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

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

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

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are “commercial computer software” or “commercial technical data” pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

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

Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

This software or hardware and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

Value-Added Reseller (VAR) Language

Oracle Retail VAR Applications

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

(i) the MicroStrategy Components developed and licensed by MicroStrategy Services Corporation (MicroStrategy) of McLean, Virginia to Oracle and imbedded in the MicroStrategy for Oracle Retail Data Warehouse and MicroStrategy for Oracle Retail Planning & Optimization applications.

(ii) the Wavelink component developed and licensed by Wavelink Corporation (Wavelink) of Kirkland, Washington, to Oracle and imbedded in Oracle Retail Mobile Store Inventory Management.

(iii) the software component known as Access Via™ licensed by Access Via of Seattle, Washington, and imbedded in Oracle Retail Signs and Oracle Retail Labels and Tags.

(iv) the software component known as Adobe Flex™ licensed by Adobe Systems Incorporated of San Jose, California, and imbedded in Oracle Retail Promotion Planning & Optimization application.

You acknowledge and confirm that Oracle grants you use of only the object code of the VAR Applications. Oracle will not deliver source code to the VAR Applications to you. Notwithstanding any other term or condition of the agreement and this ordering document, you shall not cause or permit alteration of any VAR Applications. For purposes of this section, “alteration” refers to all alterations, translations, upgrades, enhancements, customizations or modifications of all or any portion of the VAR Applications including all reconfigurations, reassembly or reverse assembly, re-engineering or reverse engineering and recompilations or reverse compilations of the VAR Applications or any derivatives of the VAR Applications. You acknowledge that it shall be a breach of the agreement to utilize the relationship, and/or confidential information of the VAR Applications for purposes of competitive discovery.
The VAR Applications contain trade secrets of Oracle and Oracle's licensors and Customer shall not attempt, cause, or permit the alteration, decompilation, reverse engineering, disassembly or other reduction of the VAR Applications to a human perceivable form. Oracle reserves the right to replace, with functional equivalent software, any of the VAR Applications in future releases of the applicable program.
# Contents

Send Us Your Comments .......................................................................................................................... ix

Preface ................................................................................................................................................................ xi
  Audience .................................................................................................................................................. xi
  Documentation Accessibility ............................................................................................................... xi
  Related Documents ............................................................................................................................ xi
  Customer Support ............................................................................................................................... xii
  Review Patch Documentation ........................................................................................................... xii
  Oracle Retail Documentation on the Oracle Technology Network .................................................. xii
  Conventions ......................................................................................................................................... xiii

1 Overview
  Introduction ............................................................................................................................................ 1-1
  Overview of Oracle Configuration Manager .................................................................................. 1-1
  Road Map for Installing APC-RO .................................................................................................. 1-2

2 Planning Your Installation
  Overview of the Planning Process .................................................................................................. 2-1
  Planning Your Environment ........................................................................................................... 2-1
  Planning for Optimal APC-RO Performance ................................................................................. 2-2
  Supported Configurations .............................................................................................................. 2-2
  Network Requirements .................................................................................................................. 2-2
  Database Requirements ................................................................................................................... 2-2
  Application Server Requirements .................................................................................................. 2-3
  Client System Requirements .......................................................................................................... 2-3
  Supported Oracle Retail Products ................................................................................................. 2-4

3 Secure Configuration
  Operating System Considerations .................................................................................................. 3-1
  Microsoft Windows XP-based Systems .......................................................................................... 3-2
  Oracle Linux-based Systems .......................................................................................................... 3-2
  Oracle Solaris-based Systems .......................................................................................................... 3-2
  IBM AIX-based Systems ................................................................................................................... 3-2
  HP UX-based Systems ....................................................................................................................... 3-2
4 Setting Up the Database
    Installing the Database ................................................................. 4-1
    Database Parameters........................................................................ 4-2
    JOB_QUEUE_PROCESSES Recommendation .................................. 4-2
    Creating the Default Tablespaces......................................................... 4-2
    Creating the Data User Accounts ...................................................... 4-3

5 Setting Up the Application Server
    Setting Up the WebLogic Server.......................................................... 5-1
    Installing the WebLogic Server......................................................... 5-2
    Installing the Oracle Application Development Runtime Patch.............. 5-2
    Setting Up a WebLogic Domain........................................................... 5-2
    Listen Port Configuration.................................................................... 5-4
    Setting Up the WebLogic Startup Script ............................................. 5-4
    Restarting the Application Server....................................................... 5-5
    Setting Up JVM Memory Settings....................................................... 5-5
    Setting Up Users and Roles................................................................. 5-6
    Setting Up JTA Timeout Seconds......................................................... 5-6

6 Setting Up Password Stores
    Password Stores Configuration Overview.......................................... 6-2
    Setting Up the Oracle Secret Store.................................................... 6-3
    Setting Up the Credential Storage Manager Password Store.................. 6-4

7 Installing APC-RO
    Overview of the Installation Process.................................................. 7-1
    Accessing the Installation Software.................................................... 7-2
    Setting Up install.properties File....................................................... 7-2
    Setting Up Environment Variables...................................................... 7-7
    Installing APC-RO............................................................................ 7-8
    Installing APC-RO in the Silent Mode................................................. 7-8
    Installing APC-RO Using the Graphical Oracle Installer........................ 7-8
    Logging In....................................................................................... 7-23
    About install.sh.............................................................................. 7-23
    Upgrading to the Current APC-RO Release......................................... 7-23
Send Us Your Comments


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

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

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

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

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

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

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

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

If you require training or instruction in using Oracle software, then please contact your Oracle local office and inquire about our Oracle University offerings. A list of Oracle offices is available on our Web site at http://www.oracle.com.
This guide enables you to install the Oracle Retail Analytic Parameter Calculator for Replenishment Optimization (APC-RO) 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.

**Documentation Accessibility**

Our goal is to make Oracle products, services, and supporting documentation accessible to all users, including users that are disabled. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at [http://www.oracle.com/accessibility/](http://www.oracle.com/accessibility/).

**Accessibility of Code Examples in Documentation**

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.

**Accessibility of Links to External Web Sites in Documentation**

This documentation may contain links to Web sites of other companies or organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these Web sites.
Access to Oracle Support
Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/support/contact.html or visit http://www.oracle.com/accessibility/support.html if you are hearing impaired.

Related Documents
For more information, see the following documents in the Oracle Retail Analytic Parameter Calculator for Replenishment Optimization documentation set:

- Oracle Retail Analytic Parameter Calculator for Replenishment Optimization Implementation Guide
- Oracle Retail Analytic Parameter Calculator for Replenishment Optimization Installation Guide
- Oracle Retail Analytic Parameter Calculator for Replenishment Optimization Release Notes
- Oracle Retail Analytic Parameter Calculator for Replenishment Optimization User Guide
- Oracle Retail Analytic Parameter Calculator for Replenishment Optimization Security Guide

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:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>boldface</strong></td>
<td>Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.</td>
</tr>
<tr>
<td><em>italic</em></td>
<td>Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.</td>
</tr>
<tr>
<td><strong>monospace</strong></td>
<td>Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.</td>
</tr>
</tbody>
</table>
This chapter provides an overview of Oracle Retail Analytic Parameter Calculator for Replenishment Optimization (APC-RO) and a road map for installing the application. It contains the following sections:

- Introduction
- Overview of Oracle Configuration Manager
- Road Map for Installing APC-RO

Introduction

Analytic Parameter Calculator for Replenishment Optimization (APC-RO) is an analytical application that uses a client’s historical sales patterns to perform replenishment simulations and to calculate statistics. Replenishment Optimization (RO) uses the APC-RO results to make optimal replenishment recommendations based on specific business goals and retail constraints.

The goal of a replenishment system is to balance the costs of inventory and lost sales by maintaining enough inventory on the store floor to meet most demand but not so much inventory that excess costs are incurred.

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
This guide explains how you can install and set up the APC-RO 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 APC-RO for production, you must perform the following installation tasks in a sequence:

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-installation Tasks</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Plan your environment, based on your business needs. For more information on the planning process and the supported configurations, see Chapter 2, &quot;Planning Your Installation&quot;. When planning the environment, you must also review the security recommendations, and take the necessary steps to ensure secured deployment and configuration. For more information, see Chapter 3, &quot;Secure Configuration&quot;.</td>
</tr>
<tr>
<td>2.</td>
<td>Set up the application database. For more information, see Chapter 4, &quot;Setting Up the Database&quot;.</td>
</tr>
<tr>
<td>3.</td>
<td>Set up your application server. For more information, see Chapter 5, &quot;Setting Up the Application Server&quot;.</td>
</tr>
<tr>
<td>4.</td>
<td>Set up users and roles. For more information, see Chapter 5, &quot;Setting Up the Application Server&quot;.</td>
</tr>
<tr>
<td>5.</td>
<td>Set up the password stores. For more information, see Chapter 6, &quot;Setting Up Password Stores&quot;.</td>
</tr>
<tr>
<td><strong>Installation Task</strong></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Access the APC-RO installation software, set up the install.properties file, and run the Oracle installer. For more information, see Chapter 7, &quot;Installing APC-RO&quot;.</td>
</tr>
</tbody>
</table>
Before installing APC-RO, 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 installation. It also includes the list of hardware and software requirements.

This chapter includes the following sections:

■ Overview of the Planning Process
■ Supported Configurations
■ Supported Oracle Retail Products

Overview of the Planning Process

Planning your process 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 APC-RO 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).
   ■ Gathering the capacity data.
   ■ Planning the data security policies.
   ■ Designing the backup and recovery strategies.

2. Determine the size of the setup.

3. Identify source systems. Identify the systems that will exchange data with APC-RO.
Planning for Optimal APC-RO Performance

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

1. Determine the APC-RO 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 Oracle Retail APC-RO Implementation Guide.
3. Plan and set up the file-based ETL scripts for the 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 APC-RO, and includes the following topics:

- Network Requirements
- Database Requirements
- Application Server Requirements
- Client System Requirements

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.

Database Requirements

APC-RO requires the use of the Oracle Database Server 11g Release 2 (11.2.0.3.0). The following table lists the supported database configuration:

<table>
<thead>
<tr>
<th>Software</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database (64-bit)</td>
<td>Oracle Database 11g Release 2 (11.2.0.3.0)</td>
</tr>
<tr>
<td>Database Features</td>
<td><strong>Important:</strong> 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.</td>
</tr>
</tbody>
</table>
Table 2–1 (Cont.) Database Requirements

<table>
<thead>
<tr>
<th>Software</th>
<th>Requirement</th>
</tr>
</thead>
</table>
| Operating System (64-bit)    | ■ Oracle Linux 5 Update 5, x86-64 architecture based system.  
                             | ■ Oracle Solaris 10 Update 8, SPARC based system.  
                             | ■ IBM AIX 6.1 Technology Level 6 (TL6), Power processor based system.  
                             | ■ HP-UX 11i v3 (11.31) Update 7, Itanium-based system.  
| Utilities                    | File Transfer Protocol utility (ftp or ssh/scp/rsync) sudo utility |

Note: Solaris-based systems now support Oracle Solaris Studio Release 12.2. The GNU Compiler Collection (GCC) is no longer supported.

Application Server Requirements

The APC-RO application requires the use of Oracle WebLogic Server 11g Release 1 (10.3.5), extended to use ADF 11.1.1.6.2 with patch13956635. Table 2–2 lists the supported application server configuration:

Table 2–2 Application Server Requirements

<table>
<thead>
<tr>
<th>Software</th>
<th>Requirement</th>
</tr>
</thead>
</table>
| 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.  
| JVM (64-bit)                  | Oracle’s JDK 6.0 Update 24.          
                             | Oracle’s JDK 6.0 Update 24.          
                             | IBM JDK 1.6 SR9.                        
                             | HP UX JDK 1.6.0.13.                   
                             | Oracle’s JDK 6.0 Update 24.          

Note: Solaris-based systems now support Oracle Solaris Studio Release 12.2. The GNU Compiler Collection (GCC) is no longer supported.

Client System Requirements

The following table lists the supported client system options:

Table 2–3 Client System Environment

<table>
<thead>
<tr>
<th>Software</th>
<th>Requirements</th>
</tr>
</thead>
</table>
                             | ■ Microsoft Internet Explorer 7.0  
                             | ■ Microsoft Internet Explorer 8.0 (32-bit)  
                             | ■ Microsoft Internet Explorer 8.0 (32-bit)  

Planning Your Installation 2-3
Supported Oracle Retail Products

The following table lists the supported Oracle Retail products:

<table>
<thead>
<tr>
<th>Product</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle Retail Replenishment Optimization (RO)</td>
<td>13.4</td>
</tr>
<tr>
<td>Oracle Retail Demand Forecasting (RDF)</td>
<td>13.4</td>
</tr>
</tbody>
</table>
This chapter serves as a guide for administrators and anyone installing the product to securely configure APC-RO. To see a broader spectrum of security-related best practices for this application, see the *Oracle Retail APC-RO Security Guide*.

The chapter begins with the operating system and moves through the supporting middleware to the APC-RO application, and its connections with other resources. It includes the following sections:

- Operating System Considerations
- Infrastructure/Middleware Considerations
- Application Configuration Considerations

**Note:** The options set by default for the installer are the most secure selection. If you choose to not use any of the default selections, you need to consider the implications of that change on the security of your installed product.

**Intended Audience**

This chapter is intended for security administrators and anyone who will install, deploy, and configure APC-RO. These users typically perform the following tasks:

- Install and deploy the applications
- Configure the applications
- Apply patches to the applications

It is assumed that the readers of this chapter have a general knowledge of administering the underlying technologies and the APC-RO application.

**Operating System Considerations**

This section describes any specific considerations related to the supported operating systems. For more information on the supported operating systems for the application server, database, and client systems, see *Supported Configurations*.

APC-RO Release 13.3 does not rely on insecure services or protocols. If the retailer or systems integrator customizes or extends the applications, these extensions must not rely on insecure services or protocols.

This section includes information on:

- Microsoft Windows XP-based Systems
Operating System Considerations

- Oracle Linux-based Systems
- Oracle Solaris-based Systems
- IBM AIX-based Systems
- HP UX-based Systems
- Red Hat Enterprise Linux-based Systems
- Additional Resources

Microsoft Windows XP-based Systems

When using Microsoft Windows XP on a client system, ensure that the system restore point is disabled. This restore point may possibly contain sensitive data (test or real) in previous versions of the operating system. To disable the system restore point:

1. Open the Control Panel.
2. Select System and then the System Restore tab.
3. Check the Turn off System Restore box and click OK.

For more information about securing services and protocols, see the Oracle Retail APC-RO Security Guide.

Oracle Linux-based Systems

Ensure that you have installed all the critical patch updates (CPU) and patches available for Oracle Linux. Critical patch updates and patch sets for Oracle products are made available on the My Oracle Support Web site along with documentation or instructions on how you can install them.

For more information on securing Oracle Linux-based systems, refer to the Oracle Linux Documentation.

Oracle Solaris-based Systems

Ensure that you have installed all the critical patch updates (CPU) and patches available for Oracle Solaris. Critical patch updates and patch sets for Oracle products are made available on the My Oracle Support Web site along with documentation or instructions on how you can install them.

For more information on securing Oracle Solaris-based systems, refer to the Oracle Solaris Security Guidelines.

IBM AIX-based Systems

Ensure that you have installed all the security patches and patch sets available for IBM-AIX. Security patches and patch sets for IBM AIX may be made available on the IBM Support Portal along with documentation or instructions on how you can install them.

For more information on securing IBM AIX-based systems, refer to the IBM AIX Security Guide.

HP UX-based Systems

Ensure that you have installed all the security patches and patch sets available for HP UX. Security patches and patch sets for HP UX may be made available on the HP
Support Center along with documentation or instructions on how you can install them.

For more information on securing HP UX-based systems, refer to the *HP UX System Administrator’s Guide: Security Management*.

**Red Hat Enterprise Linux-based Systems**

Ensure that you have installed all the security patches and patch sets available for Red Hat Enterprise Linux. Security updates and patch sets for Red Hat Enterprise Linux may be made available on the Red Hat Network or Red Hat Errata Web site along with documentation or instructions on how you can install them.

For more information on securing Red Hat Enterprise Linux-based systems, refer to the *Red Hat Enterprise Linux Security Guide*.

**Additional Resources**

The Center for Internet Security has published benchmarks for securing your systems at the operating system level. You can find the benchmark for some of the operating systems at the following link:

http://benchmarks.cisecurity.org/en-us/?route=downloads.browse.category.benchmarks.os

**Infrastructure/Middleware Considerations**

This section describes any specific considerations related to the supported infrastructure/middleware products (such as, databases and application servers). For more information on the supported infrastructure products, see Supported Configurations. This section includes the following sections:

- Database
- Application Server
- Network Configuration

**Database**

For recommendations on securing the database as well as JDBC communications between the APC-RO application and the database, see the *Oracle Retail APC-RO Security Guide*.

Do not store sensitive data on Internet-accessible systems. For example, your application server and database server must not be on the same physical server. APC-RO does not require the database server and application server to be hosted on the same physical server machine.

For information about secure configuration of Oracle Database, see the *Oracle Database 2 Day + Security Guide*. The guide is available at the following link on the Oracle Technology Network Web site:

http://docs.oracle.com/cd/E11882_01/server.112/e10575/toc.htm

**Application Server**

For information on the secure configuration of Oracle WebLogic Server, see the following documentation available at the following links on the Oracle Technology Network Web site:
Application Configuration Considerations

- Security for Oracle WebLogic Server 11g Release 1:
  http://docs.oracle.com/cd/E21764_01/web.1111/e14529/security.htm

- Oracle Fusion Middleware Securing a Production Environment for Oracle WebLogic Server:
  http://docs.oracle.com/cd/E21764_01/web.1111/e13705/toc.htm

Network Configuration

For recommendations on securing the network and other enterprise security considerations, see the Oracle Retail APC-RO Security Guide.

Application Configuration Considerations

This section describes any specific application-related configuration recommended for APC-RO. It includes the following sections:

- Integration with Other Applications
- Scripts and Command Line Utilities

Integration with Other Applications

APC-RO integrates with Oracle Retail Replenishment Optimization and Oracle Retail Demand Forecasting applications through the use of File Copy. For information about securing this interface, see the Oracle Retail APC-RO Security Guide.

Note: File Copy refers to sharing data between applications by copying files to a file system.

Scripts and Command Line Utilities

APC-RO includes scripts and utilities that can be used after the installation to stage, load, and transform data. Ensure that access to such scripts and utilities are set up based on the business need. For more information on the scripts and utilities, refer to the Oracle Retail APC-RO Implementation Guide.
This chapter describes how you can set up your database and provides details about the various database components. It contains the following sections:

- Installing the Database
- Creating the Default Tablespaces
- Creating the Data User Accounts

Note: If your database requires multi-byte support, specify the following properties in your init.ora file:

```
CHARACTER_SET=AL32UTF8
NLS_LENGTH_SEMANTICS=CHAR
```

This chapter includes specific instructions required for APC-RO. Since the installation instructions for the database may vary based on the operating system, Oracle recommends that you refer to the relevant installation documentation included with the database.

## Installing the Database

The application requires the use of Oracle 11g Release 2 (11.2.0.3.0) (64-bit).

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 Oracle Database 11g Release 2 Documentation.

Important: The database must be secured using the recommendations provided in the Oracle Database 11g Release 2 Security Guide. For additional specific guidance for securing the database for use with APC-RO, refer to the Oracle Retail APC-RO Security Guide.

## Time Zone Consideration

Ensure that the 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.
Database Parameters

The database parameters shown in Table 4–1, "Suggested Values for Database Parameters" are sample values that can be used with the test dataset included with APC-RO. Tune these parameters to suitable values for your environment.

Table 4–1  Suggested Values for Database Parameters

<table>
<thead>
<tr>
<th>Database Parameter</th>
<th>Suggested Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB_BLOCK_SIZE</td>
<td>8192</td>
</tr>
<tr>
<td>OPEN_CURSORS</td>
<td>900</td>
</tr>
<tr>
<td>SESSION_CACHED_CURSORS</td>
<td>900</td>
</tr>
<tr>
<td>PROCESSES</td>
<td>500</td>
</tr>
<tr>
<td>JOB_QUEUE_PROCESSES</td>
<td>Set a value between 2 through 1000 based on the recommendation provided in the section JOB_QUEUE_PROCESSES Recommendation.</td>
</tr>
</tbody>
</table>

JOB_QUEUE_PROCESSES Recommendation

The number of concurrent simulator threads is configurable and defined by a parameter saved on a database table (APC_DB_CP table, parameter name SIMULATOR_CONCURRENT_THREADS). In addition to SIMULATOR_CONCURRENT_THREADS, the database configuration parameter JOB_QUEUE_PROCESSES imposes a upper limit on the number of running threads. So, the actual number of concurrent simulator threads that can run simultaneously is the lesser of the database configuration value for JOB_QUEUE_PROCESSES and the application's value for SIMULATOR_CONCURRENT_THREADS.

The value for JOB_QUEUE_PROCESSES can be set between 2 through 1000. When setting up a value for the JOB_QUEUE_PROCESSES parameter, ensure that it is at least the maximum number of simulator jobs (SIMULATOR_CONCURRENT_THREADS) expected to run simultaneously plus one. For example, when SIMULATOR_CONCURRENT_THREADS is 6, the JOB_QUEUE_PROCESSES value must be set at least to 7). There may be a point where adding more threads will degrade simulator performance. This is dependent on your hardware and data set and must be tuned for optimal performance.

Note: JOB_QUEUE_PROCESSES *MUST* be set to greater than 2 or the application may hang.

Creating the Default Tablespaces

When you run the Oracle installer, schemas and tables for the application get installed on the database you create. For the schemas and tables to install successfully, the database must include certain default tablespaces.

Use the Oracle 11g Database Configuration Assistant to create a default database with the tablespace mentioned in Table 4–2, Business Database Tablespace. For more information on using the Configuration Assistant, see the Installation documentation associated with the version of the Oracle database you are installing.
Creating the Data User Accounts

You must also create four database user accounts (APCSTG, APCCORE, APCRO_ST, and APCRO_DC) that will be used during the installation to create staging tables, core hierarchy tables, and application-specific tables.

To create the user accounts:

1. At the SQL prompt, type the following statement to create the users, and assign a name to the default tablespace:

   ```sql
   CREATE USER APCSTG IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCCORE IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCRO_ST IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCRO_DC IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCSTG IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCCORE IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCRO_ST IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCRO_DC IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCSTG IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCCORE IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCRO_ST IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCRO_DC IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCSTG IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCCORE IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCRO_ST IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCRO_DC IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCSTG IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCCORE IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCRO_ST IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   
   CREATE USER APCRO_DC IDENTIFIED BY <PASSWORD>
   DEFAULT TABLESPACE <User-assigned Name>;
   ```

2. Once the users are created, use the Database Configuration Assistant and grant the following access privileges to all the users:

   - Analyze Any
   - Create Cluster
   - Create Indextype
   - Create Job
   - Create Materialized View
   - Create Operator
   - Create Procedure
   - Create Sequence
   - Create Session
   - Create Synonym
   - Create Table
   - Create Trigger
   - Create Type
   - Create View
   - Drop Any Table

Table 4–2  Business Database Tablespace

<table>
<thead>
<tr>
<th>Tablespace</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;User-supplied Name&gt;</td>
<td>Required. Application tablespace for the APC-RO tables.</td>
</tr>
</tbody>
</table>

**Note:** The recommended size of tablespace depends on the amount of data being stored and can change based on the size of your implementation.
Creating the Data User Accounts

- Execute Any Procedure
- Query Rewrite
- Select Any Table
- Unlimited Tablespace
- getClassLoader Java Runtime permission – To assign the getClassLoader Java Runtime privilege, at the SQL prompt, run the following command:
  
  ```
  exec dbms_java.grant_permission(
      '<USERNAME>','SYS:java.lang.RuntimePermission', 'getClassLoader', '' );
  ```

- Grant permission to Oracle JVM resources using the following command:
  
  ```
  exec dbms_java.grant_permission
  {'<USERNAME>','oracle.aurora.security.JServerPermission', 'Verifier',''};
  ```

3. Grant the following roles to all the users:

- CONNECT
- EXECUTE_CATALOG_ROLE
- HS_ADMIN_EXECUTE_ROLE
- HS_ADMIN_SELECT_ROLE
- RESOURCE
- SELECT_CATALOG_ROLE

4. Grant the following privileges to all users:

- DBMS_SCHEDULER
- DBMS_OUTPUT
- DBMSUTILITY
- DBMS_RANDOM
- DBMS_LOB
- DBMS_STATS
- DBMS_METADATA
- DBMS_LOCK
- DBMS_APPLICATION_INFO

For example, to grant a DBMS_LOCK privilege to the APCSTG user, run the following command:

```
grant EXECUTE ON DBMS_LOCK TO APCSTG;
```
Before installing APC-RO, 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.

APC-RO supports the use of Oracle WebLogic Server 11g Release 1 (10.3.5) extended to use Oracle Application Development Runtime (ADF) Release 11.1.1.6. This chapter provides instructions on setting up the WebLogic server for your business. It contains the following sections:

- Setting Up the WebLogic Server
- Restarting the Application Server
- Setting Up JVM Memory Settings
- Setting Up Users and Roles
- Setting Up JTA Timeout Seconds

**Note:** This chapter includes specific instructions required for APC-RO. 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.

### Setting Up the 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

**Note:** The WebLogic server must be secured using the security recommendations provided in the Oracle Fusion Middleware Information Roadmap for Oracle WebLogic Server. For additional specific guidance on securing the WebLogic server for APC-RO, refer to the Oracle Retail APC-RO Security Guide.
Setting Up the WebLogic Server

Install the Oracle WebLogic Server Release 11g Release 1 (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

APC-RO also requires that the WebLogic Server is extended to use ADF 11.1.1.6. 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 11.1.1.6 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 11.1.1.6 by running the installer.

You can now set up your WebLogic domain. For more information, see Setting Up a WebLogic Domain.

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.

To set up a WebLogic domain:

1. Navigate to the `<WLS_HOME>/wlserver_10.3/common/bin` directory, and run the following command to start the WebLogic Configuration Wizard in the graphical mode:
   ```
   sh config.sh
   ```

2. On the WebLogic Configuration Wizard, follow the steps listed in Table 5–1:
### Table 5–1  Steps to Set Up a WebLogic Domain

<table>
<thead>
<tr>
<th>Step</th>
<th>Window</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Welcome</td>
<td>Click the <strong>Create a new WebLogic domain</strong> option, and then click <strong>Next</strong>.</td>
</tr>
</tbody>
</table>
| 2.   | Select Domain Source| 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| 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| 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| Under **WebLogic Domain Startup Mode**, click **Production Mode**.  
Under **JDK Selection**, select the relevant JDK.  
Click **Next**. |
| 6.   | Select Optional Configuration| Select the configurations you want to customize and click **Next**. Go to Step 7.  
APC-RO is not supported on WebLogic cluster-based configuration. You can choose to skip selecting the **Managed Servers, Clusters and Machines** check box.  
**OR**  
Proceed directly to creating your domain. Skip the following steps and go to Step 8. |
| 7.   | Configure the Administration Server| 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. |
Listen Port Configuration

Once the WebLogic domain for APC-RO is created, ensure that you manually disable the HTTP port and enable the HTTPS port. This ensures that only a secure channel is used for accessing APC-RO.

You must also ensure that the secure HTTPS port number is changed to a non-default value. This value must be environment-specific, non-standard, and not easily predictable.

For more information on configuring the listen ports, refer to the Oracle Fusion Middleware Administrator’s Guide.

Setting Up the WebLogic Startup Script

To set up the WebLogic Startup script:

- Navigate to the `<WLS_HOME>/user_projects/domains/<your domain name>/bin` directory, and ensure that the following parameters are set within the `startWebLogic.sh` script:
  - `WLS_HOME` – The WebLogic installation directory.
  - `WLS_USER` – The WebLogic administrator user name.
  - `WLS_PW` – The password associated with the WebLogic administrator user account.
  - `JAVA_VENDOR` – The Java Development Kit (JDK) installed for the WebLogic Server. You can specify WebLogic, IBM, HP, or Sun.
  - `JAVA_HOME` – The location where the JDK is installed.

**Note:** You can choose to remove the WLS_USER and WLS_PW parameters from the script. When you run the WebLogic Startup script again, you will be prompted to enter the administrative user name and password.

Including the WebLogic administrator user name and password inside the `startWebLogic.sh` script allows the script to be run silently and in the background, with no additional prompts.

**For Example**

```bash
#!/bin/sh
WL_HOME=${WLS_HOME}/wlserver_10.3"<location where WebLogic Server is installed>"
WLS_USER=<weblogic admin user name>
```
WLS_PW=<weblogic admin password>
PRODUCTION_MODE="true"
JAVA_VENDOR="<name of the JDK>"
JAVA_HOME='<location where JDK is installed>'
. $(WL_HOME)/common/bin/commEnv.sh
SERVER_NAME="admin"
CLASSPATH="$WEBLOGIC_CLASSPATH":${POINTBASE_CLASSPATH}:${JAVA_HOME}/jre/lib/rt.jar:${JAVA_HOME}/server/lib/webservices.jar:${CLASSPATH}"
CLASSPATH=${CLASSPATH}
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 &

**Restarting the Application Server**

If the application server needs to be re-started, you must first shut down the server. To do this:

1. Navigate to `<WLS_Home>/user_projects/domains/<your domain name>/bin`
2. Run the command `./stopWebLogic.sh`
3. Enter the Administrator user name and password if prompted to.
4. After the server is successfully shut down, use `startWebLogic.sh` to restart the server.

If the server does not shut down using this procedure, you may need to kill the back-end process. To do this:

1. Obtain the process ID (PID) for that process.
2. Run the command:
   ```
   kill -9 <PID1>
   ```
3. Re-start the back-end process.

**Setting Up JVM Memory Settings**

The default WebLogic JVM memory settings may not be sufficient for your implementation to run the application. When running the application on memory settings that are too low, the user interface may freeze up and the following error may get logged in the WebLogic logs:


To prevent this from occurring, modify the MEM_ARGS settings to use a minimum of “512m” in the `<WebLogic domain directory>/bin/setDomainEnv.sh`. Modify only the MEM_ARGS values for the JVM they are using for WebLogic.

For example,

For a 64-bit Sun JDK, modify the following values:

```
WLS_MEM_ARGS_64BIT="-Xms512m -Xmx512m"
MEM_PERM_SIZE_64BIT="-XX:PermSize=512m"
```
Once you change these values, restart the WebLogic server for them to take effect.

**Setting Up Users and Roles**

Once the WebLogic Server is installed, you must also set up security and authentication for the application using the WebLogic Administration Console. This process includes the setting up of roles (Global Roles), users and assigning the users to the relevant roles. For more information, refer to the WebLogic Administration Console Online Help.

For APC-RO, you must create the following two user login roles: one for Store and one for DC:

- `store_user_role`
- `dc_user_role`

Two different user names should be created and one user name should be assigned to each role. Note that any name can be created and that only one user name can be assigned to each role.

When the user assigned to the `store_user_role` logs on as the Store user, all UI commands are automatically redirected to the APCRO_ST schema. When the user assigned to the `dc_user_role` logs on as the DC user, all UI commands are automatically redirected to the APCRO_DC schema.

**Setting Up JTA Timeout Seconds**

For APC-RO, you must also set the Java Transaction API (JTA) transaction timeout seconds for active transactions. To set up the JTA timeout seconds:

1. Log on to the WebLogic Server Administration Console.
2. On the left navigation panel, under Domain Structure, expand Services, and then click JTA. The Settings page appear with JTA tab appearing within the Configuration tab.
3. On the JTA tab, set the value for the Timeout Seconds field to 60.
4. Click Save, and then log out.
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 APC-RO 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 6–1  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 Oracle Secret Store, 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,
   
   APCRO_ST_ALIAS =
   (DESCRIPTION =
    (ADDRESS_LIST =
     (ADDRESS = (PROTOCOL = TCP) (HOST = dbhost-system) (PORT = 1521)))
    (CONNECT_DATA =
     (SERVICE_NAME = APCRODB))
   )

---

**Setting Up the Credential Storage Manager Password Store**

Before starting the application installer, you must set up the user credentials for the application server and database user accounts. 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**.
To set up the Credential Storage Manager Password Store:

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

   `<APCRO_CD_IMAGE>/CSM/lib/`

   For more information on the `<APCRO_CD_IMAGE>` folder, see Chapter 7, "Installing APC-RO."

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

   ```
   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.

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 `APCROAdminAlias` for the user `apcro-admin` and store the wallet file at `/u00/product/oracle/apcro/wallet/`, specify the following:

```java
java -jar retail-public-security-api.jar APCROAdminAlias apcro-admin /u00/product/oracle/apcro/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.
After you have set up your database and application server, you can install the applications using the guidelines provided in this chapter. This chapter contains the following sections:

- Overview of the Installation Process
- Accessing the Installation Software
- Setting Up install.properties File
- Setting Up Environment Variables
- Installing APC-RO
- About install.sh
- Upgrading to the Current APC-RO Release
- Troubleshooting Installation Issues

Note: In this release, upgrading to APC-RO Release 13.3 from APC-RO Release 13.2.2 is not supported. In case you want to upgrade to APC-RO Release 13.3 from APC-RO Release 13.2, see Upgrading to the Current APC-RO Release.

Overview of the Installation Process

Note: Although the options for IBM DB2 and IBM WebSphere display on the Oracle Installer, they are not supported in this release.

In order to install APC-RO, your first task is to obtain the installation media. You can then choose the installation mode you prefer. Whichever mode you use, you first need to set up the APC-RO properties file. The installation modes are as follows:

- **Graphical mode** – In the graphical mode, the Oracle Installer displays a graphical user interface and prompts you to enter or modify the value of the properties specified in the properties file.

- **Silent mode** – In the silent mode, the installer processes the properties file without any manual intervention.

Note: APC-RO must be installed from the same system that contains your WebLogic Server installation and domains.
Accessing the Installation Software

In order to install APC-RO, you first need to obtain the software media, which is available on DVD or from a ZIP file. This section explains how to download the APC-RO software ZIP file from the Oracle Software Delivery Cloud Web site.

To download the APC-RO software:

1. From the application server where you will be installing APC-RO, open a browser and navigate to the following URL:
   
   http://edelivery.oracle.com/

   The Oracle Software Delivery Cloud download page displays.

   **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).

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 window opens.
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 Replenishment Optimization Media Pack window opens.
7. In the Select column, click Download next to Oracle Retail Analytic Parameter Calculator for Replenishment Optimization.
8. Unpack the ZIP file to a temporary directory. In this guide, the directory that contains the installation media is referred to as the <APC RO_CD_IMAGE> directory.

   Now you can set up your APC-RO installation properties file.

Setting Up install.properties File

In order to install the APC-RO application, you first need to specify the properties to use during the installation process. The install.properties file, available for each installation, helps you specify the necessary properties for the installation.

To set up your install.properties file:

1. From the installation media, copy the reference.apc_ro.install.properties file to your system and rename the file to install.properties.
2. Edit the install.properties file, specifying values as described within the file, and save it. For more information about the properties included in the install.properties file, see Install.properties Parameters Reference.

**Install.properties Parameters Reference**
The following table describes the parameters in the install.properties file that you must set up before you install the APC-RO application:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Architecture Properties</strong></td>
<td></td>
</tr>
<tr>
<td>basedest.basedest.dir</td>
<td>Use this parameter to specify the path to the base installation folder.</td>
</tr>
<tr>
<td>basedest.baselog.dir</td>
<td>Use this parameter to specify the path to the folder that contains the log files.</td>
</tr>
<tr>
<td>basedest.basespool.dir</td>
<td>Use this parameter to specify the path to the folder that contains the spool files.</td>
</tr>
<tr>
<td><strong>WebLogic Server Properties</strong></td>
<td></td>
</tr>
<tr>
<td>install.appserver</td>
<td>Use this parameter to specify the installed application server. Set the value to <code>weblogic</code>.</td>
</tr>
<tr>
<td>bea.home</td>
<td>Use this parameter to specify the path to the Oracle Middleware base directory. For example, <code>/u00/Oracle/Middleware</code>.</td>
</tr>
<tr>
<td>weblogic.home</td>
<td>Use this parameter to specify the path to the WebLogic server in the Oracle Middleware base directory. For example, <code>/u00/Oracle/Middleware/wlserver_10.3/server</code>.</td>
</tr>
<tr>
<td>weblogic.server</td>
<td>Use this parameter to specify the name of the server instance.</td>
</tr>
<tr>
<td>weblogic.admin.port</td>
<td>Use this parameter to specify the SSL Listen port to connect to the WebLogic application server. The SSL Listen port was configured when setting up the WebLogic domain.</td>
</tr>
<tr>
<td>weblogic.admin.protocol</td>
<td>To ensure a secured APC-RO configuration, you must set the value for this parameter to t3s.</td>
</tr>
<tr>
<td>weblogic.server.address</td>
<td>Use this parameter to specify the URL to connect to the WebLogic application server.</td>
</tr>
<tr>
<td>weblogic.admin.alias</td>
<td>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.</td>
</tr>
<tr>
<td>weblogic.dbcpool.apcroconnectionpool.min</td>
<td>The value for <code>weblogic.connectionpool.min</code>.</td>
</tr>
<tr>
<td>weblogic.dbcpool.apcroconnectionpool.max</td>
<td>The value for <code>weblogic.connectionpool.max</code>.</td>
</tr>
<tr>
<td>install.database</td>
<td>Use this parameter to specify the installed database.</td>
</tr>
<tr>
<td><strong>DB Configuration</strong></td>
<td></td>
</tr>
<tr>
<td>database.apcodb.oracle.address</td>
<td>Use this parameter to specify the URL (host name or IP address) where the APC-RO database schema is installed.</td>
</tr>
<tr>
<td>database.apcodb.oracle.dbname</td>
<td>Use this parameter to specify the APC-RO database schema name.</td>
</tr>
<tr>
<td>database.apcodb.oracle.dbport</td>
<td>Use this parameter to specify the port to connect to the APC-RO database schema.</td>
</tr>
</tbody>
</table>
### Table 7–1 (Cont.) Install.properties Parameters Reference

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>database.apcddb.oracle.dburl</td>
<td>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: jdbc:oracle:thin:@&lt;host name&gt;:&lt;dbport&gt;:&lt;dbname&gt;</td>
</tr>
<tr>
<td><strong>APCSTG Schema</strong></td>
<td></td>
</tr>
<tr>
<td>database.schema1_apcstg.oracle.create</td>
<td>Use this parameter to specify that a new APCSTG database schema must be created. Valid values are Yes or No.</td>
</tr>
<tr>
<td>database.schema1_apcstg.oracle.upgrade</td>
<td>Use this parameter to specify that the existing APCSTG database schema be upgraded. Valid values are Yes or No.</td>
</tr>
<tr>
<td>database.schema1_apcstg.oracle.address</td>
<td>Use this parameter to specify the URL (host name or IP address) where the APCSTG database schema is installed.</td>
</tr>
<tr>
<td>database.schema1_apcstg.oracle.dbalias</td>
<td>Use this parameter to specify the APCSTG database alias name.</td>
</tr>
<tr>
<td>database.schema1_apcstg.oracle.dbname</td>
<td>Use this parameter to specify the APCSTG database schema name.</td>
</tr>
<tr>
<td>database.schema1_apcstg.oracle.dbport</td>
<td>Use this parameter to specify the port to connect to the APCSTG database schema.</td>
</tr>
<tr>
<td>database.schema1_apcstg.oracle.dburl</td>
<td>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: jdbc:oracle:thin:@&lt;host name&gt;:&lt;dbport&gt;:&lt;dbname&gt;</td>
</tr>
<tr>
<td><strong>APCCORE Schema</strong></td>
<td></td>
</tr>
<tr>
<td>database.schema2_apccore.oracle.create</td>
<td>Use this parameter to specify that a new APCCORE database schema must be created. Valid values are Yes or No.</td>
</tr>
<tr>
<td>database.schema2_apccore.oracle.upgrade</td>
<td>Use this parameter to specify that the existing APCCORE database schema be upgraded. Valid values are Yes or No.</td>
</tr>
<tr>
<td>database.schema2_apccore.oracle.address</td>
<td>Use this parameter to specify the URL (host name or IP address) where the APCCORE database schema is installed.</td>
</tr>
<tr>
<td>database.schema2_apccore.oracle.dbalias</td>
<td>Use this parameter to specify the APCCORE database alias name.</td>
</tr>
<tr>
<td>database.schema2_apccore.oracle.dbname</td>
<td>Use this parameter to specify the APCCORE database schema name.</td>
</tr>
<tr>
<td>database.schema2_apccore.oracle.dbport</td>
<td>Use this parameter to specify the port to connect to the APCCORE database schema.</td>
</tr>
</tbody>
</table>
### Table 7–1 (Cont.) Install.properties Parameters Reference

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>database.schema2_apccore.oracle.dburl</strong></td>
<td>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: <code>jdbc:oracle:thin:@&lt;host name&gt;:&lt;dbport&gt;:&lt;dbname&gt;</code></td>
</tr>
<tr>
<td><strong>APCRO_ST Schema</strong></td>
<td></td>
</tr>
<tr>
<td><strong>database.schema3_apcro_store.oracle.create</strong></td>
<td>Use this parameter to specify that a new APCRO_ST database schema must be created. Valid values are Yes or No.</td>
</tr>
<tr>
<td><strong>database.schema3_apcro_store.oracle.upgrade</strong></td>
<td>Use this parameter to specify that the existing APCRO_ST database schema be upgraded. Valid values are Yes or No.</td>
</tr>
<tr>
<td><strong>database.schema3_apcro_store.oracle.address</strong></td>
<td>Use this parameter to specify the URL (host name or IP address) where the APCRO_ST database schema is installed.</td>
</tr>
<tr>
<td><strong>database.schema3_apcro_store.oracle.dbalias</strong></td>
<td>Use this parameter to specify the APCRO_ST database alias name.</td>
</tr>
<tr>
<td><strong>database.schema3_apcro_store.oracle.dbname</strong></td>
<td>Use this parameter to specify the APCRO_ST database schema name.</td>
</tr>
<tr>
<td><strong>database.schema3_apcro_store.oracle.dbport</strong></td>
<td>Use this parameter to specify the port to connect to the APCRO_ST database schema.</td>
</tr>
<tr>
<td><strong>database.schema3_apcro_store.oracle.dburl</strong></td>
<td>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: <code>jdbc:oracle:thin:@&lt;host name&gt;:&lt;dbport&gt;:&lt;dbname&gt;</code></td>
</tr>
<tr>
<td><strong>APCRO_DC Schema</strong></td>
<td></td>
</tr>
<tr>
<td><strong>database.schema4_apcro_dc.oracle.create</strong></td>
<td>Use this parameter to specify that a new APCRO_DC database schema must be created. Valid values are Yes or No.</td>
</tr>
<tr>
<td><strong>database.schema4_apcro_dc.oracle.upgrade</strong></td>
<td>Use this parameter to specify that the existing APCRO_DC database schema be upgraded. Valid values are Yes or No.</td>
</tr>
<tr>
<td><strong>database.schema4_apcro_dc.oracle.address</strong></td>
<td>Use this parameter to specify the URL (host name or IP address) where the APCRO_DC database schema is installed.</td>
</tr>
<tr>
<td><strong>database.schema4_apcro_dc.oracle.dbalias</strong></td>
<td>Use this parameter to specify the APCRO_DC database alias name.</td>
</tr>
<tr>
<td><strong>database.schema4_apcro_dc.oracle.dbname</strong></td>
<td>Use this parameter to specify the APCRO_DC database schema name.</td>
</tr>
<tr>
<td><strong>database.schema4_apcro_dc.oracle.dbport</strong></td>
<td>Use this parameter to specify the port to connect to the APCRO_DC database schema.</td>
</tr>
</tbody>
</table>
### Setting Up install.properties File

**database.schema4_apcro_dc.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:**
```
jdbc:oracle:thin:@<host name>:<dbport>:<dbname>
```

**User Names**
- **apecstg_user**
  Use this parameter to specify the APCSTG schema user name.
- **apccore_user**
  Use this parameter to specify the APCCORE schema user name.
- **apcro_store_user**
  Use this parameter to specify the APCRO_ST schema user name.
- **apcro_dc_user**
  Use this parameter to specify the APCRO_DC schema user name.

**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.
- **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.

---

**Table 7–1 (Cont.) Install.properties Parameters Reference**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| database.schema4_apcro_dc.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:**
```
jdbc:oracle:thin:@<host name>:<dbport>:<dbname>
```
| apecstg_user | Use this parameter to specify the APCSTG schema user name. |
| apccore_user | Use this parameter to specify the APCCORE schema user name. |
| apcro_store_user | Use this parameter to specify the APCRO_ST schema user name. |
| apcro_dc_user | Use this parameter to specify the APCRO_DC schema user name. |
| 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. |
| 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. |
Setting Up Environment Variables

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

- JAVA_HOME
- ORACLE_HOME
- PATH
- LD_LIBRARY_PATH
- CSM_HOME
- TNS_ADMIN
- WL_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:

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

export ORACLE_HOME=<path where the Oracle database is installed>
For example, /u01/app/oracle/product/11.2.0/db_1

export PATH=$ORACLE_HOME/bin:$PATH
export PATH=$JAVA_HOME/bin:$PATH

export LD_LIBRARY_PATH=$ORACLE_HOME/lib:$LD_LIBRARY_PATH

export CSM_HOME=<path where the Credential Store Manager Password Store is installed>

export TNS_ADMIN=<the location where sql.ora and tnsnames.ora are stored>

export WL_HOME=<the location where the WebLogic Server is installed>
For example, /u00/middleware/weblogic_1035/wlserver_10.3
```

Table 7–1 (Cont.) Install.properties Parameters Reference

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>install.properties.savefile</td>
<td>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.</td>
</tr>
<tr>
<td>missing.properties.savefile</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Note:** You must install Oracle Java JDK 1.6.0 Update 24 manually and set up the JAVA_HOME environment variable to point to the Oracle JAVA JDK 1.6.0 Update 24 installation directory.
Installing APC-RO

You can install the APC-RO application in one of the following ways:

- Silent Mode — See Installing APC-RO in the Silent Mode.
- Graphical Mode — See Installing APC-RO Using the Graphical Oracle Installer.

Installing APC-RO in the Silent Mode

To install the APC-RO application:

1. Ensure that you have set up the install.properties file for the installation. For more information, see Setting Up install.properties File.
2. Ensure that your application server software is running.
3. From the <APC RO_CD_IMAGE> folder, run the installer in the silent mode using the following command:
   ```bash
   bash install.sh -p <path-to-install.properties> -s
   ```

   **Note:** For more information about this command, see About install.sh.

4. Once the installation completes, restart the application server.

Installing APC-RO Using the Graphical Oracle Installer

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

To install APC-RO using the Oracle Installer:

1. Ensure that you have set up the install.properties file for the installation. For more information, see Setting Up install.properties File.

   **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:
     ```bash
     export DISPLAY=<IP address>:0.0
     ```
4. From the <APC RO_CD_IMAGE> folder, run the installer using the following command:

   bash install.sh -p <path-to-install.properties>

   **Note:** For more information about this command, see About install.sh.

   The APC-RO Installer Welcome Window opens. Click **Next**.

   **Figure 7–1  APC-RO Installer Welcome Window**

5. The APC-RO Installation Destination Window opens.

   **Figure 7–2  APC-RO Installation Destination Window**
On the APC-RO Installation Destination Window, specify the paths for the following fields and then click Next.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destination Directory</td>
<td>Path to the APC-RO installation target directory</td>
</tr>
<tr>
<td>Spool Directory</td>
<td>Path to the APC-RO spool directory</td>
</tr>
<tr>
<td>Log Directory</td>
<td>Path to the APC-RO installation log files</td>
</tr>
<tr>
<td>OCM installation root</td>
<td>Path to the location where the Oracle Configuration Manager (OCM) is installed</td>
</tr>
<tr>
<td>Remote shell</td>
<td>This field is populated by default</td>
</tr>
<tr>
<td>Remote command</td>
<td>Leave blank</td>
</tr>
<tr>
<td>Host List</td>
<td>Leave blank</td>
</tr>
</tbody>
</table>

6. The Application Server Selections Window opens. Select Oracle WebLogic, and then click Next.

![Figure 7–3 Application Server Selections Window](image)

7. The WebLogic Application Server Window opens.
Figure 7–4  WebLogic Application Server Window

On the WebLogic Application Server Window, enter the relevant information for the following fields and then click Next.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WebLogic Home</td>
<td>Enter the location of the WebLogic installation</td>
</tr>
<tr>
<td>Domain Name</td>
<td>Enter the domain name for the WebLogic installation</td>
</tr>
<tr>
<td>Server Name</td>
<td>Enter the server name for the WebLogic installation.</td>
</tr>
<tr>
<td>Host Name</td>
<td>Enter the host name for the WebLogic installation.</td>
</tr>
<tr>
<td>Startup</td>
<td>Leave blank</td>
</tr>
<tr>
<td>Admin Port</td>
<td>Enter the administrative port for the WebLogic installation.</td>
</tr>
<tr>
<td>Admin Alias Name</td>
<td>Enter the WebLogic administrative user alias</td>
</tr>
</tbody>
</table>

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

8. The Java Message Server Properties Window opens. Specify the name of the Java Message Server (JMS) that you want. The JMS is created during the installation. Click Next.

**Note:** Since APC-RO does not use the JMS, you can accept the default values and proceed.
9. The **Scope Properties Window** opens. Enter the server name and click **Next**.

10. The **Database Selections Window** opens. Select **Oracle**, and then click **Next**.
11. The Database Properties - APCRO Store Database Window opens.
On the **Database Properties - APCRO Store Database Window**, enter the relevant information for the following fields and then click **Next**.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAC Database</td>
<td>Leave this field blank. There is no support for Oracle RAC in this release of APC-RO.</td>
</tr>
<tr>
<td>Database server address</td>
<td>Enter the address of the database server.</td>
</tr>
<tr>
<td>Database server port</td>
<td>Enter the server port number associated with your database.</td>
</tr>
<tr>
<td>Database name</td>
<td>Enter the name used to identify your database.</td>
</tr>
<tr>
<td>Database alias</td>
<td>Enter the database alias, which is the same name as the alias in your CSM password store for this database user.</td>
</tr>
<tr>
<td>RAC Host List</td>
<td>Leave this field blank.</td>
</tr>
<tr>
<td>Database URL</td>
<td>(Optional). Enter the database’s URL.</td>
</tr>
<tr>
<td>Tables</td>
<td>Select one of the following options:</td>
</tr>
<tr>
<td></td>
<td>- <strong>No Change</strong> – Select this option if you have an existing database schema that you do not want to modify (including the Java stored procedures). This enables you to configure data sources, EAR files, and so forth, without affecting the database.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Create</strong> – Select this option if you are installing a new database schema for APC-RO. The Oracle Installer drops all the schemas and creates new ones.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Upgrade</strong> – 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.</td>
</tr>
<tr>
<td>Connection Pool</td>
<td>This field is not editable.</td>
</tr>
<tr>
<td>Min Connections</td>
<td>Accept the default value.</td>
</tr>
<tr>
<td>Max Connections</td>
<td>Accept the default value.</td>
</tr>
</tbody>
</table>

12. The **Database Properties - APCRO DC Database Window** opens.
Installing APC-RO

Figure 7–9  Database Properties - APCRO DC Database Window

On the Database Properties - APCRO DC Database Window, enter the relevant information for the following fields and then click Next.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAC Database</td>
<td>Leave this field blank. There is no support for Oracle RAC in this release of APC-RO.</td>
</tr>
<tr>
<td>Database server address</td>
<td>Enter the address of the database server.</td>
</tr>
<tr>
<td>Database server port</td>
<td>Enter the server port number associated with your database.</td>
</tr>
<tr>
<td>Database name</td>
<td>Enter the name used to identify your database.</td>
</tr>
<tr>
<td>Database alias</td>
<td>Enter the database alias, which is typically the same name as the database.</td>
</tr>
<tr>
<td>RAC Host List</td>
<td>Leave this field blank.</td>
</tr>
<tr>
<td>Database URL</td>
<td>(Optional). Enter the database’s URL.</td>
</tr>
</tbody>
</table>
13. The **Database Properties - APCSTG Database Window** opens.

**Figure 7–10 Database Properties - APCSTG Database Window**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tables</td>
<td>Select one of the following options:</td>
</tr>
<tr>
<td></td>
<td>■ <strong>No Change</strong> – Select this option if you have an existing database schema that you do not want to modify (including the Java stored procedures). This enables you to configure data sources, EAR files, and so forth, without affecting the database.</td>
</tr>
<tr>
<td></td>
<td>■ <strong>Create</strong> – Select this option if you are installing a new database schema for APC-RO. The Oracle Installer drops all the schemas and creates new ones.</td>
</tr>
<tr>
<td></td>
<td>■ <strong>Upgrade</strong> – 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.</td>
</tr>
<tr>
<td>Connection Pool</td>
<td>This field is not editable.</td>
</tr>
<tr>
<td>Min Connections</td>
<td>Accept the default value.</td>
</tr>
<tr>
<td>Max Connections</td>
<td>Accept the default value.</td>
</tr>
</tbody>
</table>

On the **Database Properties - APCSTG Database Window**, enter the relevant information for the following fields and then click **Next**.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAC Database</td>
<td>Leave this field blank. There is no support for Oracle RAC in this release of APC-RO.</td>
</tr>
<tr>
<td>Database server address</td>
<td>Enter the address of the database server.</td>
</tr>
<tr>
<td>Database server port</td>
<td>Enter the server port number associated with your database.</td>
</tr>
<tr>
<td>Database name</td>
<td>Enter the name used to identify your database.</td>
</tr>
<tr>
<td>Database alias</td>
<td>Enter the database alias, which is typically the same name as the database.</td>
</tr>
<tr>
<td>RAC Host List</td>
<td>Leave this field blank.</td>
</tr>
<tr>
<td>Database URL</td>
<td>(Optional). Enter the database’s URL.</td>
</tr>
</tbody>
</table>

**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 (including the Java stored procedures). 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 APC-RO. 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.

14. The Database Properties - APCCORE Database Window opens.
On the **Database Properties - APCCORE Database Window**, enter the relevant information for the following fields and then click **Next**.

<table>
<thead>
<tr>
<th><strong>Field</strong></th>
<th><strong>Description</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>RAC Database</td>
<td>Leave this field blank. There is no support for Oracle RAC in this release of APC-RO.</td>
</tr>
<tr>
<td>Database server address</td>
<td>Enter the address of the database server.</td>
</tr>
<tr>
<td>Database server port</td>
<td>Enter the server port number associated with your database.</td>
</tr>
<tr>
<td>Database name</td>
<td>Enter the name used to identify your database.</td>
</tr>
<tr>
<td>Database alias</td>
<td>Enter the database alias, which is typically the same name as the database.</td>
</tr>
<tr>
<td>RAC Host List</td>
<td>Leave this field blank.</td>
</tr>
<tr>
<td>Database URL</td>
<td>(Optional). Enter the database’s URL.</td>
</tr>
</tbody>
</table>
Installing APC-RO

15. The **APC User Names Window** opens. Enter user names for each of the four schemas and then click **Next**.

**Figure 7–12 APC User Names Window**

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tables</td>
<td>Select one of the following options:</td>
</tr>
<tr>
<td></td>
<td>■ <strong>No Change</strong> – Select this option if you have an existing database schema that you do not want to modify (including the Java stored procedures). This enables you to configure data sources, EAR files, and so forth, without affecting the database.</td>
</tr>
<tr>
<td></td>
<td>■ <strong>Create</strong> – Select this option if you are installing a new database schema for APC-RO. The Oracle Installer drops all the schemas and creates new ones.</td>
</tr>
<tr>
<td></td>
<td>■ <strong>Upgrade</strong> – 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.</td>
</tr>
</tbody>
</table>

16. The **Oracle Configuration Manager Registration Window** opens. Click **Next** to view the license agreement.

**Note:** For more information on Oracle Configuration Manager (OCM), see **Overview of Oracle Configuration Manager**.
17. The **Oracle Configuration Manager Registration Window** opens. Choose an option:

- To skip installing the OCM, decline the license agreement, and click **Next**. The **Selection Verification Window** opens and continue to Step 22.

- To continue installing the OCM, accept the license agreement, and click **Next** and continue to Step 18.

18. The **Choose OCM Distribution Window** opens. Select the operating system hosting the application, and click **Next**.
19. The Choose OCM Connection Mode Window opens.

**Figure 7–15 Choose OCM Connection Mode Window**

Select one of the following modes and then click **Next**:

- **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 Window** opens. Go to Step 22.

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

20. The **Oracle Customer Information** window opens. Specify your Customer Support Identifier (CSI) number, My Oracle Support account user name, and the country code where the service agreement is initiated and then click **Next**

21. The **Proxy Server Details Window** opens. 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.
22. The **Selection Verification Window** opens. Review the information and then click **Install**.

23. Review the **Selection Verification Window**, and click **Install**.

24. The **Installation Progress** window opens.
   
   Once the installation is complete, review the installation log files for any errors or warnings, and then verify that the application is accessible over the network.

   For more information on troubleshooting issues, see **Troubleshooting Installation Issues**.
Before you start using the application, you must complete the configuration tasks. For more information, refer to the Oracle Retail Analytic Parameter Calculator for Replenishment Optimization Implementation Guide

Logging In

Once APC-RO is installed, you can access the application using the following URL:


About install.sh

The install.sh script enables you to launch the Oracle installer and install the application.

**Syntax**

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

**Arguments**

The following table describes the arguments you can use along with the install.sh:

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-s</td>
<td>Optional. Silent mode. If you omit this option, the Oracle Installer user interface displays.</td>
</tr>
<tr>
<td>-p &lt;path-to-install.properties-file&gt;</td>
<td>Optional. Specifies an alternate path to the install.properties file. Defaults to ./install.properties.</td>
</tr>
<tr>
<td>-l, --log-config</td>
<td>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.</td>
</tr>
<tr>
<td>-y</td>
<td>-n</td>
</tr>
<tr>
<td>-d &lt;XML path&gt;</td>
<td>Optional. Specifies an alternate path to the XML install scripts. Defaults to ./InstallScripts.</td>
</tr>
<tr>
<td>-x &lt;filename.xml&gt;</td>
<td>Optional. Specifies an alternate XML install script file within the ./InstallScripts directory.</td>
</tr>
<tr>
<td>-i, --websphere</td>
<td>-b, --weblogic</td>
</tr>
<tr>
<td>-h</td>
<td>Optional. Prints a help message.</td>
</tr>
</tbody>
</table>

Upgrading to the Current APC-RO Release

This section describes how you can upgrade from a Release 13.2 to Release 13.3 of APC-RO. Before you start the upgrade process, it is recommended 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 APC-RO 13.3:

1. Download the latest APC-RO installation media files. For more information, see Accessing the Installation Software.
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 APC-RO, see Setting Up the Database.

Note: APC-RO Release 13.3 requires the use of Oracle Database 11g Release 2 (11.2.0.3). It cannot be run on Oracle Database 10g or earlier.

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 11.1.1.6.0. For more information on the application server configuration required for APC-RO, see Setting Up the 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 APCSTG database, set up the following parameters to indicate an upgrade to the existing database or schema:
     - set the `database.schema1_apcstg.oracle.upgrade` parameter to `yes`.
     - set the `database.schema1_apcstg.oracle.create` parameter to `no`.

   Note: Ensure that the `database.schema1_apcstg.oracle.dburl` parameter is also set up.

   - For the APCCORE database, set up the following parameters to indicate an upgrade to the existing database or schema:
     - set the `database.schema2_apccore.oracle.upgrade` parameter to `yes`.
     - set the `database.schema2_apccore.oracle.create` parameter to `no`.

   - For the APCRO_STORE database, set up the following parameters to indicate an upgrade to the existing database or schema:
     - set the `database.schema3_apcro_store.oracle.upgrade` parameter to `yes`.
- set the `database.schema3_apcro_store.oracle.create` parameter to **no**.

- For the APCRO_DC database, set up the following parameters to indicate an upgrade to the existing database or schema:
  - set the `database.schema4_apcro_dc.oracle.upgrade` parameter to **yes**.
  - set the `database.schema4_apcro_dc.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 `install.properties` File.

8. Before you run the installer, set up the environment variables required for the APC-RO installation. For more information, see Setting Up Environment Variables.

9. Run the APC-RO installer and install the application. For more information, see Installing APC-RO in the Silent Mode or Installing APC-RO 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** windows.

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

11. Run the following ETL scripts for the APCCORE, APCRO_STORE, and APCRO_DC schemas again:

    - For APCCORE:
      
      `APCROSchema/scripts/APCCORE_Schema$ ./apccore_st_load_all.sh <apccorealias>
      APCROSchema/scripts/APCCORE_Schema$ ./apccore_dc_load_all.sh <apccorealias>

    - For APCRO_STORE:
      
      `APCROSchema/scripts/APCRO_Schema$ ./apcro_st_load_all.sh <apcro_st_alias>

    - For APCRO_DC:
      
      `APCROSchema/scripts/APCRO_Schema$ ./apcro_dc_load_all.sh <apcro_dc_alias>`

---

**Important:** The upgrade process will wipe off all database tables in the APCCORE schema and install new database tables.

In the APCRO_DC and APCRO_Store schemas, the upgrade process will wipe off all tables except the output tables (tables with names such as, RO_OUT..., RO_OUT..._FINAL, and RO_OUT..._ARC) and install new database tables.

---

**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 APC-RO).

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 APC-RO installation issues.

**Understanding Trace Output Messages**

Note that the Oracle Installer displays messages that originate from multiple sources. Some messages are APC-RO 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, un-deploy any modules from the server, clean all the database schemas, 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, clean all the database schemas, and run the installation again.
A
access
installation, 7-2
apccore, 4-3
apcro_dc, 4-3
apcro_st, 4-3
apcstg, 4-3
application server
requirements, 2-3
architecture properties, 7-3

C
client system
requirements, 2-3

D
database
install, 4-1
requirements, 2-2
set up
default tablespaces, 4-2
user accounts, 4-3
default tablespaces
create, 4-2
domain
setup, 5-2

E
environment variables, 7-7
export command, 7-7

G
graphical
install mode, 7-8

I
install
database, 4-1
graphical mode, 7-8
silent mode, 7-8
weblogic server, 5-2
installation
access, 7-2
overview, 7-1
planning, 2-1
installation task, 1-2
installer
welcome, 7-9
install.properties, 7-2
install.sh
about, 7-23

J
JMS, 7-11
JTA timeout seconds, 5-6

N
network
requirements, 2-2

O
OCM, 1-1, 7-6, 7-20
overview
installation, 7-1

P
post-install properties, 7-7
pre-installation tasks, 1-2

R
requirements
application server, 2-3
client system, 2-3
database, 2-2
network, 2-2
roadmap
installation, 1-2
roles, 5-6

S
set up
JTA timeout seconds, 5-6
setup
database
  tablespaces, 4-2
install.properties, 7-2
users and roles, 5-6
weblogic domain, 5-2
weblogic server, 5-2
weblogic startup script, 5-4
silent mode, 7-8
  arguments, 7-23
  syntax, 7-23
startup script, 5-4
  weblogic, 5-4
supported configurations, 2-2
  application server requirements, 2-3
  client system requirements, 2-3
  database requirements, 2-2
  network requirements, 2-2
T
tablespaces, 4-2
tasks
  installation, 1-2
  pre-installation, 1-2
timezone
database, 4-1
U
upgrade, 7-23
users, 5-6
W
weblogic, 5-4
domain, 5-2
server, 5-2
welcome, 7-9