Oracle® Retail Clearance Optimization Engine

Installation Guide

Release 13.3.1

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VAR Applications to a human perceivable form. Oracle reserves the right to replace, with functional equivalent software, any of the VAR Applications in future releases of the applicable program.

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Oracle® Retail Clearance Optimization Engine Installation Guide, Release 13.3.1

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Preface

This guide enables you to install the Oracle Retail Clearance Optimization Engine application, along with the server-side components required for the application.

Audience

This guide is intended for system administrators and assumes that you are familiar with the following:

- Installing, configuring, and managing the application server software and security.
- Installing, configuring, and managing the relational database management systems. You must be familiar with the Database Administrator (DBA) level commands and tasks.
- Installing, configuring, and managing the distributed client/server applications on a UNIX-based local area network.

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Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

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Related Documents

For more information about using the Clearance Optimization Engine application, the following document is available in the Oracle Retail Clearance Optimization Engine Release 13.3.1 documentation set:

- *Oracle Retail Clearance Optimization Engine Release Notes*

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, 13.3) or a later patch release (for example, 13.3.1). If you are installing the base release, additional patch, and bundled hot fix releases, read the documentation for all releases that have occurred since the base release before you begin installation. Documentation for patch and bundled hot fix releases can contain critical information related to the base release, as well as information about code changes since the base release.

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/technology/documentation/oracle_retail.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.)

Documentation should be available on this Web site within a month after a product release.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Overview

This chapter provides an overview of Oracle Retail Clearance Optimization Engine and a roadmap to install Clearance Optimization Engine (COE). It contains the following sections:

- Overview of Clearance Optimization Engine
- Overview of Grid Designer
- Overview of Oracle Configuration Manager
- Roadmap for Implementing Clearance Optimization Engine

Check for the Current Version of the Installation Guide

Corrected versions of Oracle Retail installation guides may be published whenever critical corrections are required. For critical corrections, the rerelease of an installation guide may not be attached to a release; the document will simply be replaced on the Oracle Technology Network Web site.

Before you begin installation, check to be sure that you have the most recent version of this installation guide. Oracle Retail installation guides are available on the Oracle Technology Network at the following URL:

http://www.oracle.com/technology/documentation/oracle_retail.html

An updated version of an installation guide is indicated by 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 an installation guide with part number E123456-01.

If a more recent version of this installation guide is available, that version supersedes all previous versions. Only use the newest version for your installation.

Overview of Clearance Optimization Engine

The Clearance Optimization Engine (COE) provides remote access to the WhatIf RMI interface via an RPAS special expression. This allows the application *Oracle Retail Item Planning* (certified with COE) to produce in-season price recommendations and forecasts that account for planned promotions and future markdowns in the product life cycle. The forecast includes a sales plan and an optimal price plan.

COE produces its recommendations during the weekly model run. The results of the model run are available in the sendback files that are generated from the results stored in the database.

Users have the ability to perform real-time What-If from within Item Planning and alter plans in order to see the results of those changes. The changes include changing future prices, changing an order, changing the exit date, changing the salvage value, and changing the sell-through target.

Business rules can also be imported from Item Planning into COE in a format that follows the COE standard interface. This load occurs weekly.

COE provides a sendback functionality that makes the model run results available to the Item Planning application. The relationship between COE and Item Planning is shown in Figure 1–1, "Relationship between COE and Item Planning".

Figure 1–1   Relationship between COE and Item Planning
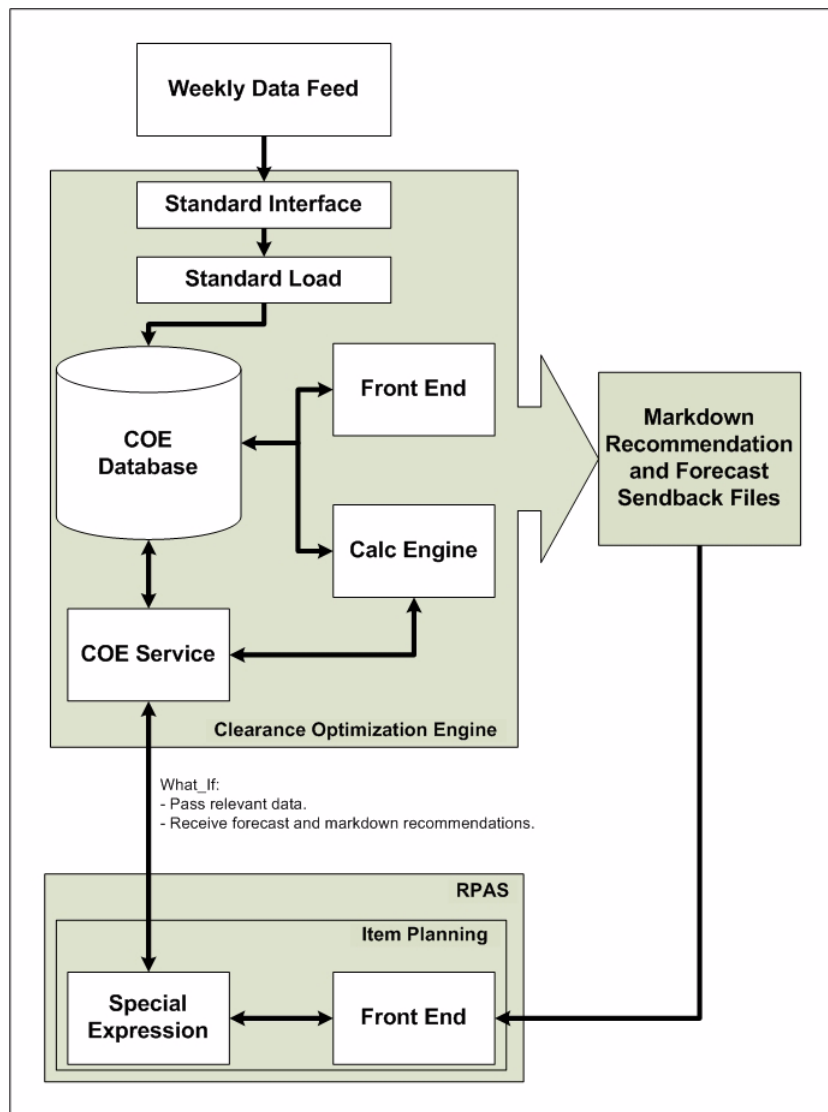
Overview of Grid Designer

Grid Designer is a Web-based rich application that enables you to modify the following main components of the grid configuration in a graphical user interface:

- Column Definitions.

- Grid Resources.

- Grid Configuration Files.

For more information on the Grid Designer, refer to the *Oracle Retail Clearance Optimization Engine Grid Designer User Guide*.

> **Important:** When you install Clearance Optimization Engine, the Grid Designer application is also installed as a separate Web-based application. This also applies to cluster-based installations. All targeted clusters during the installation will also include their individual instance of the Grid Designer application.
>
> To ensure that there is always a single copy of the grid configuration being updated, once the application installation is complete, you must set/pin the Grid Designer application target to a single instance. For more information, see Setting Up a Single Instance Target for the Grid Designer.

Clearance Optimization Engine Enterprise Components

The Clearance Optimization Engine application is a distributed application, using an application server as the platform for the services, a database, and several other software components. It contains the following components:

- Client System Tier

- Middleware Tier

- Database Server Tier

- Optional Components

The following diagram depicts a typical setup for a large retailer at chain level or a specialty retailer at region level:

Figure 1–2   Clearance Optimization Engine Network Diagram
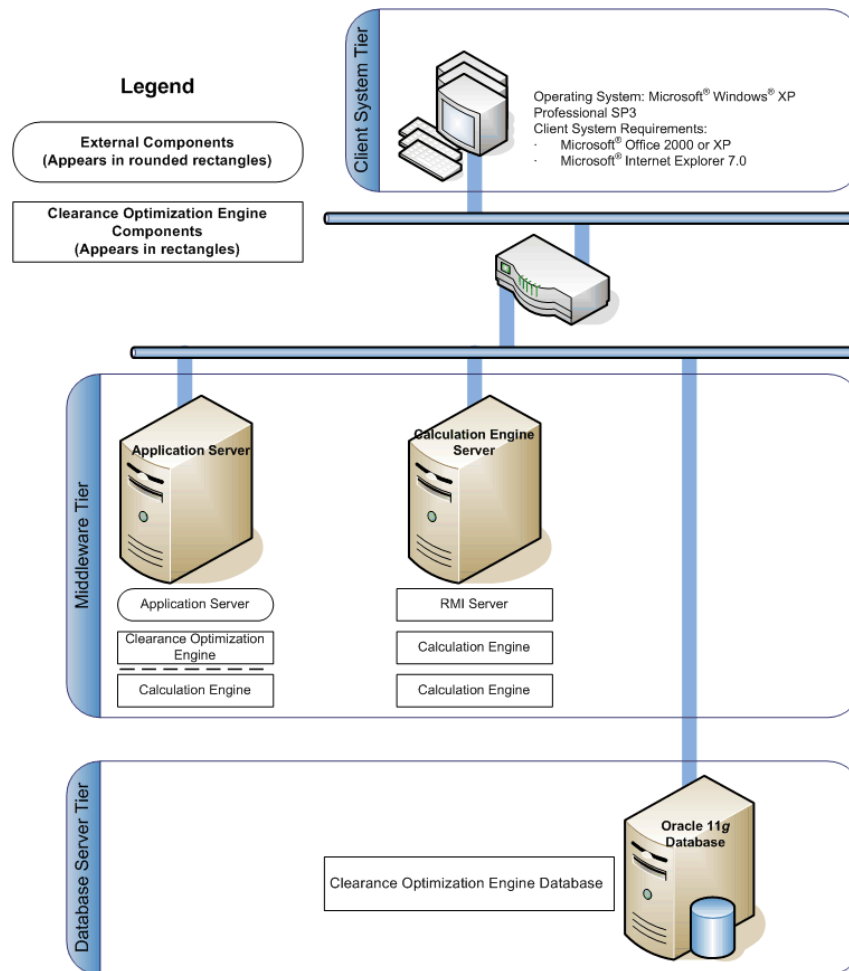
Client System Tier

The Client System tier contains the systems that connect to the Clearance Optimization Engine application using a Web browser. It includes systems with the following components:

- Microsoft Windows

- Microsoft Office

- Microsoft Internet Explorer 7.0, with ActiveX control

Middleware Tier

The Middleware tier consists of application servers, Calculation Engine instances, and RMI servers. The Application Server contains application server domains, clusters, and managed servers set up as a platform used by the Clearance Optimization Engine application. The Calculation Engine instances process forecast and optimization requests. RMI servers provide a remote interface for calling the Calculation Engine.

The Clearance Optimization Engine application consisting of the user interface and Web Service components resides on a domain configured on the J2EE-based

application server. You can install and run multiple instances of the application server or multiple application server machines, based on your business needs. Application modules include Business Rule Property Manager, Pricing Group Manager, Seasonality Manager, and User Management. The application also includes the COE Web Service module that includes the Engine Service Call for What-If.

The Calculation Engine is installed outside of the J2EE-based application server. It processes the weekly model runs as part of a batch process. To improve performance, you can install and run multiple engines, and move them to any other production server within your environment as needed. The What-If service call is also processed by the Calculation Engine through the RMI server.

> **Note:** You can choose to set up a single host for the application and Calculation Engine.

Database Server Tier

The Database Server tier contains the systems configured with the database management systems (Oracle 11*g* Database) along with the necessary database software.

The following essential schemas are created during the Clearance Optimization Engine installation:

- Clearance Optimization Engine Database – contains historical sales and other business information that originates from systems external to Clearance Optimization Engine.
- The database also contains the Retail Data Mart (RDM), a set of data generated that can be used with Oracle Business Intelligence Suite Enterprise Edition (BI EE).

Optional Components

- Additional computational servers for implementing the Calculation Engine in a large-scale environment.
- Additional application server machines for implementing Clearance Optimization Engine for a large number of users.

Overview of Oracle Configuration Manager

Oracle Premier Support offers an automated support capability through the Software Configuration Manager and Oracle Configuration Manager (OCM). OCM is a configuration data collector that provides continuous tracking of key Oracle and system configuration settings for machines on which it is installed. This tool collects configuration details for customer environments and uploads it to a repository that is viewable through the My Oracle Support Web site.

The OCM Installer packaged with this release installs the latest version of OCM. The following document is available through My Oracle Support (formerly MetaLink). Access My Oracle Support at the following URL:

https://support.oracle.com

Oracle Configuration Manager Installer Guide **(Doc ID: 835024.1)**

This guide describes the procedures and interface of the Oracle Retail Oracle Configuration Manager Installer that a retailer runs near the completion of its installation process.

OCM Documentation Link

http://www.oracle.com/technology/documentation/ocm.html

> **Important:** In case you choose to install the OCM collector, ensure that you have the My Oracle Support user account name, customer support identification number, and the country code (where the support agreement was issued) for the OCM installation.

Roadmap for Implementing Clearance Optimization Engine

This guide explains how you can install and set up the Clearance Optimization Engine application, along with the required and optional software.

The instructions in this guide assume knowledge of application servers, databases, and application installation or administration, and are intended for system administrators and experienced IT personnel. Before carrying out any of these activities, ensure that you understand UNIX commands (including shell configuration and scripting), directory operations, and symlinks.

In order to implement Clearance Optimization Engine for production, you must perform the following tasks in a sequence:

Table 1–1   Roadmap for Implementing Clearance Optimization Engine

| Task	Description
Pre-installation Tasks	
1.	Plan your environment, based on your business needs. For more information on the planning process and the supported configurations, see Chapter 2, "Planning Your Installation".
2.	Set up your application database. For more information, see Chapter 3, "Setting Up the Database".
3.	Set up your application server. For more information, see Chapter 4, "Setting Up Your Application Server".
4.	Set up a password store. For more information, see Chapter 5, "Setting Up Password Stores".
Installation Task	
5.	Access the Clearance Optimization Engine installation software, set up the install.properties file, and run the Oracle installer. For more information, see Chapter 6, "Installing Clearance Optimization Engine".
Post-installation Tasks	
6.	Configure your business rules and user accounts. For more information, see the *Oracle Retail Clearance Optimization Engine Configuration Guide*.
7.	Load data and evaluate the results. For more information, see the *Oracle Retail Clearance Optimization Engine Configuration Guide*.
8.	To ensure that there is always a single copy of the grid configuration being updated, once the application installation is complete, you must set/pin the Grid Designer application target to a single instance. For more information, see Setting Up a Single Instance Target for the Grid Designer.
9.	If you want to integrate Clearance Optimization Engine as part of the Oracle Application Server Single Sign-On, see Chapter 7, "Setting Up Single Sign-On".
10.	Modify the Clearance Optimization Engine user interface to accommodate your business needs, as described in the *Oracle Retail Clearance Optimization Engine Configuration Guide*. Concurrent with this activity, complete the remaining steps in this roadmap. You can continue refining the user interface iteratively, as needed (optional).
11.	Set up user accounts and introduce the end users to the application.

Table 1–1   (Cont.) Roadmap for Implementing Clearance Optimization Engine

Task	Description
12.	Maintain the application as described in the *Oracle Retail Clearance Optimization Engine Configuration Guide*.
13.	Perform and schedule the necessary data loads, as described in the *Oracle Retail Clearance Optimization Engine Operations Guide*.

2

Planning Your Installation

Before installing Clearance Optimization Engine, you must first determine the performance and availability goals for your business, and then plan the hardware, network, and storage requirements accordingly. This chapter provides some basic considerations for the implementation. It also includes the list of hardware and software requirements.

This chapter includes the following sections:

- Overview of the Planning Process
- Supported Configurations

Overview of the Planning Process

Planning your implementation prior to an installation also gives you a better understanding of the environment, and enables you to adapt faster to any future changes in the environment setup.

This section contains the following topics:

- Planning Your Environment
- Planning for Optimal Clearance Optimization Engine Performance

Planning Your Environment

Use the following steps to plan and prepare the product environment:

1. Plan and design the infrastructure, based on your business needs, for the installation. This includes:
   - Meeting the hardware and associated software requirements.
   - Acquiring the prerequisite software (and licensing).
   - Setting up the load balancers and clusters.
   - Gathering the capacity data.
   - Planning the data security policies.
   - Designing the backup and recovery strategies.

2. Determine the size of the implementation.

3. Identify source systems. Identify the systems that will exchange data with Clearance Optimization Engine.

Planning for Optimal Clearance Optimization Engine Performance

Consider the following steps to plan and prepare the product environment.

1. Determine the Clearance Optimization Engine metrics relevant to your business needs.

2. Determine your relevant business policies. The business policy is a statement of what rules govern the application processes. You need to develop a business policy based on your business rules. For more information about business rules, see the *Clearance Optimization Engine Configuration Guide*.

3. Plan the periodic batch loading of business and historical databases. This also includes the data feeds needed from the external systems for nightly, weekly, and periodic batch updates and recycling.

> **Important:** To ensure optimal performance, you must synchronize the clocks on the systems hosting the application server and database.

Supported Configurations

This section describes the hardware and network requirements for the Clearance Optimization Engine, and includes the following topics:

- Network Requirements
- Database Requirements
- Application Server Requirements
- Client System Requirements
- Miscellaneous Utilities
- Supported Oracle Retail Products

Network Requirements

This section describes basic requirements for your network infrastructure:

- For connections between servers use the following:
    - Minimum: 100 MBps switched ethernet.
    - Recommended: 1000 MBps.
- For connections to the desktop, 100 MBps is sufficient.
- Network load balancers to provide scalability to the servers.

Database Requirements

Clearance Optimization Engine requires the use of the Oracle database as described in the following table:

Table 2–1   Database Requirements for Clearance Optimization Engine

Software	Requirement				
Database (64-bit)	Oracle Database 11*g* Release 2, Enterprise Edition (11.2.0.2.0) RAC or Single Instance				
Database Features	Oracle Partitioning **Important:** Although this database feature is available in the Oracle Database Enterprise Edition, you may need a separate license to use this feature. For more information, refer to the *Oracle Database Licensing Information 11g Release 2*.				
Operating System (64-bit)	Oracle Linux 5.0 Update 8, x86-64 architecture based	Oracle Solaris 10 Update 8, SPARC-based timezone patch 122032-01 or later and libc patch 119689-07 or later	HP-UX 11i v3 (11.31) Update 7, Itanium-based	IBM AIX 6.1 Technology Level 6 (TL6), Power processor-based	Red Hat Enterprise Linux 5 Update 8
Utilities	file transfer protocol utility (ftp or ssh/scp/rsync) sudo utility				

User Requirements

Your implementation may require you to set up multiple user accounts and user groups. Ensure that the user accounts, UIDs, user groups, GIDs, home directory, and shell are set up consistently across all the clusters and servers.

Application Server Requirements

Clearance Optimization Engine supports the use of Oracle WebLogic Server 11g Release 1 (10.3.5), extended to use ADF 11.1.1.5.0. The following table lists the supported operating systems and the associated application server versions:

Table 2–2   Application Server Requirements for Clearance Optimization Engine

Software	Requirement				
Application Servers	Oracle WebLogic Server 11*g* Release 1 (10.3.5), extended to use ADF 11.1.1.5.0				
Database Client	Oracle Database 11*g* Client Release 2 (11.2.0.2.0)				
Operating Systems (64-bit)	Oracle Linux Release 5.0 Update 8, x86-64 based.	Oracle Solaris 10 Update 8, SPARC-based.	IBM AIX 6.1 Technology Level 6 (TL6), Power processor-based.	HP-UX 11i v3 Update 7 (11.31), Itanium-based.	Red Hat Enterprise Linux 5 Update 8
JVM (64-bit)	Oracle's JDK 6.0 Update 24 or Oracle JRockit R28(Java 6).	Oracle's JDK 6.0 Update 24 or Oracle JRockit R28(Java 6).	IBM JDK 1.6 SR9.	HP UX JDK 1.6.0.09.	Oracle's JDK 6.0 Update 24.

User Requirements

Your implementation may require you to set up multiple user accounts and user groups. Ensure that the user accounts, UIDs, user groups, GIDs, home directory, and shell are set up consistently across all the clusters and servers.

Client System Requirements

The following table lists the supported client system options:

Table 2–3   Client System Environment

Software	Requirements
Microsoft Windows XP Professional Service Pack 3	■ Microsoft Office Professional Edition 2003 ■ Microsoft Internet Explorer 7.0 ■ Microsoft Internet Explorer 8.0 (32-bit)
Microsoft Windows 7 Service Pack 1 (64-bit)	■ Microsoft Office Professional Edition 2007 ■ Microsoft Internet Explorer 8.0 (32-bit)

Miscellaneous Utilities

The following table lists some of the recommended utility packages for the application installation:

> **Important:**   These packages must be installed on all the host systems.

Table 2–4   Miscellaneous Utilities

Package Name	Required Version
GNU bash	Version 3.0 or higher.
GNU findutils	Version 4.1.7 or higher.
GNU less	Version 378 or higher.
GNU m4	Version 1.4 or higher. You must use the *GNU m4* for the Clearance Optimization Engine installation. Other *m4* implementations may not be supported.
GNU tar	Version 1.13 or higher.
Open SSH	Version 3.6 or higher. You may choose to use another SSH implementation.

Supported Oracle Retail Products

The following Oracle Retail product is supported:

Table 2–5   Supported Oracle Retail Product

Product	Version
Oracle Retail Item Planning Configured for Clearance Optimization Engine (COE)	13.3.1
Oracle Retail Analytic Parameter Calculator for Markdown Optimization (APC-MDO)	13.3

Clearance Optimization Engine is part of the Oracle Retail Fashion Planning Bundle.

Overview of the Fashion Planning Bundle

The Fashion Planning Bundle is the integration of Item Planning (IP), Clearance Optimization Engine (COE), Assortment Planning (AP), Merchandise Financial Planning (MFP), and Size Profile Optimization (SPO) as a full-suite planning solution for fashion retailers.

3

Setting Up the Database

This chapter describes how you can set up your database, and the various database components. It contains the following sections:

- Installing the Database
- Setting Up the Clearance Optimization Engine Database

Installing the Database

The application requires the use of the Oracle® Database 11*g* Release 2 (11.2.0.2.0).

> **Note:** Before starting the installation, ensure that you have sufficient privileges to perform any database administrator (DBA) level tasks.

Install the database for the application, along with the software, referring to the relevant Oracle Database Documentation included with the software.

Time Zone Consideration

Ensure that time zone set up for the database matches the time zone set for the users. Oracle recommends that you set the TZ Unix environment variable for the database instance and TNS listener to the time zone set for the end users.

Setting Up the Clearance Optimization Engine Database

Once you have the Clearance Optimization Engine database installed, you must set up the database using the following steps:

1. Setting Up the Initialization Parameter File
2. Setting Up the System Data Dictionary
3. Setting Up the Tablespaces
4. Creating the Default User Accounts

Setting Up the Initialization Parameter File

Set up the init.ora file in the <ORACLE_HOME>/dbs directory. In addition to other parameters that you need set up for your specific environment, following is the list of the recommended parameters for Clearance Optimization Engine:

```
db_block_size = 8192
pga_aggregate_target = 1000M
workarea_size_policy = AUTO ( Oracle default)
undo_management = AUTO
global_names = FALSE  (Oracle default)
cursor_sharing = SIMILAR
query_rewrite_enabled = TRUE
query_rewrite_integrity = TRUSTED
db_file_multiblock_read_count = 32
log_checkpoints_to_alert = TRUE
session_cached_cursors = 900
timed_statistics = TRUE
star_transformation_enabled = FALSE
open_cursors    1500
parallel_max_servers = (set to 3 * number of cpus)
processes   =     450
recyclebin   =    off
DEFERRED_SEGMENT_CREATION = FALSE
```

Setting Up the System Data Dictionary

To create the system data dictionary, log in as the *sys* user, and run the following scripts:

```
<ORACLE_HOME>/rdbms/admin/catalog.sql
<ORACLE_HOME>/rdbms/admin/catproc.sql
<ORACLE_HOME>/sqlplus/admin/pupbld.sql
```

Setting Up the Tablespaces

You must set up the tablespaces for each database schema. Ensure that each database schema has the following system tablespaces:

Table 3–1   Clearance Optimization Engine Tablespaces

Tablespace	Description
DATA_01	Required. Default tablespace for Clearance Optimization Engine table.
INDEX_01	Required. Tablespace for indexes of Clearance Optimization Engine, STG, and ASH.
ITEM_DATA_PIN	Required. Tablespace for ITEM_DATA table of the Clearance Optimization Engine schema.
SYSTEM	System tablespace used for metadata.
SYSAUX	System tablespace used for system monitoring.
TEMP	Typical but not required. System tablespace used for temporary system swap space for Clearance Optimization Engine, STG, and ASH.
RBS	Typical but not required. System tablespace for resolving data write clashes.

> **Note:** Tablespace size depends on your implementation. You must decide on the default tablespace sizes when you plan to install the database.

Creating the Default User Accounts

You must also create the default database user account that will be used during the installation to access the application database.

To create the user accounts:

1. At the SQL prompt, type the following statement to create the users, and set the DATA_01 as the default tablespace:

   ```
   CREATE USER <COE USERNAME> IDENTIFIED BY <COE PASSWORD>
   DEFAULT TABELESPACE DATA_01;
   ```

   Replace the `<COE USERNAME>` and `<COE PASSWORD>` with the relevant user name and password.

2. Once the user is created, use the Oracle 11*g* Database Configuration Assistant and grant the relevant access privileges to both the users. The following table lists the access privileges you must assign to the user:

Table 3–2   Access Privileges for the Users

Type	Privileges
Roles	CONNECT
	RESOURCE
	SELECT_CATALOG_ROLE
Privileges	ANALYZE ANY
	ALTER SESSION
	QUERY REWRITE
	UNLIMITED TABLESPACE
	CREATE SEQUENCE
	CREATE PUBLIC SYNONYM
	CREATE SYNONYM
	CREATE TABLE
	CREATE MATERIALIZED VIEW
	CREATE VIEW
	SELECT ANY TABLE
	DROP TABLE
	EXECUTE PROCEDURE
	CREATE DATABASE LINK
	DROP PUBLIC SYNONYM

Table 3–2 (Cont.) Access Privileges for the Users

Type	Privileges
Java Runtime Privileges	exec dbms_java.grant_permission ('<USERNAME>','SYS:java.lang.RuntimePermission', 'getClassLoader', '')
	exec dbms_java.grant_permission ('<USERNAME>','SYS:java.lang.RuntimePermission', 'Verifier', '')
	exec dbms_java.grant_permission ('<USERNAME>','SYS:java.lang.RuntimePermission', 'getenv.TNS_ADMIN', '')
	exec dbms_java.grant_permission ('<USERNAME>','SYS:java.lang.RuntimePermission', 'getenv.ORACLE_HOME', '')
	exec dbms_java.grant_permission ('<USERNAME>','SYS:java.util.PropertyPermission', 'oracle.net.tns_admin', 'write')
	Important: Replace <COE USERNAME> with the relevant user name.

4

Setting Up Your Application Server

Before installing Clearance Optimization Engine, you must set up a domain on the application server. Based on your business need, you must set up a domain to include one or more server instances and logically related resources and services.

Clearance Optimization Engine supports the use of Oracle WebLogic Server 11g Release 1 (10.3.5) along with Oracle Application Development Runtime (ADF) Release 11.1.1.5.0. This chapter provides instructions on setting up the application server selected for your business. It contains the following sections:

- Setting Up the Oracle WebLogic Server

> **Note:** This chapter includes specific instructions required for Clearance Optimization Engine. Since the installation instructions for an application server may vary based on the operating system, Oracle recommends that you refer to the relevant installation documentation included with the application server.

If you plan to use clusters for the Clearance Optimization Engine installation, Oracle recommends that you specify the managed servers and clusters when you set up the domain. Otherwise, the managed servers must be added manually. When you set up the managed servers on different machines, ensure that they are set up on the same port and the installation base has the same directory structure or they use a network drive. For more information on managing clusters, refer to the Oracle WebLogic Server documentation.

Setting Up the Oracle WebLogic Server

This section describes how you can set up a domain on the WebLogic server. It contains the following sections:

- Installing the WebLogic Server
- Installing the Oracle Application Development Runtime Patch
- Setting Up a WebLogic Domain
- Setting Up the WebLogic Startup Script
- Enabling SSL in the WebLogic Server

Installing the WebLogic Server

Install the Oracle WebLogic Server Release 11gR2 (10.3.5) referring to the Oracle WebLogic Server Documentation for guidance.

In this guide, the WebLogic installation directory is referred to as the <WLS_HOME> directory.

Installing the Oracle Application Development Runtime Patch

Clearance Optimization Engine also requires that the WebLogic Server is extended to use ADF 11.1.1.2.0. Before you set up the WebLogic domain, you must first apply these patches.

To download and apply the patches:

1. Log on to the Oracle Technology Network Web site and download the patches. To download this patch:

   a. In a Web browser, open the following URL:

      `https://otn.oracle.com/`

   b. On the **Oracle Technology Network** page, in the horizontal menu, hover your mouse cursor over **Downloads**, and then click **JDeveloper and ADF** under the **Developer Tools** section. The **Oracle JDeveloper Software** page appears.

   c. Click the **Downloads** tab.

   d. On the **Downloads** tab, click the **Download** link under the **Oracle Application Development Runtime Installer** section. The **Application Development Framework** page appears.

   e. Click the **Downloads** tab.

   f. In the **Downloads** tab, review and accept the license agreement.

   g. Under the **Oracle ADF Downloads** area, select **11.1.1.5** from the drop-down list under **Application Development Runtime**, and then click **Download**.

2. Unpack the ZIP file to a temporary directory and navigate to this location.

3. Install Application Development Runtime 11.1.1.5 by running the installer.

Setting Up a WebLogic Domain

Use the WebLogic Configuration Wizard to create and set up a domain on the WebLogic Server. This section describes how you can create and set up a domain. It also introduces the steps to configure the managed servers and clusters on the application server. For more information on the WebLogic Configuration Wizard and customizing the domain environments with managed servers and clusters, refer to the *Oracle Fusion Middleware 11g Creating Domains Using the Configuration Wizard*.

> **Note:** In case you have an existing WebLogic domain, ensure that you extend it to be JRF enabled.

To set up a WebLogic domain:

1. In order to run the WebLogic Configuration Wizard in the graphical mode, export DISPLAY and have cygwin with X11 or other X windows system.

2. Navigate to the **<WLS_HOME>/common/bin** directory, and run the following command to start the WebLogic Configuration Wizard in the graphical mode:

```
bash config.sh
```

3. On the WebLogic Configuration Wizard, follow the steps listed in the table below:

Table 4–1   Steps to Set Up a WebLogic Domain

Step	Screen	Task
1.	*Welcome Screen*	
		Click the **Create a new WebLogic domain** option, and then click **Next**.
2.	*Select Domain Source Screen*	
		Click the **Generate a domain configured automatically to support the following products** option, select the **Oracle JRF - 11.1.1.0 [oracle_common]** check box, and then click **Next**.
		Note that the **Basic WebLogic Server Domain - 10.3.5.0 [wlserver_10.3]** check box is automatically selected and greyed out.
3.	*Specify Domain Name and Location Screen*	
		Enter a domain name in the **Domain Name** field.
		In the **Domain location** field, specify the location where you want to install the domain.
4.	*Configure Administrator User Name and Password Screen*	
		Set up an administrative user name and password.
		Important: Please keep a note of the user name and password. You must set up an alias in a password store using this user name and password. The Oracle Installer uses the alias name for this user account to connect to the WebLogic Server during the application installation. For more information on setting up a password store and an alias, see Setting Up the Credential Storage Manager Password Store.
5.	*Configure Server Start Mode and JDK Screen*	
		Under **WebLogic Domain Startup Mode**, click **Production Mode**.
		Under **JDK Selection**, select the relevant JDK.
		Click **Next**.
6.	*Select Optional Configuration Screen*	
		Select the configurations you want to customize and click **Next**. Go to Step 7.
		OR
		To proceed directly to creating your domain. Skip the following steps and go to Step 15.

Table 4–1   (Cont.) Steps to Set Up a WebLogic Domain

Step	Screen	Task
7.	*Configure the Administration Server Screen*	
		Enter relevant information in the following fields:
		■ **Name** – Valid server name. (String of characters that can include spaces.)
		■ **Listen address** – Listen address for a server instance.
		■ **Listen port** – Valid value for the listen port.
		■ **SSL listen port** – Valid value to be used for secure requests.
		■ **SSL enabled** – Select this check box to enable SSL. You can enter values in the SSL listen port field once you select this check box.
		Click **Next**.
8.	*Configure Managed Servers Screen*	
		Click **Add**, and then enter relevant information in the following fields:
		■ **Name** – Valid server name. (String of characters that can include spaces.)
		■ **Listen address** – Listen address for a server instance.
		■ **Listen port** – Valid value for the listen port.
		■ **SSL listen port** – Valid value to be used for secure requests.
		Repeat this step to add more managed servers.
		Click **Next**.
9.	*Configure Clusters Screen*	
		This window appears, once you specify the managed servers.
		Click **Add**, and then enter relevant information in the following fields:
		■ **Name** – Valid cluster name. (String of characters that can include spaces.)
		■ **Multicast address** – Address used by the cluster members to communicate with each other.
		■ **Multicast port** – Port used by the cluster members to communicate with each other.
		■ **Cluster address** – Address that identifies the Managed Servers in the cluster.
		Repeat this step to specify more clusters.
		Click **Next**.
10.	*Assign Servers to Clusters Screen*	
		Use the arrow buttons and assign the servers to the clusters specified in the domain.
		Click **Next**.
11.	*Configure Machines Screen*	
		Click **Add**, and then add the machine (Unix-based) information.
		Click **Next**.

Table 4–1   (Cont.) Steps to Set Up a WebLogic Domain

Step	Screen	Task
12.	*Assign Servers to Machines Screen*	
		Use the arrow buttons and assign the managed servers to the machines specified in the domain.
		Click **Next**.
13.	Target Deployments to Clusters or Servers	
		In the left pane, select the clusters or servers, and then select the relevant application check boxes in the right pane to target them to the specific cluster or managed server.
		For each cluster and managed server, select the **Library** check box.
		The WebLogic domain must be set up in such a manner that all the clusters and the relevant managed servers include all the libraries included with the WebLogic server.
14.	Target Services to Clusters or Servers	
		In the left pane, select the clusters or servers, and then select the relevant services check boxes in the right pane to target them to the specific cluster or managed server.
15.	*Configuration Summary Screen*	
		Review and confirm the configuration summary, and then click **Next**.
16.	*Creating Domain Screen*	
		Displays the domain configuration progress.
		Once the configuration is complete, click **Done**.

Setting Up the WebLogic Startup Script

To set up the WebLogic Startup script:

- Navigate to the **<WL_HOME>/user_projects/domains/<your domain name>/bin** directory, and ensure that the following parameters are set within the **startWebLogic.sh** script:

  - **WL_HOME** – The location where the WebLogic Server is installed.

  - **JAVA_VENDOR** – The Java Development Kit (JDK) installed for the WebLogic Server. You can specify IBM, HP, or Sun.

  - **JAVA_HOME** – The location where the JDK is installed.

  - **CONFIGROOT** – The application configuration root directory.

  - **JAVA_OPTIONS** – Append the following to the parameter value:
    `" -Dcom.profitlogic.configroot=$CONFIGROOT"`

  - **CLASSPATH** – Append the location of the Engine sub folder located within the application configuration root directory.

  Note: In case you have set up clusters or managed servers, you must also set up the **startManagedWebLogic.sh** script in the similar manner.

For Example

```
#!/bin/sh
WL_HOME="<location where WebLogic Server is installed>"
PRODUCTION_MODE="true"
JAVA_VENDOR="<name of the JDK>"
JAVA_HOME="<location where JDK is installed>"
. ${WL_HOME}/common/bin/commEnv.sh
SERVER_NAME="admin"
CONFIGROOT=<Clearance Optimization Engine INSTALLATION DIRECTORY>/config
JAVA_OPTIONS=$JAVA_OPTIONS" -Dcom.profitlogic.configroot=$CONFIGROOT"
CLASSPATH="${WEBLOGIC_CLASSPATH}:${POINTBASE_CLASSPATH}:${JAVA_
HOME}/jre/lib/rt.jar:${WL_HOME}/server/lib/webservices.jar:${CLASSPATH}"
CLASSPATH=${CLASSPATH}:<Clearance Optimization Engine INSTALLATION
DIRECTORY>/config/Engine
export CLASSPATH
${JAVA_HOME}/bin/java ${JAVA_VM} ${MEM_ARGS} ${JAVA_OPTIONS}
-Dweblogic.Name=${SERVER_NAME} -Dweblogic.ProductionModeEnabled=${PRODUCTION_MODE}
-Dweblogic.management.username=${WLS_USER} -Dweblogic.management.password=${WLS_
PW} -Djava.security.policy="${WL_HOME}/server/lib/weblogic.policy" weblogic.Server
2>> console.log >& 2 &
```

Enabling SSL in the WebLogic Server

You can choose to install the application over HTTP or HTTPS protocol. Before you start the application installation, you must choose and set up the HTTP protocol for the application. This section highlights how you can enable Secure Sockets Layer (SSL) protocol for your server using the WebLogic Server Administration Console.

For more information on SSL in WebLogic Server, refer to the Oracle WebLogic Server documentation.

To enable SSL in the WebLogic:

1. Log on to the WebLogic Server Administration Console by typing the following address in a Web browser:

   ```
   http://mycompany.domain.com:<admin-port>/console
   ```

2. In the **Domain Configurations** section, under the **Environment** section, click **Servers**. The **Summary of Servers** page appears.

   You can also click **Environment** under the **Domain Structure** section in the left navigation pane.

3. On the **Summary of Servers** page, select the server you want for enabling SSL. The **Settings for <servername>** page appears.

4. In the **Settings for <servername>** page, under **Configuration**, click the **General** tab.

5. Click **Lock & Edit**.

6. Select the **SSL Listen Port Enabled** check box, and then enter a relevant port number in the **SSL Listen Port** field. By default, the port number is set to **7002**.

7. Click **Save**.

8. Click **Activate Changes**.

Setting Up Identity and Trust Keystores

SSL can be configured as a one-way or two-way implementation. In a one-way SSL, the server presents a certificate to the client and the client is not required to present a certificate to the server. In a two-way SSL, the server presents a certificate to the client and the client presents a certificate to the server.

In case you enable SSL for your application, the application utility requires that you set up a identity and trust keystore on the WebLogic server. Once set, the WebLogic server presents a certificate to the client. Once the client system verifies the certificate from the server, the server then verifies the client by authenticating the user credentials from the wallet.

For more information on setting up trust keystore, refer to the *Oracle Fusion Middleware Securing Oracle WebLogic Server* documentation.

You can use the WebLogic Server Administration Console to configure the identity and trust keystores. For more information, refer to the *Oracle WebLogic Server Administration Console Help*.

> **Note:** Keep a note of the location where the trust store is installed and the alias name for the trust store. You will need to specify these when you use the PriceAdmin utility. For more information, refer to the *Oracle Retail Clearance Optimization Engine Operations Guide*.

5

Setting Up Password Stores

Password stores are secure software containers that store the encrypted user credentials. As part of the Oracle Software Security Assurance (OSSA) program, sensitive information such as user credentials must be encrypted and stored in a secure location called as the password stores. When the installation starts, all the necessary user credentials will be retrieved from the password stores based on the alias name associated with the user credentials. The relevant applications, installers, and scripts can retrieve the credentials using aliases that were set up when encrypting and storing the user credentials in the password store.

Once configured, the application installation and the other relevant scripts no longer need to use embedded user names and password. This reduces any security risks that may exist because user names and passwords are no longer exposed.

This chapter describes how you can set up the password stores. It includes the following steps:

1. Review and understand the required password stores configuration. See Password Stores Configuration Overview.

2. Set up a password store for the database user accounts using Oracle Wallet on the application database side. In this document, this password store is referred to as the *Oracle Secret Store*. See Setting Up the Oracle Secret Store.

3. Set up another password store for the application installation using the Credential Storage Manager. This password store will store the user credentials of the relevant application server and the database user accounts. In this document, this password store is referred to as the *Credential Storage Manager Password Store*. See Setting Up the Credential Storage Manager Password Store.

> **Note:** In a clustered-based implementation, ensure that the password stores are installed at a location that is accessible to all the cluster nodes

Important Consideration

Before you start setting up the password stores, ensure that you have the set up the following:

- Environment variables. For more information, see Setting Up Environment Variables.

- Latest supported JDK. For more information, see Supported Configurations.

Password Stores Configuration Overview

Before you start the application installation, you must set up the following two password stores:

- *Oracle Secret Store* – This password store will be used for the database user accounts, and set up using the Oracle Wallet (mkstore) available in the SQL*Plus client installation. This password store will store the database user accounts required for the application. The database user credentials are available for the SQL scripts and other batch scripts by means of an alias set up in this password store for each database user account. Ensure that you create a password store using Oracle Wallet for each database client installation.

- *Credential Storage Manager Password Store* – This password store is used for the application installation, and set up using the Credential Storage Manager available in the COE installation media. This password store will store user credentials for the application server and database user accounts.

  Although you added the database user account credentials in the *Oracle Secret Store*, ensure that you also add the same database user account credentials to the *Credential Storage Manager Password Store*, including the same alias name. The application installer uses these aliases to gain access to the relevant user account credentials required during installation.

> **Note:** Both the password stores must be set up on different directories or locations.

The following figure illustrates the password stores setup and usage for an installation:

Figure 5–1 Password Stores Required for an Installation
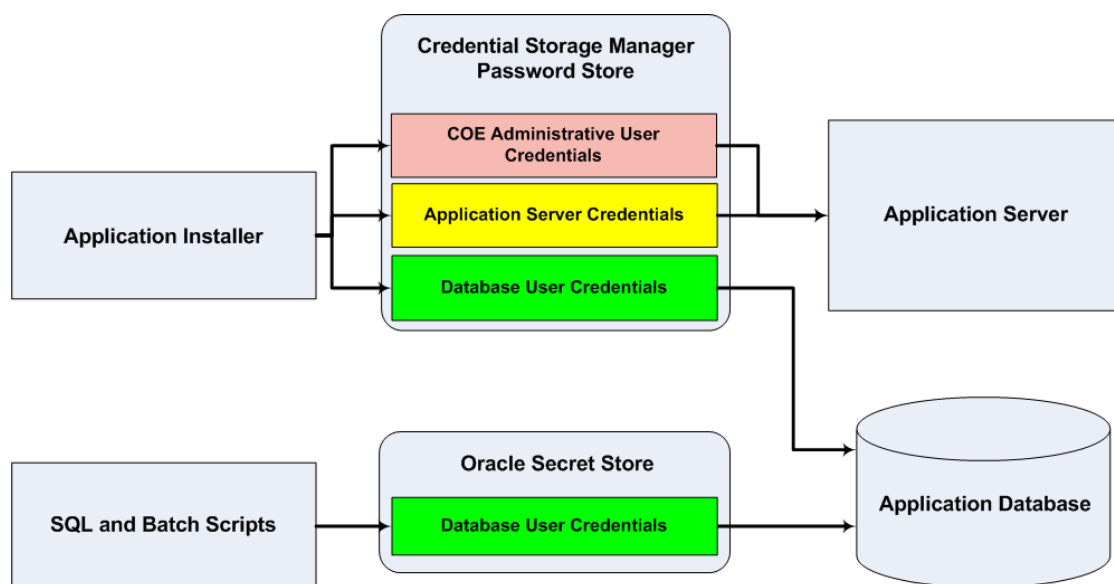
In the figure above, the Database User Credentials boxes in both the password stores have the same color. This is to indicate that the same database credentials must be set up in both the password stores.

Setting Up the Oracle Secret Store

Once the database is installed and the default database user accounts set up, you must set up a password store using the Oracle Wallet tool. In this document, this password store is referred to as the *Oracle Secret Store*. Setting up this password store involves assigning an alias for the user name and associated password for each database user account. The alias will later be used during the application installation. This password store must be created on the system where the application server and database client are installed.

This section highlights the steps you must take to set up a wallet and then the aliases for the database user accounts. For more information on configuring authentication and password stores, refer to the *Oracle Database Security Guide*.

> **Note:** In this section, `<store_location>` is a placeholder text for illustration purposes.
>
> Before running the relevant commands in the procedure below, ensure that you replace the text `<store_location>` (including the < and >) with the path to the folder where you want to create the Oracle Secret Store.
>
> In step 7 below, replace the text `<store_location>` with the path to the folder where you created the Oracle Secret Store.
>
> For example, */u00/db/admin/wallet*.

To set up the Oracle Secret Store:

1. Create a store using the following command:

    ```
    mkstore -wrl <store_location> -create
    ```

    Once you run the command, a prompt appears to enter a password for the Oracle Secret Store.

    > **Note:** The *mkstore* utility is included in the Oracle Database Client installation.

    The store is created with the auto-login feature enabled. This feature enables the database client to access the store 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 store using the following command:

    ```
    mkstore -wrl <store_location> -createCredential <alias-name>
    <database-user-name>
    ```

3. Once you run the command, prompts appear to enter and confirm the password associated with the database user account.

4. After you enter the password for the database user account, press **Enter**. A prompt appears to enter the password associated with the store.

5. Enter the password you specified when you created the store in step 1, and then press **Enter**.

6. Repeat steps 2 through 5 to add all the database user accounts.

7. List the entries in the store to confirm the alias associated with the user name

```
mkstore -wrl <store_location> -listCredential
```

When prompted, enter the Oracle secret store password set up in step 1.

8. Update the **sqlnet.ora** file to include the following statements:

```
WALLET_LOCATION = (SOURCE = (METHOD = FILE) (METHOD_DATA = (DIRECTORY = <store_
location>)))
SQLNET.WALLET_OVERRIDE = TRUE
SSL_CLIENT_AUTHENTICATION = FALSE
```

9. 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 statement above, the following placeholder text are used for illustration purposes. Ensure that you replace these with the relevant values:

■ <alias name> – Alias name associated with the database user account.

■ <host> – Host name of the system where the database is hosted.

■ <port> – Port number associated with the database.

■ <service> – Name of the database.

For example,

```
MDO_ALIAS =
    (DESCRIPTION =
     (ADDRESS_LIST =
          (ADDRESS = (PROTOCOL = TCP) (HOST = DBHOST-SYSTEM) (PORT = 1521))
      )
      (CONNECT_DATA =
          (SERVICE_NAME = MDODB)
       )
     )
```

Setting Up the Credential Storage Manager Password Store

Before starting the application installer, you must set up the user credentials for the application server, database user accounts, and the application administrative user account. The application installation includes a Credential Storage Manager that you can use to set up a password store for the application installation. In this document, this password store is referred to as the *Credential Storage Manager Password Store*.

> **Note:** In this section `<COE_CD_IMAGE>` refers to the location where you extract the Clearance Optimization Engine installation media. To proceed ahead, you must first access and extract the installation media.For more information, see Accessing the Installation Software.

To set up the Credential Storage Manager Password Store:

1. Navigate to the following subfolder in the `<COE_CD_IMAGE>` folder:

    `<COE_CD_IMAGE>/CSM/lib/`

    For more information on the `<COE_CD_IMAGE>` folder, see Accessing the Installation Software.

2. For each relevant database and application server user accounts, run the following command:

    > **Important:** Although you added the database user account credentials in the Oracle Secret Store, ensure that you also add the same database user account credentials to the Credential Storage Manager Password Store, including the same alias name.

    ```
    java -jar retail-public-security-api.jar <alias-name> <user-name>
    <locationofwalletDir>
    ```

    Once you run this command, you will be prompted to enter the password associated with the user name.

    > **Note:** In the command above, `<alias-name>`, `<user-name>`, and `<locationofwalletDir>` are placeholder text for illustration purposes. For each set of user name and associated password, you must specify an unique alias name.
    >
    > For the `<locationofwalletDir>` argument, you must specify the location where you want to store the wallet file that contains the encrypted user credentials. Keep a note of this location. You will need to set this location as the value for the `CSM_HOME` before starting the application installation. For more information, see Setting Up Environment Variables.

3. Repeat step 2 to set up aliases for all the administrative user accounts. This includes administrative user accounts for the application, application server, and database.

Example

To set up an alias with a name **COEAdminAlias** for the user **coe-admin** and store the wallet file at **/u00/product/oracle/coe/wallet/**, specify the following:

```
java -jar retail-public-security-api.jar COEAdminAlias coe-admin
/u00/product/oracle/coe/wallet/
```

Important Considerations

- Alias names are case sensitive.

- For database user accounts, ensure that you set up the same alias names between the password stores (Oracle Secret Store and Credential Storage Manager Password Store).

- Keep a note of all the aliases you have set up. During the application installation, you will need to enter the alias names for the application installer to connect to the database and application server.

6

Installing Clearance Optimization Engine

After you have set up your database management system and application server, you can install Clearance Optimization Engine (COE) as described in this chapter. This chapter contains the following sections:

- Overview of the Installation Process
- Installing Clearance Optimization Engine
- Post-Installation Tasks
- Upgrading to the Latest Release of Clearance Optimization Engine
- Troubleshooting Installation Issues

Overview of the Installation Process

> **Note:** Although options for Oracle Application Server, IBM DB2, and WebSphere appear in the Oracle Installer, they are not supported in this release.

In order to install Clearance Optimization Engine, your first task is to obtain the installation media.

Then, you need to set up the Clearance Optimization Engine installation properties file. Once set up, you can choose of the following installation modes:

- Graphical mode - In graphical mode, the Oracle Installer displays a graphical user interface and prompts you to enter or modify the value of properties specified in the properties file.
- Silent mode - In silent mode, the installer processes the properties file with no manual intervention required.

To begin the installation process, see Installing Clearance Optimization Engine.

Installing Clearance Optimization Engine

Installing Clearance Optimization Engine consists of the following tasks:

- Accessing the Installation Software
- Setting Up Your Installation Properties File
- Installing Clearance Optimization Engine in Silent Mode
- Installing Clearance Optimization Engine Using the Graphical Oracle Installer

Accessing the Installation Software

In order to install Clearance Optimization Engine, you first need to obtain the software media, which is available for download on the Oracle Software Delivery Cloud Web site or the My Oracle Support Web site.

> **Note:** Installation media files for an Enterprise release (for example, 13.3) are available on the *Oracle Software Delivery Cloud* Web site (http://edelivery.oracle.com), and Patch releases (13.3.x) and Hot Fixes (13.3.x.y) are available on the *My Oracle Support* Web site (https://support.oracle.com).

To download the Clearance Optimization Engine software:

1. From the application server where you will be installing Clearance Optimization Engine, open a browser and navigate to the following URL:

   http://edelivery.oracle.com/

   The **Oracle Software Delivery Cloud** download page displays.

2. On the **Oracle Software Delivery Cloud** page, click **Sign In/Register**.

3. On the **Sign In** page, log on to the **Oracle Software Delivery Cloud** Web site.

4. On the **Terms & Restrictions** page, review and accept the licensing agreement by selecting the check boxes.

5. Click **Continue**. The **Media Pack Search** screen displays.

6. Respond to the following and click **Go.**

   - **License List** - Review the list to determine which Product Packs you need to download.

   - **Product Pack** - Select **Oracle Retail Applications.**

   - **Platform** - Select the desired operating system.

   The **Oracle Retail Clearance Optimization Engine Media Pack** screen displays.

7. In the **Select** column, click **Download** next to Oracle Retail Clearance Optimization Engine Release 13.3.

8. Unpack the ZIP file to a temporary directory. In this guide, the directory that contains the installation media is referred to as the <COE_CD_IMAGE> directory.

   Now you can set up your Clearance Optimization Engine installation properties file.

> **Note:** Before you proceed with setting up the installation properties file, ensure that you have set up the password stores. For more information, see Setting Up Password Stores.

Setting Up Your Installation Properties File

In order to install Clearance Optimization Engine, you first need to specify the properties to use during the installation process. These properties are specified in the install.properties file.

To set up your install.properties file:

1. Ensure that your <Clearance Optimization Engine_CD_IMAGE> directory exists and is populated as described in Accessing the Installation Software, on page 6-2.

2. Navigate to the <Clearance Optimization Engine_CD_IMAGE> directory and copy the reference.coe.install.properties file to the same directory, naming it install.properties.

3. Edit the install.properties file, specifying values as described within the file, and save it. For more information on the parameters, see Install.properties Parameter Reference.

Note: You need to assign some values to the variables. These values contain angled brackets "<>". If you do not need any variables, include "#" at the start of the variables.

The install properties will cause installation errors for the variables with <>, if you do not include "#" at the start of the variables.

Now you can install Clearance Optimization Engine, using either of the following modes:

- Installing Clearance Optimization Engine in Silent Mode

- Installing Clearance Optimization Engine Using the Graphical Oracle Installer

Install.properties Parameter Reference

The following table describes the parameters in the install.properties file that you must set up before you install Clearance Optimization Engine:

Table 6–1   Install.properties Parameters Reference

Parameter	Description
Architecture Properties	
basedest.basedest.dir	Use this parameter to specify the path to the base installation folder.
basedest.baselog.dir	Use this parameter to specify the path to the folder that contains the log files.
basedest.basespool.dir	Use this parameter to specify the path to the folder that contains the spool files.
architecture	Use this parameter to specify the operating system for the application. Valid values are aix_powerpc, linux_i686, linux_x86_64, sunos_sun4u, or hpux_ia64.
http.protocol	The type of HTTP protocol used to host Clearance Optimization Engine.
install.command.shell	The shell command to use when you want to execute the shell scripts.
Wallet Information	
oracle.admin.alias	Use this parameter to specify the alias name set up for the Oracle Application Server administrative user account. For more information, see Setting Up the Credential Storage Manager Password Store.

Table 6–1   (Cont.) Install.properties Parameters Reference

Parameter	Description
install.csm.home	Use this parameter to specify the path where the Wallet is installed.
	This location was referred to as *<wallet_location>* in the chapter Setting Up Password Stores. For more information, see Setting Up Password Stores.
suite.host	The host name or IP address where the application will be installed and can later be accessed by users.
suite.port	The port associated with the host name specified in suite.host parameter where the application will run.
delphi.rmi.host	The host name or IP address where the Delphi RMI server will be installed.
delphi.rmi.port	The port associated with the host name specified in the *delphi.rmi.host* parameter where the Delphi RMI server will run.
Database Properties	
install.database	Use this parameter to specify the installed database.
Oracle Properties	
dbms.oracle.host	The host name or IP address where the Oracle database is installed.
dbms.oracle.port	The port to connect to the Oracle database.
dbms.oracle.db	Use this parameter to specify the Oracle database name.
dbms.oracle.alias	Use this parameter to specify the Oracle database alias name.
dbms.oracle.user	Use this parameter to specify the user name to connect to the Oracle database. This is the default database user account created for the application database (`<Clearance Optimization Engine USERNAME>`). For more information, see Creating the Default User Accounts.
database.commondb.oracle.address	Use this parameter to specify the URL (host name or IP address) where the Oracle database is installed.
database.commondb.oracle.dbalias	Use this parameter to specify the database alias name.
database.commondb.oracle.dbname	Use this parameter to specify the database name.
database.commondb.oracle.dbport	Use this parameter to specify the port to connect to the database.
Properties for databases with Real Application Clusters (RAC)	
database.commondb.oracle.racenabled	Use this parameter to indicate that the database is set up with Real Application Clusters (RAC).
database.commondb.oracle.dbhostlist	Use this parameter to specify the host names (with port numbers) of the servers hosting the database.

Table 6–1   (Cont.) Install.properties Parameters Reference

Parameter	Description
database.commondb.oracle.dburl	Optional. Use this parameter to specify the database URL for JDBC connectivity.
	When you leave this field blank, the installer will automatically build the database URL based on the values entered in the other database parameters. In case you specify the database URL, the installer will use the values specified here during the installation.
	Syntax:
	For non RAC database,
	`jdbc:oracle:thin:@<host name>:<dbport>:<dbname>`
	For RAC database,
	`jdbc:oracle:thin:@(DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCP)(HOST = <host name1>)(PORT = <dbport1>)) (ADDRESS = (PROTOCOL = TCP)(HOST = <host name2>)(PORT = <dbport2>)) (ADDRESS = (PROTOCOL = TCP)(HOST = <host name3>)(PORT = <dbport3>)) (ADDRESS = (PROTOCOL = TCP)(HOST = <host name4>)(PORT = <dbport4>)))(CONNECT_DATA = (SERVICE_NAME = <dbname>) (failover_mode = (type=select) (method=basic) (retries=60)(delay=5))))`
database.commondb.oracle.create	Use this parameter to specify that a new database schema must be created. Valid values are Yes or No.
database.commondb.oracle.upgrade	Use this parameter to specify that the existing database schema be upgraded. Valid values are Yes or No.
install.appserver	The default application server for Clearance Optimization Engine.
database.commondb.oracle.dbdriver	Use this parameter to specify the database driver that provides connection to the database.
WebLogic Server Properties	
weblogic.server	Use this parameter to specify the name of the server instance.
weblogic.admin.alias	Use this parameter to specify the alias name set up for the WebLogic Server administrative user account. For more information, see Setting Up the Credential Storage Manager Password Store.
weblogic.admin.port	Use this parameter to specify the port to connect to the WebLogic application server.
weblogic.server.address	Use this parameter to specify the URL to connect to the WebLogic application server.
weblogic.home	Use this parameter to specify the path to the WebLogic server in the Oracle WebLogic Server base directory.
WebLogic JNDI Properties	
weblogic.managedserver.address	Use this parameter to specify the host name or IP address of the managed server that will be set in the jndi.properties file (located in the <Clearance Optimization Engine_Installation>/modules/tools/conf directory).
	For example, acme1,acme2,acme3.
weblogic.managedserver.port	Use this parameter to specify the port set up for the managed server that will be set in the jndi.properties file.
	For example, 7001,7002,7003.

Table 6–1   (Cont.) Install.properties Parameters Reference

Parameter	Description
Note:	
For a single server installation, you must enter the administrative server's host name and port.	
For a clustered installation, you must enter all the host names and associated ports separated by commas for the relevant parameters.	
WebLogic Cluster Properties	
scope.fetarget.serverobject	Use this parameter to specify the name of the server or cluster where you want to install the Clearance Optimization Engine application.
scope.fetarget.type	Use this parameter to specify the type of the server object. You can specify cluster or server.
scope.gdtarget.serverobject	Use this parameter to specify the name of the server or cluster where you want to install the Grid Designer application.
scope.gdtarget.type	Use this parameter to specify the type of the server object. You can specify cluster or server.
Note:	
Since the Grid Designer is a single user single instance application, ensure that you set the installer to deploy the application to only one instance in a clustered configuration.	
WebLogic Cluster (Calc Engine) Properties	
scope.cetarget.serverobject	Use this parameter to specify the name of the server or cluster where the Calculation Engine is installed.
scope.cetarget.type	Use this parameter to specify the type of the server object. You can specify cluster or server.
host.list	This is the list of managed servers, where you want the installer to deploy an instance of Calculation Engine.
	<hostname1,hostname2...>, When installing in a clustered environment across multiple hosts, the install base needs to be replicated on all the hosts involved. (This is not needed if the install base is on network drive shared among the servers).
product.admin.alias	Use this parameter to specify the alias name associated with the administrative user credentials required to log on to the Clearance Optimization Engine application for the first time (previously known as the *root* user). This is the alias name you set up in the CSM password store for the application installation. For more information on setting up an alias for the administrative user, see Setting Up the Credential Storage Manager Password Store.
Post-installation Properties Files	
install.properties.savefile	Use this parameter to specify the path to the folder where you want to store the properties file (last-session.properties) that contains the parameter values used in the last installation session.
missing.properties.savefile	Use this parameter to specify the path to the folder where you want to store the properties file (missing-entries.properties) that contains the parameter values the Oracle installer tried to use during installation.
Audit Database Connection Information for Oracle	
database.auditdb.oracle.address	Use this parameter to specify the URL where the Audit database is installed.
database.auditdb.oracle.dbalias	Use this parameter to specify the Audit database alias name.
database.auditdb.oracle.dbname	Use this parameter to specify the name of the Audit database.
database.auditdb.oracle.port	Use this parameter to specify the port to connect to the Audit database.

Table 6–1 (Cont.) Install.properties Parameters Reference

Parameter	Description
Properties for databases with Real Application Clusters (RAC)	
database.auditdb.oracle.racenabled	Use this parameter to indicate that the Audit database is set up with Real Application Clusters (RAC).
database.auditdb.oracle.dbhostlist	Use this parameter to specify the host names (with port numbers) of the servers hosting the Audit database.
database.auditdb.oracle.dburl	Optional. Use this parameter to specify the Audit database URL for JDBC connectivity.
	When you leave this field blank, the installer will automatically build the database URL based on the values entered in the other database parameters. In case you specify the database URL, the installer will use the values specified here during the installation.
	Syntax:
	For non RAC database,
	`jdbc:oracle:thin:@<host name>:<dbport>:<dbname>`
	For RAC database,
	`jdbc:oracle:thin:@(DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCP)(HOST = <host name1>)(PORT = <dbport1>)) (ADDRESS = (PROTOCOL = TCP)(HOST = <host name2>)(PORT = <dbport2>)) (ADDRESS = (PROTOCOL = TCP)(HOST = <host name3>)(PORT = <dbport3>)) (ADDRESS = (PROTOCOL = TCP)(HOST = <host name4>)(PORT = <dbport4>)))(CONNECT_DATA = (SERVICE_NAME = <dbname>) (failover_mode = (type=select) (method=basic) (retries=60)(delay=5))))`
AUDIT property for Creating the Database	
database.auditdb.oracle.create	Use this parameter to indicate that a new Audit database must be created.
AUDIT property for Upgrading the Database	
database.auditdb.oracle.upgrade	Use this parameter to specify that the existing database be upgraded to include the Audit schema.
common.feschema	Use this parameter to specify the user name associated with the application schema.
common.dblink	Use this parameter to specify the database link to access the common components schema through the audit schema. If the schema exists in the same instance, specify *none*.
Oracle Configuration Manager (OCM) Properties	
basedest.baseocm.dir	Use this parameter to specify the path to the folder that contain the OCM files. Oracle recommends that this path be in the base installation folder.
product.ocm.install	Use this parameter to accept or decline the OCM license agreement. The value defaults to *no* and indicates that OCM will not be installed (rest of the OCM properties are ignored).
ocm.distribution	Use this parameter to specify the architecture of the operating system on which OCM is being installed.
ocm.disconnected	Use this parameter to specify one of the following OCM connection mode:
	■ Connected – to proceed installing OCM. You must also procure the Customer Support Identifier, My Oracle Support user account name, and the country code to install the OCM.
	■ Disconnected – to skip the OCM configuration.

Table 6–1 (Cont.) Install.properties Parameters Reference

Parameter	Description
ocm.csi_id	Use this parameter to specify the Customer Support identification number.
ocm.metalink_id	Use this parameter to specify the My Oracle Support user account name associated with the Customer Support identification number.
ocm.country_code	Use this parameter to specify the country code where the support agreement was initiated.
ocm.http.proxyenabled	Use this parameter to indicate that the system will connect to the Internet using proxy. Valid values are *yes* or *no*.
ocm.http.proxyhost	Use this parameter to specify the host name of the proxy server.
ocm.http.proxyport	Use this parameter to specify the port number of the proxy server.
ocm.http.proxyuser	Use this parameter to specify the user name to connect to the proxy server.
ocm.http.proxypassword	Use this parameter to specify the password associated with the user name to connect to the proxy server.
Internationalization Properties	
dataset.load.characterset	Use this parameter to specify the character set to be used in the data control (.ctl) files. For more information on the correct character set syntax, refer to the appendix *Locale Data* in the *Oracle Database Globalization Support Guide* included in the *Oracle Database 10g Release 2 Documentation*. In case you choose not to set the value for this parameter, the default character set (UTF8) will be used for the application.

Setting Up Environment Variables

Before you start the installation, ensure that the following environment variables are set in the system:

- JAVA_HOME
- ORACLE_HOME
- PATH
- LD_LIBRARY_PATH (applies to Linux, HP-UX, Solaris based systems)
- LD_LIBRARY_PATH_64 (applies to Linux, HP-UX, Solaris based systems)
- LIBPATH (applies to IBM AIX based systems)
- TNS_ADMIN
- CSM_HOME

Although it is recommended that these variables be set up in relevant bash shell startup files (*.bash_profile*) of the system, you can also set up the variables using the *EXPORT* command at the UNIX prompt. For more information on setting up these variables in the startup files, refer to the operating system documentation.

To set up the environment variables for the current session, at the UNIX prompt type the following commands in sequence:

```
export JAVA_HOME=<path where JVM is installed>
For example, /usr/lib/java/jdk1.6

export ORACLE_HOME=<path where the Oracle client is installed>
```

```
For example, /u01/app/oracle/product/11.2.0/db_1

export PATH=$ORACLE_HOME/bin:$PATH

export LD_LIBRARY_PATH=$ORACLE_HOME/lib;$LD_LIBRARY_PATH
For example, export LD_LIBRARY_PATH =$ORACLE_HOME/lib;$LD_LIBRARY_PATH

export LIBPATH=$ORACLE_HOME/lib;$LIBPATH
For example, export LIBPATH=$ORACLE_HOME/lib;$LIBPATH

export LD_LIBRARY_PATH_64=$ORACLE_HOME/lib;$LD_LIBRARY_PATH_64
For example, export LD_LIBRARY_PATH_64=$ORACLE_HOME/lib;$LD_LIBRARY_PATH_64

export TNS_ADMIN=<path where the tnsnames.ora file for the database is located.>
For example, /u01/app/oracle/product/11.2.0/db_1/NETWORK/ADMIN

export CSM_HOME=<path where the Oracle Wallet is installed>
For example, /u00/product/oracle/coe/wallet/
```

> **Note:** Once the ORACLE_HOME environment variable is set up, the password stores set up with the alias, ensure that you can connect to the database via sqlplus using the following command:
>
> ```
> $sqlplus /@<alias_name>
> ```

Installing Clearance Optimization Engine in Silent Mode

This section describes how to install Clearance Optimization Engine in silent mode. Silent mode is non-interactive.

To install Clearance Optimization Engine in silent mode:

1. Ensure that you have completed "Setting Up Your Installation Properties File" on page 6-3.

2. Make sure that your application server is running.

3. From your application server machine, enter the following command with relevant arguments:

   ```
   bash install.sh
   ```

install.sh

The install.sh command enables you to install Clearance Optimization Engine.

Syntax

install.sh [-s] [-p <path-to-install.properties-file>]

Arguments

Use any arguments listed below as needed.

Argument	Description
-s	Optional. Silent mode. If you omit this option, the Oracle Installer user interface displays.
-p <path-to- install.properties>	Optional. Specifies an alternate path to the install.properties file. Defaults to ./install.properties.
-l, --log-config	Optional. Specifies an alternate log4j configuration file (to change the verbosity level or the log file output location). Defaults to ./Install/conf/log4j.properties. The log4j log file is used for troubleshooting.
-y | -n	Optional. Specifies whether or not to overwrite existing files. Defaults to -y (overwrite).
-d <XML path>	Optional. Specifies an alternate path to the XML install scripts. Defaults to ./InstallScripts.
-x <filename.xml>	Optional. Specifies an alternate XML install script file within the ./InstallScripts directory.
-h	Optional. Prints a help message.

Return Value

When run in silent mode (install.sh -s), the script displays a trace message to stdout (the console). When run in Oracle Installer mode (the default), the script displays a graphical user interface.

Output

The Clearance Optimization Engine installation creates the Clearance Optimization Engine directory structure, populates it with appropriate files, and when the installation finishes, it generates a log file and two properties files.

If the installation resulted in issues, see Troubleshooting Installation Issues.

Installing Clearance Optimization Engine Using the Graphical Oracle Installer

If you prefer to use a guided user interface, you can use the graphical Oracle Installer.

To install Clearance Optimization Engine using the Oracle Installer:

1. Ensure that you have completed "Setting Up Your Installation Properties File" on page 6-3.

   > **Note:** Although you can run the installation without setting up the installation properties file, ensure that you set up the installation properties file, and then start the installation.

2. Ensure that your application server software is running.

3. If you are viewing the installer from a Windows client:

   - On the **Windows** client, start an **Xserver** program that enables you to emulate the X terminal.

   - On the application server, set the display for the Windows client where you want the Oracle Installer to display as follows:

     ```
     export DISPLAY=<IP address>:0.0
     ```

4. From your application server machine, enter the following command:

   ```
   bash install.sh
   ```

   > **Note:** For more information about this command, see Installing Clearance Optimization Engine in Silent Mode.

   The **Welcome** screen appears.

Figure 6–1   Welcome Screen

5. Click **Next**. The **Clearance Optimization Engine Installation Destination** screen appears.

Figure 6–2   Clearance Optimization Engine Installation Destination Screen

6. On the **Clearance Optimization Engine Installation Destination** screen, specify the paths for the following:

- **Destination Directory** - path to the Clearance Optimization Engine installation target directory.

- **Spool Directory** – path to the Clearance Optimization Engine spool directory.

- **Log Directory** – path to the Clearance Optimization Engine installation log files.

- **OCM installation root** – path to the location where the Oracle Configuration Manager (OCM) is installed.

7. Click **Next**. The **Clearance Optimization Engine Selections** screen appears.

Figure 6–3   Clearance Optimization Engine Selections Screen
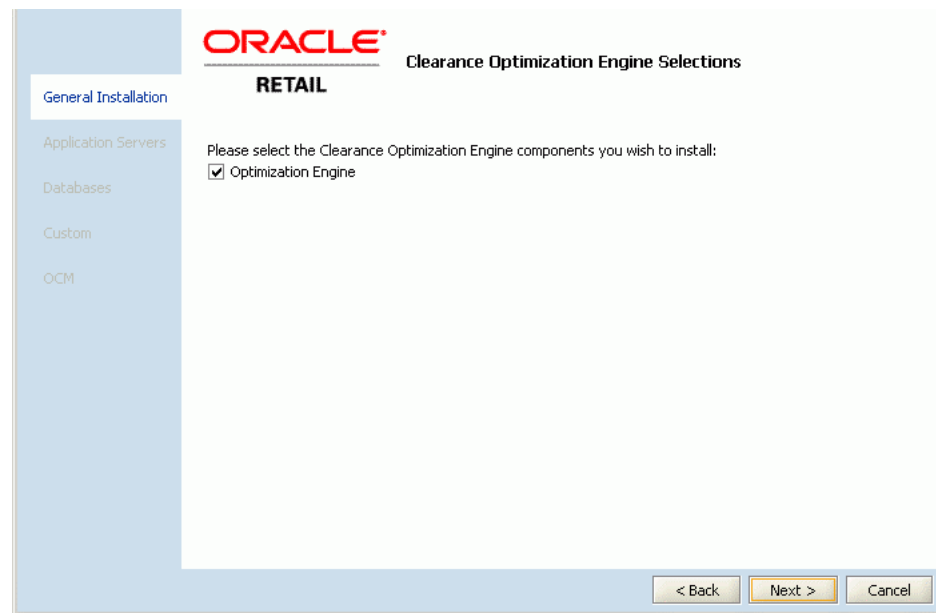
8. On the **Clearance Optimization Engine Selections** screen, select the component you want to install, and click **Next**. The **Application Server Selections** screen appears.

Figure 6–4   Application Server Selections Screen

9. On the **Application Server Selections** screen, click **Oracle WebLogic Application Server**,
   and then click **Next**. The **WebLogic Application Server** screen appears.

Figure 6–5   Oracle Application Server Screen

10. On the **WebLogic Application Server** screen, enter the relevant information in the following fields to connect to the application server set up for the application:

   - **WebLogic Home** – specify the location where the WebLogic Server is installed.

   - **Domain Name** – specify the name of the WebLogic domain.

   - **Server Name** – specify the name of the server instance where the application will be installed.

   - **Host Name** – specify the host name of the system where the WebLogic server is installed.

   - **Startup** – Optional. Location of the WebLogic Startup script for the WebLogic domain. You can choose to leave this field blank.

   - **Admin Port** – specify the port number associated with the WebLogic Administrative Server instance.

   - **Admin Alias** – specify the alias name associated with the administrative user credentials required to log on to the WebLogic server. This is the alias name you set up in the CSM password store for the application installation. For more information, see Setting Up the Credential Storage Manager Password Store.

   > **Note:**   In case the installation does not proceed ahead, check the application server information or the status of the application server.

11. Click **Next**. The **Java Message Server Properties** screen appears.

Figure 6–6   Java Message Server Properties Screen

12. Clearance Optimization Engine currently does not use a Java Message Server (JMS). Click **Next**. The **Scope Properties** screen appears.
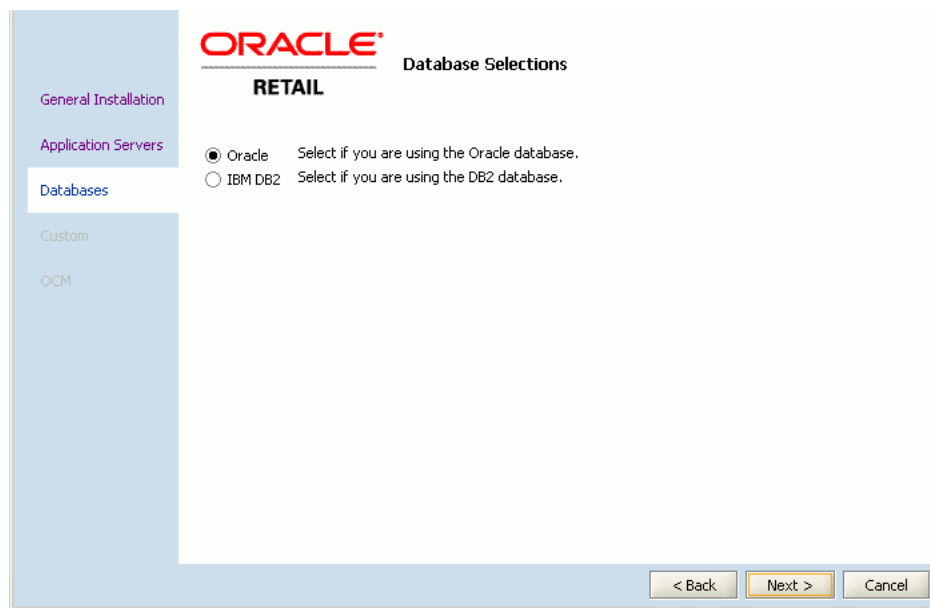
Figure 6–7   Scope Properties Screen

13. On the **Scope Properties** screen, for the Clearance Optimization Engine and Grid Designer application, set the scope targets using the following:

- For Scope Id **gdtarget**:
  - **Type** – From the drop-down list, select the type of the server object.
  - **Server Object** – Specify the name of the server or cluster where you want to install the Grid Designer application.

> **Note:** Since the Grid Designer is a single user single instance application, ensure that you set the installer to deploy the application to only one instance in a clustered configuration.

- For Scope Id **fetarget**:
    - **Type** – From the drop-down list, select the type of the server object.
    - **Server Object** – Specify the name of the server or cluster where you want to install the Clearance Optimization Engine application.

14. Click **Next**. The **Database Selections** screen appears.

Figure 6–8   Database Selections Screen

15. On the **Database Selections** screen, click **Oracle**, and then click **Next**. The **Database Properties** screen appears.

Figure 6–9   Database Properties Screen

16. On the **Database Properties** screen, enter the following database information for the **Audit**, and **CommonDB** databases:

   ■ **RAC Database** – Select this check box to indicate that the database is set up with Real Application Clusters (RAC). Once you select this check box, you must then specify the RAC host list and properties in the **RAC Host List** and **RAC Properties** fields.

   ■ **Database server address** – Enter the address of the database server.

   ■ **Database server port** – Enter the server port number associated with your database.

   ■ **Database name** – Enter the name used to identify your database.

   ■ **Database alias** – Enter the database alias, which is typically the same name as the database.

   ■ **Database URL** – Optional. Use this parameter to specify the Audit database URL for JDBC connectivity.

   When you leave this field blank, the installer will automatically build the database URL based on the values entered in the other database parameters. In case you specify the database URL, the installer will use the values specified here during the installation.

   Syntax:

   For non RAC database,

   ```
   jdbc:oracle:thin:@<host name>:<dbport>:<dbname>
   ```
   For RAC database,

   ```
   jdbc:oracle:thin:@(DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL =
   TCP)(HOST = <host name1>)(PORT = <dbport1>)) (ADDRESS = (PROTOCOL =
   TCP)(HOST = <host name2>)(PORT = <dbport2>)) (ADDRESS = (PROTOCOL =
   TCP)(HOST = <host name3>)(PORT = <dbport3>)) (ADDRESS = (PROTOCOL =
   TCP)(HOST = <host name4>)(PORT = <dbport4>)) )(CONNECT_DATA = (SERVICE_NAME
   = <dbname>) (failover_mode = (type=select) (method=basic)
   (retries=60)(delay=5)) ))
   ```

- **Tables** – Select one of the following options:
  - **No Change** – Select this option if you have an existing database schema that you do not want to modify. This enables you to configure data sources, EAR files, and so forth, without affecting the database.
  - **Create** – Select this option if you are installing a new database schema for Clearance Optimization Engine. The Oracle Installer drops all the schemas and creates new ones.
  - **Upgrade** – Select this option if you have an existing database schema that you want to update. Any existing data remains intact and modified on a row-by-row, column-by-column basis, depending on the actions specified in the database patches.

17. Click **Next**. The **Product Administrator Credentials** screen appears.

Figure 6–10   Product Administrator Credentials Screen

18. On the **Product Administrator Credentials** screen, specify the alias name associated with the administrative user credentials required to log on to the Clearance Optimization Engine application for the first time (previously known as the *root* user). This is the alias name you set up in the CSM password store for the application installation. For more information on setting up an alias for the administrative user, see Setting Up the Credential Storage Manager Password Store.

19. Click **Next**. The **Audit FE Schema Link Properties** screen appears.

Figure 6–11   Audit FE Schema Link Properties Screen

20. On the **Audit FE Schema Link Properties** screen, specify the user name and the database link associated with the application schema, and then click **Next**. The **Engine Properties** screen appears.

Figure 6–12   Engine Properties Screen

21. On the **Engine Properties** screen, specify the following information on the system hosting the Optimization Engine:

   ■   **Architecture** – operating system on which the Optimization Engine runs.

   ■   **Engine host name** – host name associated with the server.

   ■   **Engine port number** – port number associated with the server.

22. Click **Next**. The **Internationalization Properties** screen appears.

23. On the **Internationalization Properties** screen, in the **Control File Character Set** field, specify the character set to be used in the data control (.ctl) files.

For more information on the correct character set syntax, refer to the appendix *Locale Data* in the *Oracle Database Globalization Support Guide* included in the Oracle Database 11g Release 2 Documentation.

In case you choose not to set the value for this parameter, the default character set (UTF8) will be used for the application.

24. Click **Next**. The **Oracle Configuration Manager Registration** screen appears.

*Figure 6–13   Oracle Configuration Manager Registration Screen*
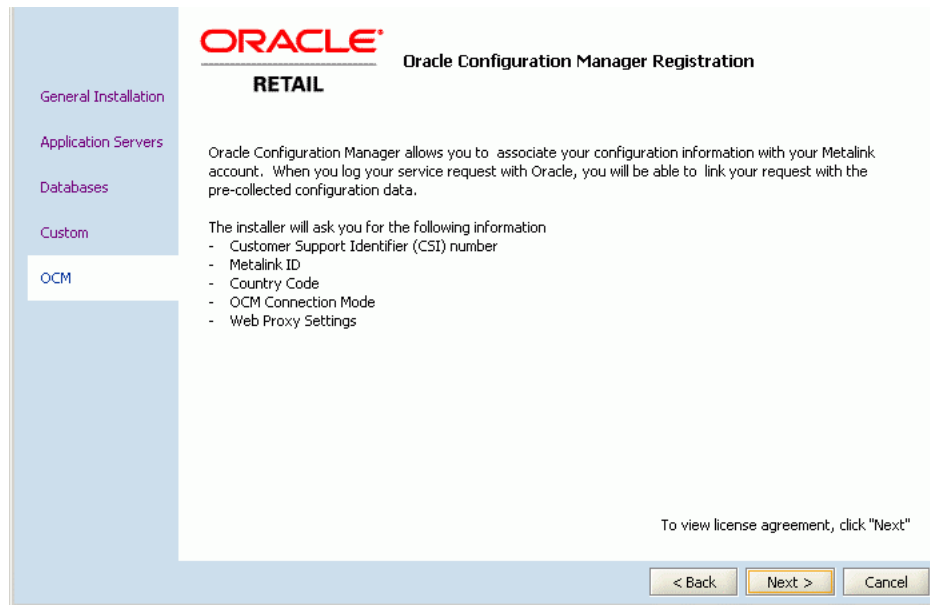
> **Note:**   For more information on Oracle Configuration Manager (OCM), see Overview of Oracle Configuration Manager.

25. Click **Next**. The **Oracle Configuration Manager Licensing Agreement** screen appears. To skip installing the OCM, decline the license agreement, and click **Next**. The **Selection Verification** screen appears. Go to step 32.

26. Accept the license agreement, and click **Next**. The **Choose OCM Distribution** screen appears.

Figure 6–14   Choose OCM Distribution Screen
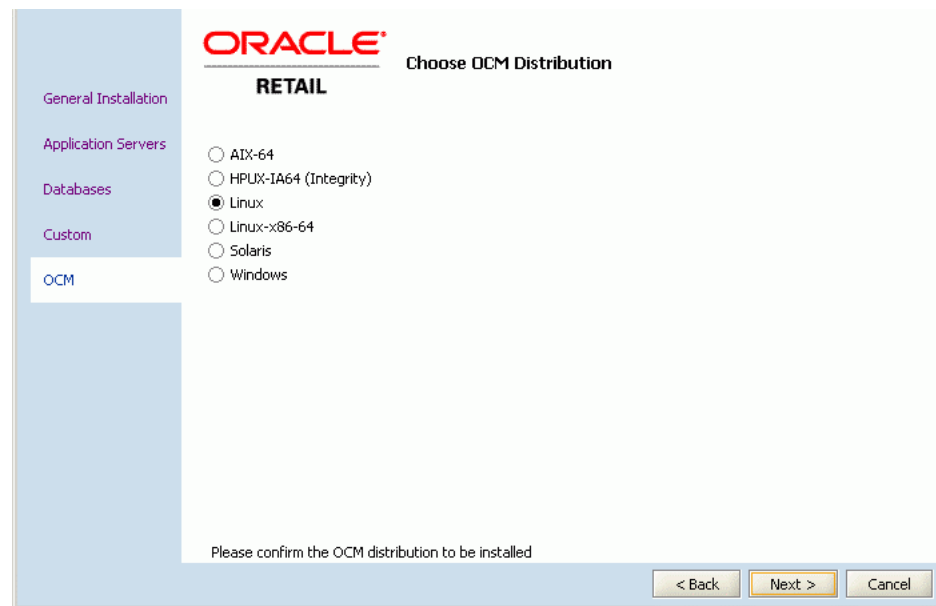
27. On the **Choose OCM Distribution** screen, select the operating system hosting the application, and click **Next**. The **Choose OCM Connection Mode** screen appears.

Figure 6–15   Choose OCM Connection Mode Screen
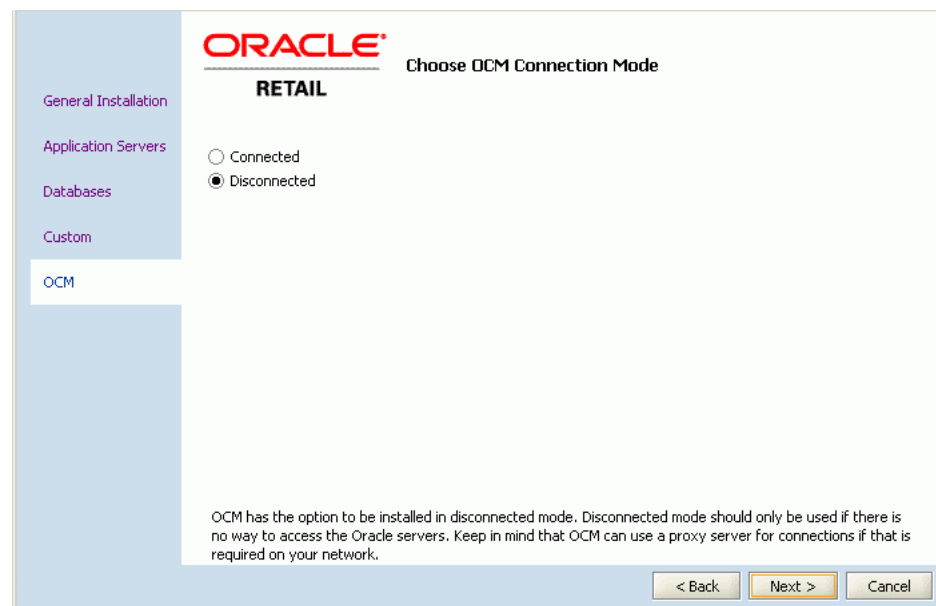
28. On the **Choose OCM Connection Mode** screen, select one of the following modes:

- **Disconnected** – select this mode of OCM installation, when there is no way to access the Oracle servers or you want to keep the automatic collection of configuration data disabled. The **Selection Verification** screen appears. Go to Step 32.

- **Connected** – select this mode to continue installing OCM, and click **Next**. The **Oracle Customer Information** screen appears.

Figure 6–16   Oracle Customer Information Screen

29. On the **Oracle Customer Information** screen, specify your Customer Support Identifier (CSI) number, My Oracle Support account user name, and the country code where the service agreement is initiated.

30. Click **Next**. The **Proxy Server Details** screen appears.

Figure 6–17   Proxy Server Details Screen

31. On the **Proxy Server Details** screen, enter the relevant proxy server details, and click **Next**.

> **Note:** Skip this step if your connection to the Internet does not require a proxy server.

The **Select Verification** screen appears.

Figure 6–18   Selection Verification Screen
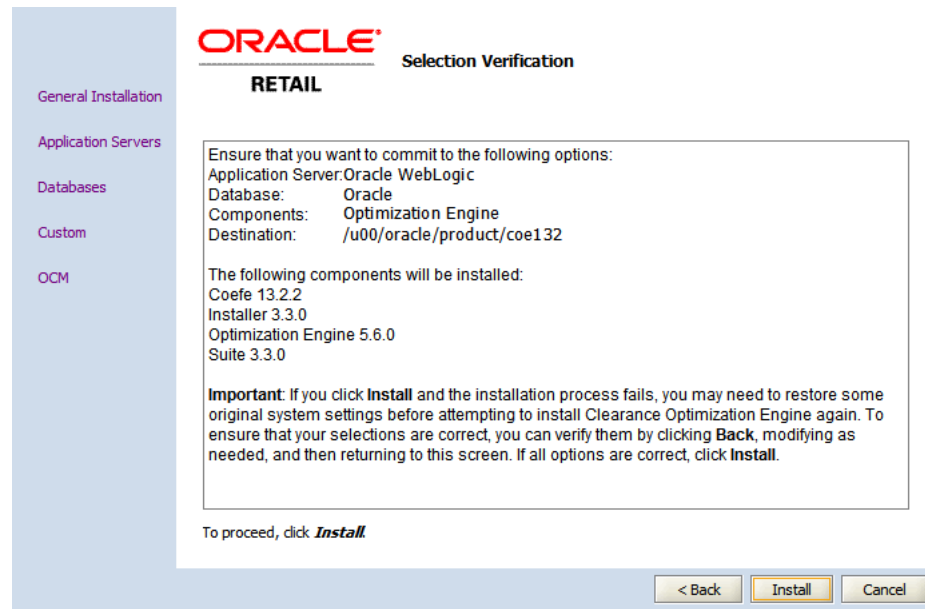
32. Review the **Selection Verification** screen, and click **Install**.

    The **Installation Progress** screen appears.

33. Once the installation is complete, verify that the application is accessible over the network. In a Web browser, enter the following URL in the **Address** bar, and press **Enter**:

    ```
    http://<suite.host>:<suite.port>/p4pgui
    ```

    > **Note:**   In the URL above, `<suite.host>` and `<suite.port>` represent the host name and port you set up for the application during the installation. You must specify the relevant host name and port in the Address bar.

34. Verify that the Grid Designer application is accessible over the network by entering the following URL in the **Address** bar, and pressing **Enter**:

    ```
    http://<suite.host>:<suite.port>/GridDesigner/faces/login
    ```

Before you log on to the application, you must complete the post-installation tasks. For more information, Post-Installation Tasks.

If the installation resulted in issues, see Troubleshooting Installation Issues on page 6-29.

Post-Installation Tasks

Now that you have installed Clearance Optimization Engine, restart your application server software and proceed with the following options:

- Before you start working with your business data or set up user roles, you must set up aliases for the user account associated with the PriceAdmin utility.

  For more information, see Setting Up User Accounts and Aliases.

- The Clearance Optimization Engine installation includes a default user account with the user name *griduser1* that is set up with the GRID_DESIGNER role. Before you start using or set up access to the Grid Designer application, ensure that you unlock and set up a new password for this user account. For more information on unlocking and changing the password for any account, refer to the *Oracle Retail Clearance Optimization Engine Administration Guide*.

- In case of an installation based on clusters, you must set the target for the Grid Designer application to a single instance. For more information, see Setting Up a Single Instance Target for the Grid Designer.

- If you are ready to start working with your business data, perform the following tasks:

  1. Loading Seed Data
  2. Loading Business Rules
  3. Loading User Roles

  > **Note:** You must follow the above order to ensure that there are no errors when the users log on to the application.

- If you want to integrate Clearance Optimization Engine as part of Oracle Application Server Single Sign-On, see Setting Up Single Sign-On.

- If you want to maximize system performance, you can tune your Calculation Engine.

- If you want to implement the security for the Web Services, see Implementing Security for the Web Services.

Setting Up User Accounts and Aliases

Before you run the User Management Bulk Loader script, you must set up an alias for the user account for the PriceAdmin utility in the password store set up using the Credential Store Manager.

The PriceAdmin utility requires that you set up an user account with the PRICE_ADMIN_USER role, and then set up an alias in the password store for the application.

> **Note:** By default, the installation automatically adds a price_admin user account (with the same password) associated to the PRICE_ADMIN_USER role. You can choose to use this user account for the PriceAdmin utility.

For more information on setting up aliases for the user accounts mentioned above, see Setting Up the Credential Storage Manager Password Store.

Setting Up a Single Instance Target for the Grid Designer

When you install Clearance Optimization Engine, the Grid Designer application is also installed as a separate Web-based application. This also applies to cluster-based installations. All targeted clusters during the installation will also include their individual instance of the Grid Designer application.

To ensure that there is always a single copy of the grid configuration being updated, once the application installation is complete, you must set/pin the Grid Designer application target to a single instance.

To set up a single instance target for the Grid Designer:

1. Log on to the WebLogic Server Administration Console by typing the following address in a Web browser:

   ```
   http://mycompany.domain.com:<admin-port>/console
   ```

2. In the **Domain Configurations** section, under the **Your Deployed Resources** section, click **Deployments**. The **Summary of Deployments** page appears.

   You can also click **Deployments** under the **Domain Structure** section in the left navigation pane.

3. On the **Summary of Deployments** page, click the Grid Designer application name under the Name column. The **Settings for GridDesigner** page appears.

4. On the **Settings for GridDesigner** page, click the **Targets** tab.

5. On the **Targets** tab, click the check box next to the **GridDesigner** enterprise application, and then click **Change Targets**. The **Change Target Assistant** screen appears.

6. Under **Target Deployments**, retain the check box next to the single instance to which you want to target the application.

7. Click **Yes**.

8. Click **Activate Changes**.

Loading Seed Data

Clearance Optimization Engine provides a set of scripts that stage, transform, and load data into the target database tables in the Clearance Optimization Engine database. It is also referred to as the standard load.

Before starting the data load process, configure and run scripts that load the seed data. For more information, see the *Clearance Optimization Engine Configuration Guide*.

Loading Business Rules

Use the Business Rules Management Administration shell script (brmadmin.sh) to load the business rule definitions set up for Clearance Optimization Engine. The script loads the business rule definitions specified in a rule definitions file.

The rule definitions are set up based on your business needs and includes the business rules information for Clearance Optimization Engine. Ensure that this file is available during the implementation.You can find a sample rules definition file, *rule_definitions.xml*, at the following location:

```
<Clearance Optimization Engine_Installation>\modules\tools\conf\SampleRules
```

For more information, see the section *Loading Business Rule Definitions* in the *Clearance Optimization Engine Configuration Guide*.

Loading User Roles

Use the User Management Bulk Loader script to load the user roles set up for Clearance Optimization Engine. The Bulk Loader script loads the user roles specified in a role set file.

The role set and role assignments are set up based on your business needs and include the user accounts and roles access information for Clearance Optimization Engine. Ensure that this file is available during the implementation. You can find sample user roles set files at the following location:

```
<Clearance Optimization Engine_Installation>\modules\tools\conf
```

For more information, see the chapter *User Management* in the *Clearance Optimization Engine Configuration Guide*.

Implementing Security for the Web Services

Clearance Optimization Engine enables you to implement the security mechanism for the Web Service using the capabilities of the application server.

The Security mechanism is configurable and specific to your implementation. Based on your implementation, you can configure security features such as encryption, digital signature, and authentication for the Web Service using the features in the application server. For more information on configuring the application server for the security features, refer to the relevant application server documentation.

Specifying Custom Header

Custom headers are used for specifying the remote user names (other than the Clearance Optimization Engine users) and are specified at the client side. They are used for auditing purposes only. Ensure that the request headers have the following format:

```
<appHeader:remoteUserCredentials xmlns:appHeader="MDO/appHeader">
<remoteUserName>remote_userid</remoteUserName>
</appHeader:remoteUserCredentials>
```

Auditing Web Service Access

Auditing of the Web service access is an optional feature that you can enable or disable based on your implementation. Auditing is on by default. Once you enable auditing, the *audit_tbl* database table will include the audit entries for every service request.

When specified with the Web service request, the remote user id will be logged in the *audit_tbl* database table. When no user name is included, the value *anonymous* is logged for that entry. In case a user, other than the Clearance Optimization Engine users, is used or the authentication is turned off, the auditing entries are logged under the *root* user.

To enable or disable auditing the remote users that access the Web Service, you must set *audit.groupname.excluded* parameter in the *suite.properties* file.

For more information, refer to the *Oracle Retail Clearance Optimization Engine Configuration Guide*.

Encrypting Usernametoken and Custom Header

To set up encryption for Usernametoken and custom header, you must complete the following instructions for the WebLogic server:

Use the *wls-encrypt-usernametoken.xml* and *wls-encrypt-appheader.xml* files to set up the WS-Policy for encryptions. These files are part of the p4pgui.ear and are available after the application is installed. The *wls-encrypt-usernametoken.xml* file is used for the encryption of only the user name token and password. The *wls-encrypt-appheader.xml* file is used for encryption of the custom headers.

These files must be applied for the inbound message policies only. For more information on applying these files, refer to the WebLogic Server documentation.

> **Important:** If you do not plan to send the user name token as part of the Web service request, do not use *wls-encrypt-usernametoken.xml* file for encryption. If you do not plan to send the custom headers that contain the remote user name, do not use *wls-encrypt-appheader.xml* file for encryption.

User Authentication

If you are planning to use the user-based authentication for the Web Service against the Clearance Optimization Engine database, you must complete the following instructions:

- Setting Up Authentication on the WebLogic Server

Setting Up Authentication on the WebLogic Server

To set up the authentication for the Web Service on the WebLogic Server:

1. Copy the **COSOWLLoginModule.jar** (located in the **<Clearance Optimization Engine_CD_IMAGE>\price** directory) to the **<WebLogic Domain>/lib/mbeantypes** directory on your application server, and restart the server for the JAR file to automatically get deployed.

2. Once deployed, you must modify the realm to use this JAR file for authentication. During this configuration of this realm, ensure that this JAR shows up second in the Authentication Providers list, and the Control Flag for the default provider is set to SUFFICIENT.

3. To perform any further configuration, refer to the WebLogic Server documentation.

User Authorization

To enable or disable the authorization of the Clearance Optimization Engine users set up in the User Management, you must set the *coe.authorization.enabled* parameter in the config.properties file. For more information, refer to the *Oracle Retail Clearance Optimization Engine Configuration Guide*.

> **Important:** For this feature to work, you must first configure user authentication against the Clearance Optimization Engine database. For more information, see User Authentication.

Upgrading to the Latest Release of Clearance Optimization Engine

This section describes how you can upgrade from a previous release to the latest release of Clearance Optimization Engine. Before you start the upgrade process, Oracle recommends that you study, procure, and set up the system configuration required for the upgrade. For more information, see Planning Your Installation.

To upgrade to the latest release of Clearance Optimization Engine Release 13.3.1:

1. Download the latest Clearance Optimization Engine installation media files. For more information, see Accessing the Installation Software.

   > **Note:** Installation media files for an Enterprise release (13.3) are available on the *Oracle Software Delivery Cloud* Web site (`http://edelivery.oracle.com`) and Patch releases (13.3.x) and Hot Fixes (13.3.x.y) are available on the *My Oracle Support* Web site (`https://support.oracle.com`).

2. Back up the database, configuration root, custom scripts, and so on.

3. Upgrade the operating system referring to the operating system documentation for guidance. Also, apply the necessary patches as described in the chapter Planning Your Installation.

   > **Note:** Although you can upgrade an operating system from an existing version, Oracle recommends that you do a clean installation of the operating system.

4. Once you have installed the operating system, install the Oracle database referring to the database documentation for guidance. For more information on the database configuration required for Clearance Optimization Engine, see Setting Up the Database.

   > **Important:** The Activities table will be reorganized when the *cdw_978.sql* file runs during an upgrade from Release 13.2.2 or previous releases. Ensure that the database tablespace is large enough for this purpose. For this process to run successfully, it is recommended that you have at least one and a half times of the tablespace occupied by the activities table.

5. Install the supported application server (Oracle WebLogic Server) referring to the application server documentation for guidance. You must also extend the WebLogic domain to use ADF 11.1.1.5.0. For more information on the application server configuration required for Clearance Optimization Engine, see Setting Up Your Application Server.

6. Verify the JVM version for the application server. The JVM versions differ based on the operating system. For more information on the compatible JVMs, see Application Server Requirements.

7. Once you have set up the application server and database, edit the *install.properties* file and set up the database parameters in the following manner:

   - For the Common DB, set up the following parameters to indicate an upgrade to the existing database or schema:

     – set the **database.commondb.oracle.upgrade** parameter to **yes**.

     – set the **database.commondb.oracle.create** parameter to **no**.

   - For the Audit DB, set up the following parameters to indicate an upgrade to the existing database or schema:

     – set the **database.auditdb.oracle.upgrade** parameter to **yes**.

     – set the **database.auditdb.oracle.create** parameter to **no**.

   If a database schema did not exist before the upgrade and if you want to create them now, set the **database.<dbschema>.oracle.upgrade** parameter to **no** and the **database.<dbschema>.oracle.create** parameter to **yes** for the relevant database schema. For more information, see Setting Up Your Installation Properties File.

8. Before you run the installer, set up the environment variables required for the Clearance Optimization Engine installation. For more information, see Setting Up Environment Variables.

9. Run the installer and install the application. For more information, see Installing Clearance Optimization Engine in Silent Mode or Installing Clearance Optimization Engine Using the Graphical Oracle Installer. In case you choose to install the application in the graphical mode, ensure that you select the **Upgrade** check box in the **Database Properties** screens.

10. Apply the relevant customizations that were backed up in step 2.

Troubleshooting Installation Issues

The Oracle Installer simplifies the process of integrating and configuring multiple applications (for example, your database software, your application server software, and Clearance Optimization Engine).

Because of this complexity and the state of your own environment, there may be some situations that you need to troubleshoot and resolve. This section enables you to understand and resolve Clearance Optimization Engine installation issues.

Ensure that you thoroughly understand the messages being output by the Oracle Installer.

Understanding Trace Output Messages

Note that the Oracle Installer displays messages that originate from multiple sources. Some messages are Clearance Optimization Engine-specific, such as the directories being created. Other messages are redirected stderr output from third-party applications; as a result, the message content depends on what the software vendor wants to display.

As a result, refer to the documentation associated with the relevant application when troubleshooting, which will help you determine if the error message is even valid and how to correct any existing problems.

For example, during database installation, if a error messages indicate class deployments issues, see the documentation associated with your database management software. The documentation will explain whether the message is

spurious (and to be ignored) or valid. If the error is actually valid, the documentation will explain how to correct the problem.

Installation Does Not Complete

If the installation process fails before the application has been completely installed, an on-screen message prompts you to review the log files to determine the cause of the errors. However, since the installation had not completed, no log file was generated.

Instead, review the on-screen trace messages to determine the origin of the error.

Before the installation was interrupted, some components may already have got installed or deployed. Once you fix the errors, you must remove any existing files in the installation base, undeploy any modules from the server, and run the installation again.

Installation Completes with Errors

If the installation completes but has errors, an on-screen message prompts you to review the log. Also, you may want to review the generated log files.

The file naming convention of the log file is as follows:

```
install-<YYYYMMDD>-<HHMMSS>.log
```

where `HH` is in 24-hour format.

Review the log file to determine the origin of the errors. Before the installation was interrupted, some components may already have got installed or deployed. Once you fix the errors, you must remove any existing files in the installation base, undeploy any modules from the server, and run the installation again.

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Setting Up Single Sign-On

This chapter describes how you can set up the Single Sign-On plugin and integrate Clearance Optimization Engine as part of the Oracle Application Server Single Sign-On (OSSO).

It contains the following sections:

- About the Single Sign-On Plugin
- Installing the Single Sign-On Plugin

About the Single Sign-On Plugin

The current User Management module provides single sign-on capabilities for Clearance Optimization Engine. Once you install the Single Sign-On cookie plugin, you can achieve a one-way interoperability with other Oracle Retail applications implemented on Oracle Application Server Single Sign-On (OSSO).

When you log on to the OSSO server using a user account configured at both the systems, a User Management cookie gets registered in your browser session. This enables you to access the Clearance Optimization Engine URL directly. If you access Clearance Optimization Engine first and then later attempt to access the OSSO URL, you will need to log on to the OSSO system because the User Management module cannot create an SSO cookie.

For more information on Oracle Application Server Single Sign-On and Oracle Internet Directory, refer to the *Oracle Application Server Single Sign-On Administrator's Guide* and *Oracle Internet Directory Administrator's Guide*.

Installing the Single Sign-On Plugin

To install the Single Sign-On plugin on the Oracle Application Server implementing Single Sign-On:

1. Copy the SSO Plugin JAR or ZIP file to the following location on the OSSO infrastructure application server:

   `$ORACLE_HOME/sso/plugin`

2. Use one of the following commands, and extract the SSO Plugin contents:

   `jar -xvf plsso_plugin.jar`

   OR

   `unzip plsso_plugin.zip -d $ORACLE_HOME/sso/plugin`

3. Review the *$ORACLE_HOME/sso/plugin* directory and verify that following classes and property files exist in this location:

   - plsso.properties

   - PLSSOCustomCookie.class (in *./com/profitlogic/common/security/ssoplugin*)

   - PLSSOPlugin.class (in *./com/profitlogic/common/security/ssoplugin*)

   - PLSSOHelper.class (in *./com/profitlogic/common/security/util*)

   - HexEncoder.class (in *./com/profitlogic/common/util*)

4. In the **plsso.properties** file, enter relevant information for the following properties

   - **domain** – indicates the domain within which the cookie is created for the browser session.

   - **timeout** – indicates the number of minutes the Single Sign-On plugin is valid.

   - **plssoplugin.log.file** – [Optional] indicates the location of the Single Sign-On plugin log file.

5. In the *$ORACLE_HOME/sso/conf/* directory, edit the **policy.properties** to include the following entries:

```
CustomCookie_ProviderPlugin
=com.profitlogic.common.security.ssoplugin.PLSSOCustomCookie
CustomCookieAuthLevel=MediumSecurity
```

> **Important:** Ensure that the domain value includes both the systems (Clearance Optimization Engine and OSSO) and is more specific than a top-level domain name (such as *.com*).
>
> For example, if the Clearance Optimization Engine system is hosted on **.mydepartment.mycompany.com** and the Oracle Single Sign-On system is hosted on **osso.mydepartment.mycompany.com**, the domain value must be specified as **mydepartment.mycompany.com**.

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