBC URL for a Database

Used by the Java application and by the installer to connect to the database.

Thick Client Syntax: jdbc:oracle:oci:@<sid>

<sid>: system identifier for the database

Example: jdbc:oracle:oci:@mysid

Thin Client Syntax: jdbc:oracle:thin:@<host>:<port>/<sid>

<host>: hostname of the database server

<port>: database listener port

<sid>: system identifier for the database

Example: jdbc:oracle:thin:@myhost:1521/mysid

JNDI Provider URL for an Application

Used by the application client to access the application running in the server. This is also used by other applications for server-to-server calls.

Syntax: t3://<host>:<port>:/<app>

- <host>: hostname of the WebLogic environment
- <port>: Port of the managed server to which rpm has been deployed. This can be found in the <WEBLOGIC_DOMAIN_HOME>/config/config.xml file.
- <app>: Deployment name for the application.

Example: t3:/myhost:17011/rpm15

Note: The JNDI provider URL can have a different format depending on your cluster topology. Consult the WebLogic documentation.

F

Appendix: Setting Up Password Stores with wallets/credential stores

As part of an application installation, administrators must set up password stores for user accounts using wallets/credential stores. Some password stores must be installed on the application database side. While the installer handles much of this process, the administrators must perform some additional steps.

Password stores for the application and application server user accounts must also be installed; however, the installer takes care of this entire process.

ORACLE Retail Merchandising applications now have 3 different types of password stores. They are database wallets, java wallets, and database credential stores. Background and how to administer them below are explained in this appendix

About Database Password Stores and Oracle Wallet

Oracle databases have allowed other users on the server to see passwords in case database connect strings (username/password@db) were passed to programs. In the past, users could navigate to `ps –ef|grep <username>` to see the password if the password was supplied in the command line when calling a program.

To make passwords more secure, Oracle Retail has implemented the Oracle Software Security Assurance (OSSA) program. Sensitive information such as user credentials now must be encrypted and stored in a secure location. This location is called password stores or wallets. These password stores are secure software containers that store the encrypted user credentials.

Users can retrieve the credentials using aliases that were set up when encrypting and storing the user credentials in the password store. For example, if `username/password@db` is entered in the command line argument and the alias is called `db_username`, the argument to a program is as follows:

```
sqlplus /@db_username
```

This would connect to the database as it did previously, but it would hide the password from any system user.

After this is configured, as in the example above, the application installation and the other relevant scripts are no longer needed to use embedded usernames and passwords. This reduces any security risks that may exist because usernames and passwords are no longer exposed.

When the installation starts, all the necessary user credentials are retrieved from the Oracle Wallet based on the alias name associated with the user credentials.

There are three different types of password stores. One type explain in the next section is for database connect strings used in program arguments (such as `sqlplus /@db_username`). The others are for Java application installation and application use.

Setting Up Password Stores for Database User Accounts

After the database is installed and the default database user accounts are set up, administrators must set up a password store using the Oracle wallet. This involves assigning an alias for the username and associated password for each database user account. The alias is used later during the application installation. This password store must be created on the system where the application server and database client are installed.

This section describes the steps you must take to set up a wallet and the aliases for the database user accounts. For more information on configuring authentication and password stores, see the *Oracle Database Security Guide*.

> **Note:** In this section, `<wallet_location>` is a placeholder text for illustration purposes. Before running the command, ensure that you specify the path to the location where you want to create and store the wallet.

To set up a password store for the database user accounts, perform the following steps:

1. Create a wallet using the following command:

   ```
   mkstore -wrl <wallet_location> -create
   ```

   After you run the command, a prompt appears. Enter a password for the Oracle Wallet in the prompt.

   > **Note:** The `mkstore` utility is included in the Oracle Database Client installation.

   The wallet is created with the auto-login feature enabled. This feature enables the database client to access the wallet contents without using the password. For more information, refer to the *Oracle Database Advanced Security Administrator's Guide.*

2. Create the database connection credentials in the wallet using the following command:

```
    mkstore -wrl <wallet_location> -createCredential <alias-name> <database-user-
name>
```

   After you run the command, a prompt appears. Enter the password associated with the database user account in the prompt.

3. Repeat Step 2 for all the database user accounts.

4. Update the sqlnet.ora file to include the following statements:

   ```
   WALLET_LOCATION = (SOURCE = (METHOD = FILE) (METHOD_DATA = (DIRECTORY =
   <wallet_location>)))
   SQLNET.WALLET_OVERRIDE = TRUE
   SSL_CLIENT_AUTHENTICATION = FALSE
   ```

5. Update the tnsnames.ora file to include the following entry for each alias name to be set up.

   ```
   <alias-name> =
       (DESCRIPTION =
        (ADDRESS_LIST =
              (ADDRESS = (PROTOCOL = TCP) (HOST = <host>) (PORT = <port>))
           )
           (CONNECT_DATA =
               (SERVICE_NAME = <service>)
            )
        )
   ```

   In the previous example, `<alias-name>`, `<host>`, `<port>`, and `<service>` are placeholder text for illustration purposes. Ensure that you replace these with the relevant values.

Setting up Wallets for Database User Accounts

The following examples show how to set up wallets for database user accounts for the following applications:

- For RMS, RWMS, RPM Batch using sqlplus or sqlldr, RETL, RMS, RWMS, and ARI

For RMS, RWMS, RPM Batch using sqlplus or sqlldr, RETL, RMS, RWMS, and ARI

To set up wallets for database user accounts, do the following.

1. Create a new directory called wallet under your folder structure.

```
cd /projects/rms15/dev/
mkdir .wallet
```

> **Note:** The default permissions of the wallet allow only the owner to use it, ensuring the connection information is protected. If you want other users to be able to use the connection, you must adjust permissions appropriately to ensure only authorized users have access to the wallet.

2. Create a sqlnet.ora in the wallet directory with the following content.

```
WALLET_LOCATION =   (SOURCE =     (METHOD = FILE)     (METHOD_DATA =
(DIRECTORY =  /projects/rms15/dev/.wallet)) )
SQLNET.WALLET_OVERRIDE=TRUE
SSL_CLIENT_AUTHENTICATION=FALSE
```

> **Note**: WALLET_LOCATION must be on line 1 in the file.

3. Setup a tnsnames.ora in the wallet directory. This tnsnames.ora includes the standard tnsnames.ora file. Then, add two custom tns_alias entries that are only for use with the wallet. For example, `sqlplus /@dvols29_rms01user`.

```
ifile = /u00/oracle/product/12.1.0.2/network/admin/tnsnames.ora

Examples for a NON pluggable db:
dvols29_rms01user =
  (DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = tcp)
  (host = xxxxxx.us.oracle.com) (Port = 1521)))
    (CONNECT_DATA = (SID = <sid_name> (GLOBAL_NAME = <sid_name>)))

dvols29_rms01user.world =
  (DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = tcp)
  (host = xxxxxx.us.oracle.com) (Port = 1521)))
    (CONNECT_DATA = (SID = <sid_name>) (GLOBAL_NAME = <sid_name>)))

Examples for a pluggable db:
dvols29_rms01user =
  (DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = tcp)
  (host = xxxxxx.us.oracle.com) (Port = 1521)))
    (CONNECT_DATA = (SERVICE_NAME = <pluggable db name>)))

dvols29_rms01user.world =
  (DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = tcp)
  (host = xxxxxx.us.oracle.com) (Port = 1521)))
    (CONNECT_DATA = (SERVICE_NAME = <pluggable db name>)))
```

> **Note**: It is important to not just copy the tnsnames.ora file because it can quickly become out of date. The ifile clause (shown above) is key.

4. Create the wallet files. These are empty initially.
   a. Ensure you are in the intended location.
      ```
      $ pwd
      /projects/rms15/dev/.wallet
      ```
   b. Create the wallet files.
      ```
      $ mkstore -wrl . –create
      ```
   c. Enter the wallet password you want to use. It is recommended that you use the same password as the UNIX user you are creating the wallet on.
   d. Enter the password again.

      Two wallet files are created from the above command:
      – ewallet.p12
      – cwallet.sso
5. Create the wallet entry that associates the user name and password to the custom tns alias that was setup in the wallet's tnsnames.ora file.
   ```
   mkstore –wrl . –createCredential <tns_alias> <username> <password>
   ```

Example: `mkstore –wrl . –createCredential dvols29_rms01user rms01user passwd`

6. Test the connectivity. The ORACLE_HOME used with the wallet must be the same version or higher than what the wallet was created with.
   ```
   $ export TNS_ADMIN=/projects/rms15/dev/.wallet /* This is very import to use
   wallet to point at the alternate tnsnames.ora created in this example */

   $ sqlplus /@dvols29_rms01user

   SQL*Plus: Release 12

   Connected to:
   Oracle Database 12g

   SQL> show user
   USER is “rms01user”
   ```
   Running batch programs or shell scripts would be similar:
   ```
   Ex: dtesys /@dvols29_rms01user
   script.sh /@dvols29_rms01user

   Set the UP unix variable to help with some compiles :

   export UP=/@dvols29_rms01user
   for use in RMS batch compiles, and RMS, RWMS, and ARI forms compiles.
   ```

As shown in the example above, users can ensure that passwords remain invisible.

Additional Database Wallet Commands

The following is a list of additional database wallet commands.

- Delete a credential on wallet
  ```
  mkstore –wrl . –deleteCredential dvols29_rms01user
  ```
- Change the password for a credential on wallet
  ```
  mkstore –wrl . –modifyCredential dvols29_rms01user rms01user passwd
  ```

- List the wallet credential entries

  ```
  mkstore –wrl . –list
  ```

  This command returns values such as the following.

  ```
  oracle.security.client.connect_string1
  oracle.security.client.user1
  oracle.security.client.password1
  ```

- View the details of a wallet entry

  ```
  mkstore –wrl . –viewEntry oracle.security.client.connect_string1
  ```

  Returns the value of the entry:

  ```
  dvols29_rms01user
  mkstore –wrl . –viewEntry oracle.security.client.user1
  ```

  Returns the value of the entry:

  ```
  rms01user
  ```

  ```
  mkstore –wrl . –viewEntry oracle.security.client.password1
  ```

  Returns the value of the entry:

  ```
  Passwd
  ```

Setting up RETL Wallets

RETL creates a wallet under $RFX_HOME/etc/security, with the following files:

- cwallet.sso
- jazn-data.xml
- jps-config.xml
- README.txt

To set up RETL wallets, perform the following steps:

1. Set the following environment variables:
   - `ORACLE_SID=<retaildb>`
   - `RFX_HOME=/u00/rfx/rfx-13`
   - `RFX_TMP=/u00/rfx/rfx-13/tmp`
   - `JAVA_HOME=/usr/jdk1.6.0_12.64bit`
   - `LD_LIBRARY_PATH=$ORACLE_HOME`
   - `PATH=$RFX_HOME/bin:$JAVA_HOME/bin:$PATH`
2. Change directory to $RFX_HOME/bin.
3. Run setup-security-credential.sh.
   - Enter 1 to add a new database credential.
   - Enter the dbuseralias. For example, `retl_java_rms01user`.
   - Enter the database user name. For example, `rms01user.`
   - Enter the database password.
   - Re-enter the database password.
   - Enter D to exit the setup script.
4. Update your RETL environment variable script to reflect the names of both the Oracle Networking wallet and the Java wallet.

   For example, to configure RETLforRPAS, modify the following entries in `$RETAIL_HOME/RETLforRPAS/rfx/etc/rmse_rpas_config.env.`
   - The RETL_WALLET_ALIAS should point to the Java wallet entry:

  - `export RETL_WALLET_ALIAS="retl_java_rms01user"`
- The ORACLE_WALLET_ALIAS should point to the Oracle network wallet entry:
  - `export ORACLE_WALLET_ALIAS="dvols29_rms01user"`
- The SQLPLUS_LOGON should use the ORACLE_WALLET_ALIAS:
  - `export SQLPLUS_LOGON="/@${ORACLE_WALLET_ALIAS}"`

5. To change a password later, run `setup-security-credential.sh`.
   - Enter 2 to update a database credential.
   - Select the credential to update.
   - Enter the database user to update or change.
   - Enter the password of the database user.
   - Re-enter the password.

For Java Applications (SIM, ReIM, RPM, RIB, AIP, Alloc, ReSA, RETL)

For Java applications, consider the following:

- For database user accounts, ensure that you set up the same alias names between the password stores (database wallet and Java wallet). You can provide the alias name during the installer process.
- Document all aliases that you have set up. During the application installation, you must enter the alias names for the application installer to connect to the database and application server.
- Passwords are not used to update entries in Java wallets. Entries in Java wallets are stored in partitions, or application-level keys. In each retail application that has been installed, the wallet is located in <WEBLOGIC_DOMAIN_HOME>/retail/<appname>/config Example: /u00/webadmin/config/domains/wls_retail/REIMDomain/retail/reim15/config
- Application installers should create the Java wallets for you, but it is good to know how this works for future use and understanding.
- Scripts are located in <WEBLOGIC_DOMAIN_HOME>/retail/<appname>/retail-public-security-api/bin for administering wallet entries.
- Example:
- /u00/webadmin/config/domains/wls_retail/REIMDomain/retail/retail-public-security-api/bin
- In this directory is a script to help you update each alias entry without having to remember the wallet details. For example, if you set the RPM database alias to rms01user, you will find a script called update-RMS01USER.sh.

Note: These scripts are available only with applications installed by way of an installer.

- Two main scripts are related to this script in the folder for more generic wallet operations: dump_credentials.sh and save_credential.sh.
- If you have not installed the application yet, you can unzip the application zip file and view these scripts in <app>/application/retail-public-security-api/bin.
- Example:
- /u00/webadmin/reim15/application/retail-public-security-api/bin

update-<ALIAS>.sh

update-<ALIAS>.sh updates the wallet entry for this alias. You can use this script to change the user name and password for this alias. Because the application refers only to the alias, no changes are needed in application properties files.

Usage:

```
update-<username>.sh <myuser>
```

Example:

```
/u00/webadmin/config/domains/wls_retail/REIMDomain/retail/reim15/retail-public-
security-api/bin> ./update-RMS01USER.sh
usage: update-RMS01USER.sh <username>
<username>: the username to update into this alias.
Example: update-RMS01USER.sh myuser
Note: this script will ask you for the password for the username that you pass in.
/u00/webadmin/config/domains/wls_retail/REIMDomain/retail/reim15/retail-public-
security-api/bin>
```

dump_credentials.sh

dump_credentials.sh is used to retrieve information from wallet. For each entry found in the wallet, the wallet partition, the alias, and the user name are displayed. Note that the password is not displayed. If the value of an entry is uncertain, run save_credential.sh to resave the entry with a known password.

```
dump_credentials.sh <wallet location>
```

Example:

```
dump_credentials.sh location:
/u00/webadmin/config/domains/wls_retail/REIMDomain/retail/reim15/config

Retail Public Security API Utility
=============================================
```

Below are the credentials found in the wallet at the location/u00/webadmin/config/domains/wls_retail/REIMDomain/retail/reim15config

```
=============================================

Application level key partition name:reim15
User Name Alias:WLS-ALIAS User Name:weblogic
User Name Alias:RETAIL-ALIAS User Name:retail.user
User Name Alias:LDAP-ALIAS User Name:RETAIL.USER
User Name Alias:RMS-ALIAS User Name:rms15mock
User Name Alias:REIMBAT-ALIAS User Name:reimbat
```

save_credential.sh

save_credential.sh is used to update the information in wallet. If you are unsure about the information that is currently in the wallet, use dump_credentials.sh as indicated above.

```
save_credential.sh -a <alias> -u <user> -p <partition name>  –l <path of the
wallet file location where credentials are stored>
```

Example:

```
/u00/webadmin/mock15_testing/reim15/application/retail-public-security-api/bin>
save_credential.sh -l wallet_test -a myalias -p mypartition -u myuser

=============================================
Retail Public Security API Utility
=============================================

Enter password:
Verify password:
```

Note: `-p` in the above command is for partition name. You must specify the proper partition name used in application code for each Java application.

save_credential.sh and dump_credentials.sh scripts are the same for all applications. If using save_credential.sh to add a wallet entry or to update a wallet entry, bounce the application/managed server so that your changes are visible to the application. Also, save a backup copy of your cwallet.sso file in a location outside of the deployment path, because redeployment or reinstallation of the application will wipe the wallet entries you made after installation of the application. To restore your wallet entries after a redeployment/reinstallation, copy the backed up cwallet.sso file over the cwallet.sso file. Then bounce the application/managed server.

Usage

```
=============================================
Retail Public Security API Utility
=============================================
usage: save_credential.sh -au[plh]
E.g. save_credential.sh -a rms-alias -u rms_user -p rib-rms -l ./
 -a,--userNameAlias <arg>            alias for which the credentials
needs to be stored
 -h,--help                           usage information
 -l,--locationofWalletDir <arg>      location where the wallet file is
created.If not specified, it creates the wallet under secure-credential-wallet
directory which is already present under the retail-public-security-api/
directory.
 -p,--appLevelKeyPartitionName <arg>   application level key partition name
 -u,--userName <arg>                 username to be stored in secure
credential wallet for specified alias*
```

How does the Wallet Relate to the Application?

The ORACLE Retail Java applications have the wallet alias information you create in an <app-name>.properties file. Below is the reim.properties file. Note the database information and the user are presented as well. The property called datasource.credential.alias=RMS-ALIAS uses the ORACLE wallet with the argument of RMS-ALIAS at the csm.wallet.path and csm.wallet.partition.name = reim14 to retrieve the password for application use.

Reim.properties code sample:

```
datasource.url=jdbc:oracle:thin:@xxxxxxx.us.oracle.com:1521:pkols07
datasource.schema.owner=rms15mock
datasource.credential.alias=RMS-ALIAS
# =================================================================
# ossa related Configuration
#
# These settings are for ossa configuration to store credentials.
# =================================================================

csm.wallet.path=/u00/webadmin/config/domains/wls_retail/REIMDomain/retail/reim15co
nfig
csm.wallet.partition.name=reim15
```

How does the Wallet Relate to Java Batch Program use?

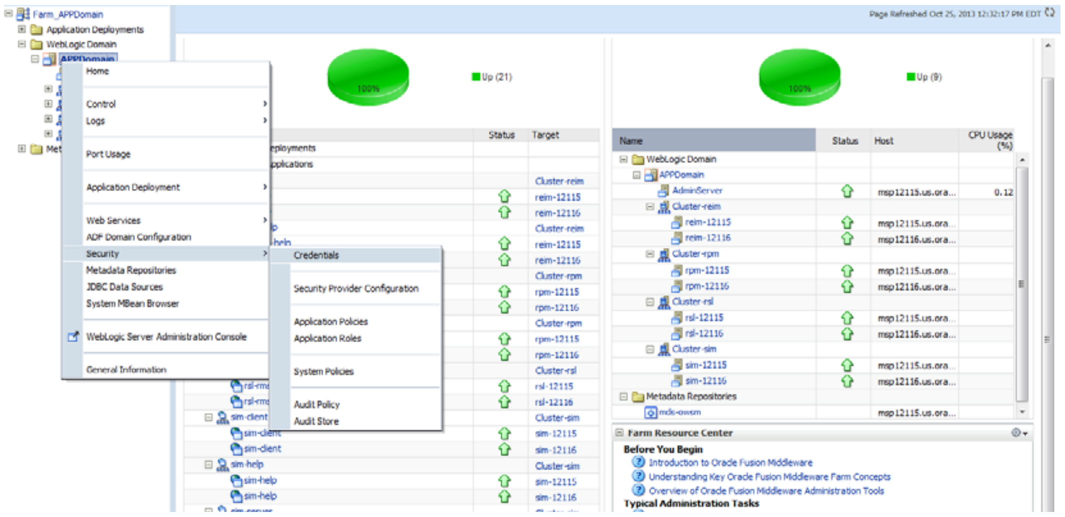
Some of the ORACLE Retail Java batch applications have an alias to use when running Java batch programs. For example, alias REIMBAT-ALIAS maps through the wallet to dbuser RMS01APP, already on the database. To run a ReIM batch program the format would be: reimbatchpgmname REIMBAT-ALIAS <other arguments as needed by the program in question>

Database Credential Store Administration

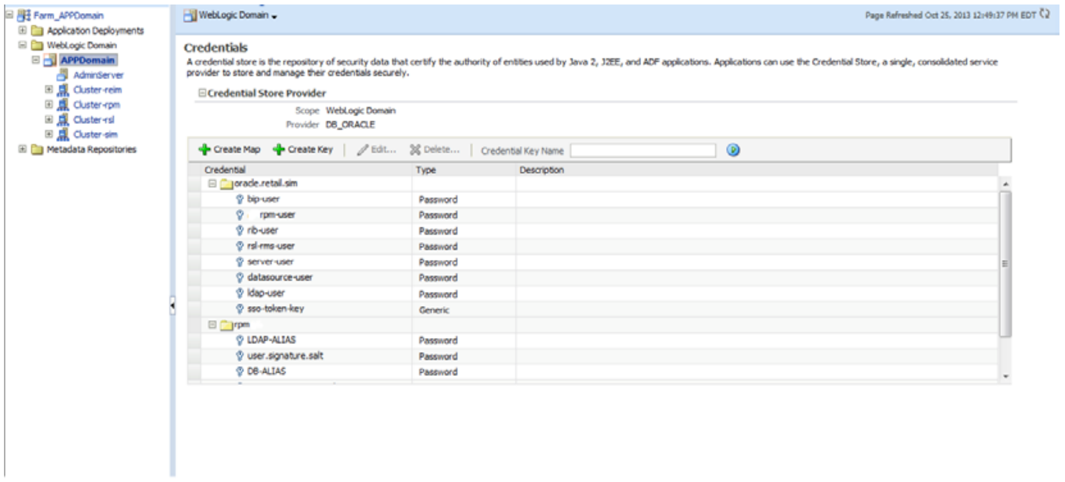
The following section describes a domain level database credential store. This is used in RPM login processing, SIM login processing, RWMS login processing, RESA login processing and Allocation login processing and policy information for application permission. Setting up the database credential store is addressed in the RPM, SIM, RESA, RWMS, and Alloc 15.0 install guides.

The following sections show an example of how to administer the password stores thru ORACLE Enterprise Manger Fusion Middleware Control, a later section will show how to do this thru WLST scripts.

1. The first step is to use your link to Oracle Enterprise Manager Fusion Middleware Control for the domain in question. Locate your domain on the left side of the screen and do a right mouse click on the domain and select **Security** > **Credentials**



2. Click on Credentials and you will get a screen similar to the following. The following screen is expanded to make it make more sense. From here you can administer credentials.



Credentials

A credential store is the repository of security data that certify the authority of entities used by Java 2, J2EE, and ADF applications. Applications can use the Credential Store, a single, consolidated service provider to store and manage their credentials securely.

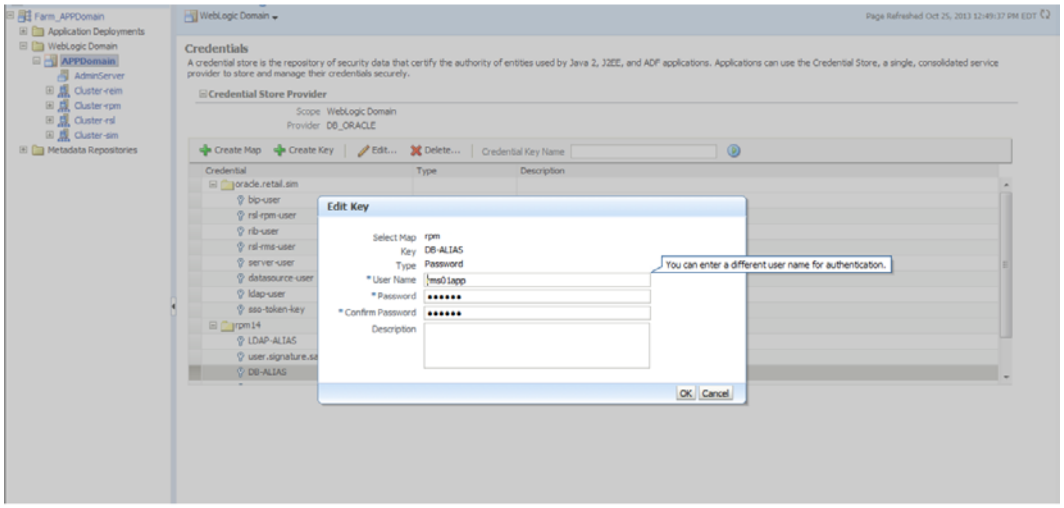
Credential Store Provider

Scope WebLogic Domain
Provider DB_ORACLE

Credential	Type	Description
oracle.retail.sim		
bip-user	Password	
rpm-user	Password	
rib-user	Password	
rsl-rms-user	Password	
server-user	Password	
datasource-user	Password	
ldap-user	Password	
sso-token-key	Generic	
rpm		
LDAP-ALIAS	Password	
user.signature.salt	Password	
DB-ALIAS	Password	

The Create Map add above is to create a new map with keys under it. A map would usually be an application such as rpm15. The keys will usually represent alias to various users (database user, WebLogic user, LDAP user, etc). The application installer should add the maps so you should not often have to add a map.

Creation of the main keys for an application will also be built by the application installer. You will not be adding keys often as the installer puts the keys out and the keys talk to the application. You may be using EDIT on a key to see what user the key/alias points to and possibly change/reset its password. To edit a key/alias, highlight the key/alias in question and push the edit icon nearer the top of the page. You will then get a screen as follows:



Credentials

A credential store is the repository of security data that certify the authority of entities used by Java 2, J2EE, and ADF applications. Applications can use the Credential Store, a single, consolidated service provider to store and manage their credentials securely.

Credential Store Provider

Scope WebLogic Domain
Provider DB_ORACLE

Edit Key

Select Map rpm
Key DB-ALIAS
Type Password
* User Name rms01app
* Password ••••••
* Confirm Password ••••••
Description

You can enter a different user name for authentication.

The screen above shows the map (rpm) that came from the application installer, the key (DB-ALIAS) that came from the application installer (some of the keys/alias are selected by the person who did the application install, some are hard coded by the application installer in question), the type (in this case password), and the user name and password. This is where you would check to see that the user name is correct and reset the password if needed. REMEMBER, a change to an item like a database password WILL make you come into this and also change the password. Otherwise your application will NOT work correctly.

Managing Credentials with WSLT/OPSS Scripts

This procedure is optional as you can administer the credential store through the Oracle enterprise manager associated with the domain of your application install for ReIM, RPM, SIM, RESA, or Allocation.

An Oracle Platform Security Scripts (OPSS) script is a WLST script, in the context of the Oracle WebLogic Server. An online script is a script that requires a connection to a running server. Unless otherwise stated, scripts listed in this section are online scripts and operate on a database credential store. There are a few scripts that are offline, that is, they do not require a server to be running to operate.

Read-only scripts can be performed only by users in the following WebLogic groups: Monitor, Operator, Configurator, or Admin. Read-write scripts can be performed only by users in the following WebLogic groups: Admin or Configurator. All WLST scripts are available out-of-the-box with the installation of the Oracle WebLogic Server.

WLST scripts can be run in interactive mode or in script mode. In interactive mode, you enter the script at a command-line prompt and view the response immediately after. In script mode, you write scripts in a text file (with a py file name extension) and run it without requiring input, much like the directives in a shell script.

The weakness with the WLST/OPSS scripts is that you have to already know your map name and key name. In many cases, you do not know or remember that. The database credential store way through enterprise manager is a better way to find your map and key names easily when you do not already know them. A way in a command line mode to find the map name and alias is to run orapki. An example of orapki is as follows:

/u00/webadmin/product/wls_apps/oracle_common/bin> ./orapki wallet display –wallet /u00/webadmin/product/wls_apps/user_projects/domains/APPDomain/config/fmwconfig

(where the path above is the domain location of the wallet)

Output of orapki is below. This shows map name of rpm and each alias in the wallet:

Requested Certificates:

User Certificates:

Oracle Secret Store entries:

rpm@#3#@DB-ALIAS

rpm@#3#@LDAP-ALIAS

rpm@#3#@RETAIL.USER

rpm@#3#@user.signature.salt

rpm@#3#@user.signature.secretkey

rpm@#3#@WEBLOGIC-ALIAS

rpm@#3#@WLS-ALIAS

Trusted Certificates:

Subject: OU=Class 1 Public Primary Certification Authority,O=VeriSign\, Inc.,C=US

OPSS provides the following scripts on all supported platforms to administer credentials (all scripts are online, unless otherwise stated. You need the map name and the key name to run the scripts below

- listCred
- updateCred
- createCred
- deleteCred
- modifyBootStrapCredential
- addBootStrapCredential

listCred

The script `listCred` returns the list of attribute values of a credential in the credential store with given map name and key name. This script lists the data encapsulated in credentials of type password only.

Script Mode Syntax

```
listCred.py -map mapName -key keyName
```

Interactive Mode Syntax

```
listCred(map="mapName", key="keyName")
```

The meanings of the arguments (all required) are as follows:

- `map` specifies a map name (folder).
- `key` specifies a key name.

Examples of Use:

The following invocation returns all the information (such as user name, password, and description) in the credential with map name `myMap` and key name `myKey`:

```
listCred.py -map myMap -key myKey
```

The following example shows how to run this command and similar credential commands with WLST:

```
/u00/webadmin/product/wls_apps/oracle_common/common/bin>
sh wlst.sh

Initializing WebLogic Scripting Tool (WLST)...

Welcome to WebLogic Server Administration Scripting Shell


wls:/offline> connect('weblogic','password123','xxxxxx.us.oracle.com:17001')
Connecting to t3://xxxxxx.us.oracle.com:17001 with userid weblogic ...
Successfully connected to Admin Server 'AdminServer' that belongs to domain
'APPDomain'.

wls:/APPDomain/serverConfig> listCred(map="rpm",key="DB-ALIAS")
Already in Domain Runtime Tree

[Name : rms01app, Description : null, expiry Date : null]
PASSWORD:retail
*The above means for map rpm15 in APPDomain, alias DB-ALIAS points to database
user rms01app with a password of retail
```

updateCred

The script `updateCred` modifies the type, user name, and password of a credential in the credential store with given map name and key name. This script updates the data encapsulated in credentials of type password only. Only the interactive mode is supported.

Interactive Mode Syntax

```
updateCred(map="mapName", key="keyName", user="userName", password="passW",
[desc="description"])
```

The meanings of the arguments (optional arguments are enclosed by square brackets) are as follows:

- `map` specifies a map name (folder) in the credential store.
- `key` specifies a key name.
- `user` specifies the credential user name.
- `password` specifies the credential password.
- `desc` specifies a string describing the credential.

Example of Use:

The following invocation updates the user name, password, and description of the password credential with map name `myMap` and key name `myKey`:

```
updateCred(map="myMap", key="myKey", user="myUsr", password="myPassw")
```

createCred

The script `createCred` creates a credential in the credential store with a given map name, key name, user name and password. This script can create a credential of type password only. Only the interactive mode is supported.

Interactive Mode Syntax

```
createCred(map="mapName", key="keyName", user="userName", password="passW",
[desc="description"])
```

The meanings of the arguments (optional arguments are enclosed by square brackets) are as follows:

- `map` specifies the map name (folder) of the credential.
- `key` specifies the key name of the credential.
- `user` specifies the credential user name.
- `password` specifies the credential password.
- `desc` specifies a string describing the credential.

Example of Use:

The following invocation creates a password credential with the specified data:

```
createCred(map="myMap", key="myKey", user="myUsr", password="myPassw")
```

deleteCred

The script `deleteCred` removes a credential with given map name and key name from the credential store.

Script Mode Syntax

```
deleteCred.py -map mapName -key keyName
```

Interactive Mode Syntax

```
deleteCred(map="mapName",key="keyName")
```

The meanings of the arguments (all required) are as follows:

- `map` specifies a map name (folder).
- `key` specifies a key name.

Example of Use:

The following invocation removes the credential with map name `myMap` and key name `myKey`:

```
deleteCred.py -map myMap -key myKey
```

modifyBootStrapCredential

The offline script `modifyBootStrapCredential` modifies the bootstrap credentials configured in the default jps context, and it is typically used in the following scenario: suppose that the policy and credential stores are LDAP-based, and the credentials to access the LDAP store (stored in the LDAP server) are changed. Then this script can be used to seed those changes into the bootstrap credential store.

This script is available in interactive mode only.

Interactive Mode Syntax

```
modifyBootStrapCredential(jpsConfigFile="pathName", username="usrName",
password="usrPass")
```

The meanings of the arguments (all required) are as follows:

- `jpsConfigFile` specifies the location of the file `jps-config.xml` relative to the location where the script is run. Example location: /u00/webadmin/product/wls_apps/user_projects/domains/APPDomain/config/fmwconfig. Example location of the bootstrap wallet is /u00/webadmin/product/wls_apps/user_projects/domains/APPDomain/config/fmwconfig/bootstrap
- `username` specifies the distinguished name of the user in the LDAP store.
- `password` specifies the password of the user.

Example of Use:

Suppose that in the LDAP store, the password of the user with distinguished name `cn=orcladmin` has been changed to `<password>`, and that the configuration file `jps-config.xml` is located in the current directory.Then the following invocation changes the password in the bootstrap credential store to `<password>`:

```
modifyBootStrapCredential(jpsConfigFile='./jps-config.xml',
username='cn=orcladmin', password='<password>')
```

Any output regarding the audit service can be disregarded.

addBootStrapCredential

The offline script `addBootStrapCredential` adds a password credential with given map, key, user name, and user password to the bootstrap credentials configured in the default jps context of a jps configuration file.

Classloaders contain a hierarchy with parent classloaders and child classloaders. The relationship between parent and child classloaders is analogous to the object relationship of super classes and subclasses. The bootstrap classloader is the root of the Java classloader hierarchy. The Java virtual machine (JVM) creates the bootstrap classloader, which loads the Java development kit (JDK) internal classes and `java.*` packages included in the JVM. (For example, the bootstrap classloader loads `java.lang.String`.)

This script is available in interactive mode only.

Interactive Mode Syntax

```
addBootStrapCredential(jpsConfigFile="pathName", map="mapName", key="keyName",
username="usrName", password="usrPass")
```

The meanings of the arguments (all required) are as follows:

- `jpsConfigFile` specifies the location of the file `jps-config.xml` relative to the location where the script is run. Example location: /u00/webadmin/product/wls_apps/user_projects/domains/APPDomain/config/fmwconfig
- `map` specifies the map of the credential to add.
- `key` specifies the key of the credential to add.
- `username` specifies the name of the user in the credential to add.
- `password` specifies the password of the user in the credential to add.

Example of Use:

The following invocation adds a credential to the bootstrap credential store:

```
addBootStrapCredential(jpsConfigFile='./jps-config.xml', map='myMapName',
key='myKeyName', username='myUser', password =’myPass’)
```

Quick Guide for Retail Password Stores (db wallet, java wallet, DB credential stores)

Retail app	Wallet type	Wallet loc	Wallet partition	Alias name	User name	Use	Create by	Alias Example	Notes
RMS batch	DB	<RMS batch install dir (RETAIL_HOME)>/.wallet	n/a	<Database SID>_<Database schema owner>	<rms schema owner>	Compile, execution	Installer	n/a	Alias hard-coded by installer
RMS forms	DB	<forms install dir>/base/.wallet	n/a	<Database SID>_<Database schema owner>	<rms schema owner>	Compile	Installer	n/a	Alias hard-coded by installer
ARI forms	DB	<forms install dir>/base/.wallet	n/a	<Db_Ari01>	<ari schema owner>	Compile	Manual	ari-alias	
RMWS forms	DB	<forms install dir>/base/.wallet	n/a	<Database SID>_<Database schema owner>	<rwms schema owner>	Compile forms, execute batch	Installer	n/a	Alias hard-coded by installer
RPM batch plsql and sqlldr	DB	<RPM batch install dir>/.wallet	n/a	<rms schema owner alias>	<rms schema owner>	Execute batch	Manual	rms-alias	RPM plsql and sqlldr batches
RWMS auto-login	JAVA	<forms install dir>/base/.javawallet							
			<RWMS Installation name>	<RWMS database user alias>	<RWMS schema owner>	RWMS forms app to avoid dblogin screen	Installer	rwms15inst	
			<RWMS Installation name>	BI_ALIAS	<BI Publisher administrative user>	RWMS forms app to connect to BI Publisher	Installer	n/a	Alias hard-coded by installer

Retail app	Wallet type	Wallet loc	Wallet partition	Alias name	User name	Use	Create by	Alias Example	Notes
AIP app	JAVA	<weblogic domain home>/retail/<deployed aip app name>/config							Each alias must be unique
			aip	<AIP weblogic user alias>	<AIP weblogic user name>	App use	Installer	aip-weblogic-alias	
			aip	<AIP database schema user alias>	<AIP database schema user name>	App use	Installer	aip01user-alias	
			aip	<rib-aip weblogic user alias>	<rib-aip weblogic user name>	App use	Installer	rib-aip-weblogic-alias	
RPM app	DB credential store		Map=rpm or what you called the app at install time.	Many for app use					<weblogic domain home>/config/fmwconfig/jps-config.xml has info on the credential store. This directory also has the domain cwallet.sso file.
RPM app	JAVA	<weblogic domain home>/retail/<deployed rpm app name>/config							Each alias must be unique
			rpm	<rpm weblogic user alias>	<rpm weblogic user name>	App use	Installer	rpm-weblogic-alias	

Retail app	Wallet type	Wallet loc	Wallet partition	Alias name	User name	Use	Create by	Alias Example	Notes
			rpm	<rpm batch user name> is the alias. Yes, here alias name = user name	<rpm batch user name>	App, batch use	Installer	RETAIL.USER	
	JAVA	<retail_home>/orpatch/config/javaapp_rpm							Each alias must be unique
			retail_installer	<rpm weblogic user alias>	<rpm weblogic user name>	App use	Installer	weblogic-alias	
			retail_installer	<rms shema user alias>	<rms shema user name>	App, batch use	Installer	rms01user-alias	
			retail_installer	<reim batch user alias>	<reim batch user name>	App, batch use	Installer	reimbat-alias	
			retail_installer	<LDAP-ALIAS>	cn=rpm.admin,cn=Users,dc=us,dc=oracle,dc=com	LDAP user use	Installer	LDAP_ALIAS	
ReIM app	JAVA	<weblogic domain home>/retail/<deployed reim app name>/config							Each alias must be unique
			<installed app name, ex: reim>	<reim weblogic user alias>	<reim weblogic user name>	App use	Installer	weblogic-alias	
			<installed app name, ex: reim>	<rms shema user alias>	<rms shema user name>	App, batch use	Installer	rms01user-alias	

Retail app	Wallet type	Wallet loc	Wallet partition	Alias name	User name	Use	Create by	Alias Example	Notes
			<installed app name, ex: reim>	<reim webservice validation user alias>	<reim webservice validation user name>	App use	Installer	reimwebservice-alias	
			<installed app name, ex: reim>	<reim batch user alias>	<reim batch user name>	App, batch use	Installer	reimbat-alias	
			<installed app name, ex: reim>	<LDAP-ALIAS>	cn=REIM.ADMIN,cn=Users,dc=us,dc=oracle,dc=com	LDAP user use	Installer	LDAP_ALIAS	
	JAVA	<retail_home>/orpatch/config/javaapp_reim							Each alias must be unique
			retail_installer	<reim weblogic user alias>	<reim weblogic user name>	App use	Installer	weblogic-alias	
			retail_installer	<rms shema user alias>	<rms shema user name>	App, batch use	Installer	rms01user-alias	
			retail_installer	<reim webservice validation user alias>	<reim webservice validation user name>	App use	Installer	reimwebservice-alias	
			retail_installer	<reim batch user alias>	<reim batch user name>	App, batch use	Installer	reimbat-alias	
			retail_installer	<LDAP-ALIAS>	cn=REIM.ADMIN,cn=Users,dc=us,dc=oracle,dc=com	LDAP user use	Installer	LDAP_ALIAS	

Retail app	Wallet type	Wallet loc	Wallet partition	Alias name	User name	Use	Create by	Alias Example	Notes
RESA app	DB credential store		Map=resaor what you called the app at install time	Many for login and policies					<weblogic domain home>/config/fmwconfig/jps-config.xml has info on the credential store. This directory also has the domain cwallet.sso file. The bootstrap directory under this directory has bootstrap cwallet.sso file.
RESA app	JAVA	<weblogic domain home>/retail/<deployed resa app name>/config							Each alias must be unique
			<installed app name>	<resa weblogic user alias>	<resa weblogic user name>	App use	Installer	wlsalias	
			<installed app name>	<resa schema db user alias>	<rmsdb shema user name>	App use	Installer	Resadb-alias	
			<installed app name>	<resa schema user alias>	<rmsdb shema user name>>	App use	Installer	resa-alias	
	JAVA	<retail_home>/orpatch/config/javaapp_resa							Each alias must be unique

Retail app	Wallet type	Wallet loc	Wallet partition	Alias name	User name	Use	Create by	Alias Example	Notes
			retail_installer	<resa weblogic user alias>	<resa weblogic user name>	App use	Installer	wlsalias	
			retail_installer	<resa schema db user alias>	<rmsdb shema user name>	App use	Installer	Resadb-alias	
	JAVA	<retail_ home>/orpatch/config/javaapp_rasrm							Each alias must be unique
			retail_installer	<alloc weblogic user alias>	<alloc weblogic user name>	App use	Installer	weblogic-alias	
Alloc app	DB credential store		Map=alloc or what you called the app at install time	Many for login and policies					<weblogic domain home>/config/fmwconfig/jps-config.xml has info on the credential store. This directory also has the domain cwallet.sso file. The bootstrap directory under this directory has bootstrap cwallet.sso file.
Alloc app	JAVA	<weblogic domain home>/retail/config							Each alias must be unique

Retail app	Wallet type	Wallet loc	Wallet partition	Alias name	User name	Use	Create by	Alias Example	Notes
			<installed app name>	<alloc weblogic user alias>	<alloc weblogic user name>	App use	Installer	weblogic-alias	
			<installed app name>	<rms schema user alias>	<rms schema user name>	App use	Installer	dsallocAlias	
			<installed app name>	<alloc batch user alias>	<SYSTEM_ ADMINISTRATOR>	Batch use	Installer	alloc14	
	JAVA	<retail_ home>/orpatch/config/javaapp_alloc							Each alias must be unique
			retail_installer	<alloc weblogic user alias>	<alloc weblogic user name>	App use	Installer	weblogic-alias	
			retail_installer	<rms schema user alias>	<rms schema user name>	App use	Installer	dsallocAlias	
			retail_installer	<alloc batch user alias>	<SYSTEM_ ADMINISTRATOR>	Batch use	Installer	alloc14	
	JAVA	<retail_ home>/orpatch/config/javaapp_rasrm							Each alias must be unique
			retail_installer	<alloc weblogic user alias>	<alloc weblogic user name>	App use	Installer	weblogic-alias	

Retail app	Wallet type	Wallet loc	Wallet partition	Alias name	User name	Use	Create by	Alias Example	Notes
SIM app	DB credential store		Map=oracle.retail.sim	Aliases required for SIM app use					<weblogic domain home>/config/fmwconfig/jps-config.xml has info on the credential store. This directory also has the domain cwallet.sso file.
	JAVA	<weblogic domain home>/retail/<deployed sim app name>/batch/resources/conf	oracle.retail.sim	<sim batch user alias>	<sim batch user name>	App use	Installer	BATCH-ALIAS	
	JAVA	<weblogic domain home>/retail/<deployed sim app name>/wireless/resources/conf	oracle.retail.sim	<sim wireless user alias>	<sim wireless user name>	App use	Installer	WIRELESS-ALIAS	
RETL	JAVA	<RETL home>/etc/security	n/a	<target application user alias>	<target application db userid>	App use	Manual	retl_java_rms01user	User may vary depending on RETL flow's target application
RETL	DB	<RETL home>/.wallet	n/a	<target application user alias>	<target application db userid>	App use	Manual	<db>_<user>	User may vary depending on RETL flow's target application
RIB	JAVA	<RIBHOME DIR>/deployment-home/conf/security							<app> is one of aip, rfm, rms, rpm, sim, rwms, tafr
JMS			jms<1-5>	<jms user alias> for jms<1-5>	<jms user name> for jms<1-5>	Integration use	Installer	jms-alias	

Retail app	Wallet type	Wallet loc	Wallet partition	Alias name	User name	Use	Create by	Alias Example	Notes
WebLogic			rib-<app>-app-server-instance	<rib-app weblogic user alias>	<rib-app weblogic user name>	Integra-tion use	Installer	weblogic-alias	
Admin GUI			rib-<app>#web-app-user-alias	<rib-app admin gui user alias>	<rib-app admin gui user name>	Integra-tion use	Installer	admin-gui-alias	
Application			rib-<app>#user-alias	<app weblogic user alias>	<app weblogic user name>	Integra-tion use	Installer	app-user-alias	Valid only for aip, rpm, sim
DB			rib-<app>#app-db-user-alias	<rib-app database schema user alias>	<rib-app database schema user name>	Integra-tion use	Installer	db-user-alias	Valid only for rfm, rms, rwms, tafr
Error Hospital			rib-<app>#hosp-user-alias	<rib-app error hospital database schema user alias>	<rib-app error hospital database schema user name>	Integra-tion use	Installer	hosp-user-alias	
RFI	Java	<RFI-HOME>/retail-financial-integration-solution/service-based-integration/conf/security							
			<installed app name>	rfiAppServerAdminServerUserAlias	<rfi weblogic user name>	App use	Installer	rfiAppServerAdminServerUserAlias	
			<installed app name>	rfiAdminUiUserAlias	<ORFI admin user>	App use	Installer	rfiAdminUiUserAlias	
			<installed app name>	rfiDataSourceUserAlias	<ORFI schema user name>	App use	Installer	rfiDataSourceUserAlias	

Retail app	Wallet type	Wallet loc	Wallet partition	Alias name	User name	Use	Create by	Alias Example	Notes
			<installed app name>	ebsDataSourceUserAlias	<EBS schema user name>	App use	Installer	ebsDataSourceUserAlias	
			<installed app name>	smtpMailFromAddressAlias	<From email address>	App use	Installer	smtpMailFromAddressAlias	

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Appendix: Single Sign-On for WebLogic

Single Sign-On (SSO) is a term for the ability to sign onto multiple Web applications via a single user ID/Password. There are many implementations of SSO. Oracle provides an implementation with Oracle Access Manager.

Most, if not all, SSO technologies use a session cookie to hold encrypted data passed to each application. The SSO infrastructure has the responsibility to validate these cookies and, possibly, update this information. The user is directed to log on only if the cookie is not present or has become invalid. These session cookies are restricted to a single browser session and are never written to a file.

Another facet of SSO is how these technologies redirect a user's Web browser to various servlets. The SSO implementation determines when and where these redirects occur and what the final screen shown to the user is.

Most SSO implementations are performed in an application's infrastructure and not in the application logic itself. Applications that leverage infrastructure managed authentication (such as deployment specifying Basic or Form authentication) typically have little or no code changes when adapted to work in an SSO environment.

What Do I Need for Single Sign-On?

A Single Sign-On system involves the integration of several components, including Oracle Identity Management and Oracle Access Management. This includes the following components:

- An Oracle Internet Directory (OID) LDAP server, used to store user, role, security, and other information. OID uses an Oracle database as the back-end storage of this information.
- An Oracle Access Manager (OAM) 12cserver and administrative console for implementing and configuring policies for single sign-on.
- A Policy Enforcement Agent such as Oracle Access Manager 12c Agent (WebGate), used to authenticate the user and create the Single Sign-On cookies.
- Oracle Directory Services Manager (ODSM) application in OIM12c, used to administer users and group information. This information may also be loaded or modified via standard LDAP Data Interchange Format (LDIF) scripts.
- Additional administrative scripts for configuring the OAM system and registering HTTP servers.

Additional WebLogic managed servers will be needed to deploy the business applications leveraging the Single Sign-On technology.

Can Oracle Access Manager Work with Other SSO Implementations?

Yes, Oracle Access Manager has the ability to interoperate with many other SSO implementations, but some restrictions exist.

Oracle Single Sign-on Terms and Definitions

The following terms apply to single sign-on.

Authentication

Authentication is the process of establishing a user's identity. There are many types of authentication. The most common authentication process involves a user ID and password.

Dynamically Protected URLs

A Dynamically Protected URL is a URL whose implementing application is aware of the Oracle Access Manager environment. The application may allow a user limited access when the user has not been authenticated. Applications that implement dynamic protection typically display a Login link to provide user authentication and gain greater access to the application's resources.

Oracle Identity Management (OIM) and Oracle Access Manager (OAM) for 12c

Oracle Identity Management (OIM) 12c includes Oracle Internet Directory and ODSM. Oracle Access Manager (OAM) 12c should be used for SSO using WebGate. Oracle Forms 12c contains Oracle HTTP server and other Retail Applications will use Oracle WebTier12c for HTTP Server.

MOD_WEBLOGIC

mod_WebLogic operates as a module within the HTTP server that allows requests to be proxied from the OracleHTTP server to the Oracle WebLogic server.

Oracle Access Manager 12c Agent (WebGate)

Oracle WebGates are policy enforcement agents which reside with relying parties and delegate authentication and authorization tasks to OAM servers.

Oracle Internet Directory

Oracle Internet Directory (OID) is an LDAP-compliant directory service. It contains user ids, passwords, group membership, privileges, and other attributes for users who are authenticated using Oracle Access Manager.

Partner Application

A partner application is an application that delegates authentication to the Oracle Identity Management Infrastructure. One such partner application is the Oracle HTTP Server (OHS) supplied with Oracle Forms Server or WebTier12c Server if using other Retail Applications other than Oracle Forms Applications.

All partner applications must be registered with Oracle Access Manager (OAM) 12c. An output product of this registration is a configuration file the partner application uses to verify a user has been previously authenticated.

Statically Protected URLs

A URL is considered to be Statically Protected when an Oracle HTTP server is configured to limit access to this URL to only SSO authenticated users. Any unauthenticated attempt to access a Statically Protected URL results in the display of a login page or an error page to the user.

Servlets, static HTML pages, and JSP pages may be statically protected.

What Single Sign-On is not

Single Sign-On is NOT a user ID/password mapping technology.

However, some applications can store and retrieve user IDs and passwords for non-SSO applications within an OID LDAP server. An example of this is the Oracle Forms Web Application framework, which maps Single Sign-On user IDs to a database logins on a per-application basis.

How Oracle Single Sign-On Works

Oracle Access Manager involves several different components. These are:

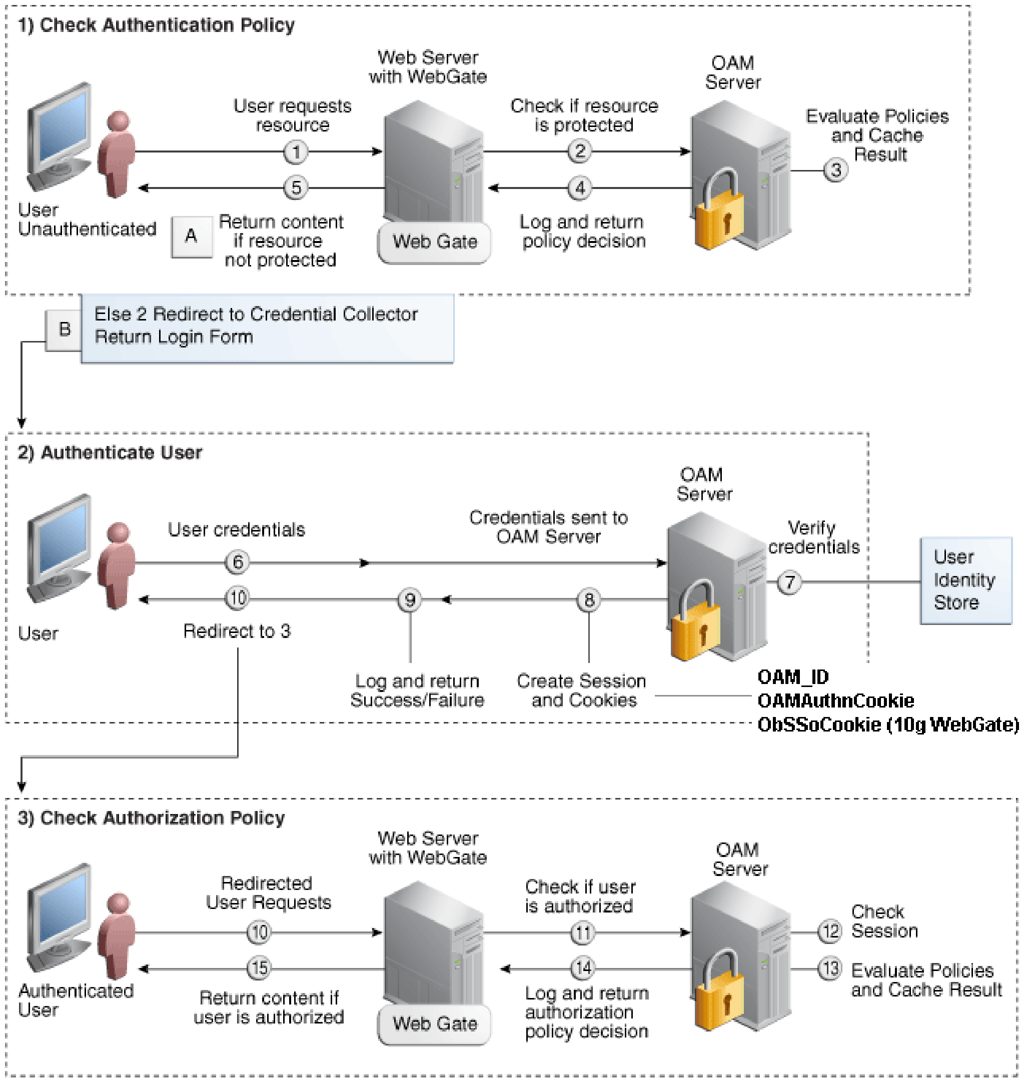
- The Oracle Access Manager (OAM) server, which is responsible for the back-end authentication of the user.
- The Oracle Internet Directory LDAP server, which stores user IDs, passwords, and group (role) membership.
- The Oracle Access Manager Agent associated with the Web application, which verifies and controls browser redirection to the Oracle Access Manager server.
- If the Web application implements dynamic protection, then the Web application itself is involved with the OAM system.

About SSO Login Processing with OAM Agents

1. The user requests a resource.
2. Webgate forwards the request to OAM for policy evaluation
3. OAM:
   a. Checks for the existence of an SSO cookie.
   b. Checks policies to determine if the resource is protected and if so, how?
4. OAM Server logs and returns the decision
5. Webgate responds as follows:
   - **Unprotected Resource:** Resource is served to the user
   - **Protected Resource:**
     Resource is redirected to the credential collector.
     The login form is served based on the authentication policy.
     Authentication processing begins
6. User sends credentials
7. OAM verifies credentials
8. OAM starts the session and creates the following host-based cookies:
   - **One per partner:** OAMAuthnCookie set by 12c WebGates using authentication token received from the OAM Server after successful authentication.
     Note: A valid cookie is required for a session.
   - **One for OAM Server:** OAM_ID
9. OAM logs Success of Failure.
10. Credential collector redirects to WebGate and authorization processing begins.
11. WebGate prompts OAM to look up policies, compare them to the user's identity, and determine the user's level of authorization.
12. OAM logs policy decision and checks the session cookie.
13. OAM Server evaluates authorization policies and cache the result.
14. OAM Server logs and returns decisions

15. WebGate responds as follows:
    - If the authorization policy allows access, the desired content or applications are served to the user.
    - If the authorization policy denies access, the user is redirected to another URL determined by the administrator.

SSO Login Processing with OAM Agents


1) Check Authentication Policy
Web Server with WebGate
OAM Server
User requests resource
Check if resource is protected
Evaluate Policies and Cache Result
1
2
3
4
5
User Unauthenticated
A
Return content if resource not protected
Web Gate
Log and return policy decision
B
Else 2 Redirect to Credential Collector Return Login Form
2) Authenticate User
OAM Server
User credentials
Credentials sent to OAM Server
Verify credentials
User Identity Store
6
7
8
9
10
User
Redirect to 3
Log and return Success/Failure
Create Session and Cookies
OAM_ID
OAMAuthnCookie
ObSSoCookie (10g WebGate)
3) Check Authorization Policy
Web Server with WebGate
OAM Server
Redirected User Requests
Check if user is authorized
Check Session
Evaluate Policies and Cache Result
10
11
12
13
14
15
Authenticated User
Return content if user is authorized
Web Gate
Log and return authorization policy decision

Installation Overview

Installing an Oracle Retail supported Single Sign-On installation using OAM12c requires installation of the following:

1. Oracle Internet Directory (OID) LDAP server and the Oracle Directory Services Manager. They are typically installed using the Installer of Oracle Identity Management . The ODSM application can be used for user and realm management within OID.
2. Oracle Access Manager 12c has to be installed and configured.
3. Additional midtier instances (such as Oracle Forms 12c) for Oracle Retail applications based on Oracle Forms technologies (such as RMS). These instances must be registered with the OAM installed in step 2.
4. Additional application servers to deploy other Oracle Retail applications and performing application specific initialization and deployment activities must be registered with OAM installed in step 2.

Infrastructure Installation and Configuration

The Infrastructure installation for Oracle Access Manager (OAM) is dependent on the environment and requirements for its use. Deploying Oracle Access Manager (OAM) to be used in a test environment does not have the same availability requirements as for a production environment. Similarly, the Oracle Internet Directory (OID) LDAP server can be deployed in a variety of different configurations. See the *Oracle Identity Management Installation Guide12c.*

OID User Data

Oracle Internet Directory is an LDAP v3 compliant directory server. It provides standards-based user definitions out of the box.

Customers with existing corporate LDAP implementations may need to synchronize user information between their existing LDAP directory servers and OID. OID supports standard LDIF file formats and provides a JNDI compliant set of Java classes as well. Moreover, OID provides additional synchronization and replication facilities to integrate with other corporate LDAP implementations.

Each user ID stored in OID has a specific record containing user specific information. For role-based access, groups of users can be defined and managed within OID. Applications can thus grant access based on group (role) membership saving administration time and providing a more secure implementation.

User Management

User Management consists of displaying, creating, updating or removing user information. There are many methods of managing an LDAP directory including LDIF scripts or Oracle Directory Services Manager (ODSM) available for OID12c.

ODSM

Oracle Directory Services Manager (ODSM) is a Web-based application used in OID12c is designed for both administrators and users which enables you to configure the structure of the directory, define objects in the directory, add and configure users, groups, and other entries. ODSM is the interface you use to manage entries, schema, security, adapters, extensions, and other directory features.

LDIF Scripts

Script based user management can be used to synchronize data between multiple LDAP servers. The standard format for these scripts is the LDAP Data Interchange Format (LDIF). OID supports LDIF script for importing and exporting user information. LDIF scripts may also be used for bulk user load operations.

User Data Synchronization

The user store for Oracle Access Manager resides within the Oracle Internet Directory (OID) LDAP server. Oracle Retail applications may require additional information attached to a user name for application-specific purposes and may be stored in an application-specific database. Currently, there are no Oracle Retail tools for synchronizing changes in OID stored information with application-specific user stores. Implementers should plan appropriate time and resources for this process. Oracle Retail strongly suggests that you configure any Oracle Retail application using an LDAP for its user store to point to the same OID server used with Oracle Access Manager.

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Appendix: Installation Order

This section provides a guideline as to the order in which the Oracle Retail applications should be installed. If a retailer has chosen to use some, but not all, 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)
3. Oracle Retail Extract, Transform, Load (RETL)
4. Oracle Retail Active Retail Intelligence (ARI)
5. Oracle Retail Warehouse Management System (RWMS)
6. Oracle Retail Invoice Matching (ReIM)
7. Oracle Retail Price Management (RPM)
8. Oracle Retail Allocation
9. Oracle Retail Mobile Merchandising (ORMM)
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 Batch Script Architecture (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 Analytic Parameter Calculator Replenishment Optimization (APC RO)
21. Oracle Retail Regular Price Optimization (RPO)
22. Oracle Retail Merchandise Financial Planning (MFP)
23. Oracle Retail Size Profile Optimization (SPO)
24. Oracle Retail Assortment Planning (AP)
25. Oracle Retail Item Planning (IP)
26. Oracle Retail Item Planning Configured for COE (IP COE)
27. Oracle Retail Advanced Inventory Planning (AIP)
28. Oracle Retail Integration Bus (RIB)
29. Oracle Retail Services Backbone (RSB)

30. Oracle Retail Financial Integration (ORFI)
31. Oracle Retail Data Extractor for Merchandising
32. Oracle Retail Clearance Optimization Engine (COE)
33. Oracle Retail Analytic Parameter Calculator for Regular Price Optimization (APC-RPO)
34. Oracle Retail Insights, including Retail Merchandising Insights (previously Retail Merchandising Analytics) and Retail Customer Insights (previously Retail Customer Analytics)