Oracle® Retail Back Office

Installation Guide, Volume 1 - Oracle Stack

Release 13.3.8

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- Are the implementation steps correct and complete?
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- Are the examples correct? Do you need more examples?

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Preface

This Installation Guide describes the requirements and procedures to install this Oracle Retail Back Office release.

Audience

This Installation Guide is for the following audiences:

- System administrators and operations personnel
- Database administrators
- System analysts and programmers
- Integrators and implementation staff personnel

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Related Documents

For more information, see the following documents in the Oracle Retail Back Office Release 13.3.8 documentation set:

- *Oracle Retail Back Office Installation Guide - Volume 2, IBM Stack*
- *Oracle Retail Back Office Release Notes*

Customer Support

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

https://support.oracle.com

When contacting Customer Support, please provide the following:

- Product version and program/module name

- Functional and technical description of the problem (include business impact)

- Detailed step-by-step instructions to re-create

- Exact error message received

- Screen shots of each step you take

Review Patch Documentation

When you install the application for the first time, you install either a base release (for example, 13.3) or a later patch release (for example, 13.3.8). If you are installing the base release and additional patch releases, read the documentation for all releases that have occurred since the base release before you begin installation. Documentation for patch releases can contain critical information related to the base release, as well as information about code changes since the base release.

Improved Process for Oracle Retail Documentation Corrections

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

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

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

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

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

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

Conventions

The following text conventions are used in this document:

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

1

Preinstallation Tasks

This chapter describes the requirements for the Oracle stack that must be met before Oracle Retail Back Office can be installed.

> **Note:** This is the Oracle stack configuration that was tested for this release. While Back Office may work in other configurations, this configuration was tested.

If you will be installing multiple Oracle Retail applications, see Appendix H for a guideline for the order in which the applications should be installed.

Check Supported Database Server Requirements

Table 1–1 lists the general requirements for a database server running Oracle Retail Back Office and the versions supported for this release.

Table 1–1   Database Server Requirements

Supported on	Versions Supported
Operating System	■ Microsoft Windows 2008 Server R2 Standard Edition ■ Microsoft Windows 2012 Server R2 Standard Edition
Database	Oracle Database 11gR2 Enterprise Edition 11.2.0.4 (64-bit) **Note:** Oracle Retail Back Office is not certified with Real Application Clusters (RAC).

Required Settings for Database Installation

The following settings must be made during database creation:

■ The database must be set to UTF8.

■ Make the following changes to the system settings:

```
ALTER SYSTEM SET NLS_NUMERIC_CHARACTERS = '.,-' SCOPE=SPFILE;
ALTER SYSTEM SET NLS_DATE_FORMAT ='YYYY-MM-DD' SCOPE=SPFILE;
ALTER SYSTEM SET NLS_TIMESTAMP_FORMAT = 'YYYY-MM-DD HH24:MI:SS.FF'
SCOPE=SPFILE;
```

Check Supported Application Server Requirements

Table 1–2 lists the general requirements for an application server capable of running Back Office and the versions supported for this release.

Table 1–2   Application Server Requirements

Supported on	Versions Supported
Operating System	▪ Microsoft Windows 2008 Server R2 Standard Edition ▪ Microsoft Windows 2012 Server R2 Standard Edition
J2EE Application Server	Oracle WebLogic 10.3.6.0 Standard Edition
J2EE Application Server JVM	Oracle JDK 7 or later within the Java 7 code line
Messaging Provider	included in Oracle WebLogic
System Management Agents	OEM Agents

> **Note:** Back Office does not support a clustered environment.

Check for SSL Certificate

Oracle Retail Back Office is accessed through a secure HTTP connection. The installation of an SSL Certificate is required on your application server. If the certificate is not installed, warnings are displayed when trying to access Oracle Retail Back Office.

For information on installing the SSL Certificate, refer to your application server documentation.

Check that the Fonts Needed for Reports are Installed

To correctly export reports from Oracle Retail Back Office to a PDF file, any fonts used in the PDF must exist in the application server JVM. To install fonts to the application server:

1. Stop the application server.

2. Copy any needed fonts to the library folder of the JRE used by the application server. The following is an example of the path name to the folder:

    ```
    <JDK Install Directory>\jre\lib\fonts
    ```

3. Start the application server.

Check Oracle Retail Software Dependencies

Table 1–3 lists the Oracle Retail products that Oracle Retail Back Office is integrated with and the required versions.

Table 1–3   Supported Oracle Retail Products

Integrates with	Version
Oracle Retail Central Office	13.3.8
Oracle Retail Merchandising System	13.2.8
Oracle Retail Point-of-Service	13.3.8
Oracle Retail Price Management	13.2.8

Check Third-Party Software Dependencies

The Pager Tag library must be downloaded. For more information, see "Obtain the Third-Party Library File Required by Back Office" in Chapter 2.

Check Additional Oracle Technologies

Table 1–4 lists the Oracle technologies used by Oracle Retail Back Office and the required versions.

Table 1–4   Additional Oracle Technologies

Integrates with	Version
Oracle Business Intelligence Publisher for Retail Back Office	11.1.1.6 **Note:** This software is included in the Back Office distribution.

Check Supported Client PC and Web Browser Requirements

The general requirements for the client system include the following:

- Adobe Acrobat Reader or another application capable of rendering Portable Data Format (PDF) files

The following web browsers are supported on Microsoft Windows XP and Microsoft Windows 7 Client OS:

- Microsoft Internet Explorer 9
- Microsoft Internet Explorer 11
- Mozilla Firefox ESR 24

Hardware Requirements

Specific hardware requirements for the machines running Oracle Retail Back Office depend on variables including the number of users and other applications running on the same machine.

Please note the following about the hardware requirements:

- The CPU requirement depends on variables including the operating system and middleware selected.
- Memory requirements and performance depend on variables including the number of active promotions and best deal calculations when Back Office is installed on the same machine as the Point-of-Service server.
- Disk size can vary based on the operating system and middleware requirements as well as the amount of data storage needed. Data storage depends on variables including the number of items and promotions defined, data retention period, and so on.

You need to determine your hardware requirements, based on the variables mentioned here, as well as any additional variables specific to your environment.

Implementation Guidelines for Security

> **Note:** A demonstration trust store is bundled with Oracle Retail Back Office. It is recommended that the demonstration trust store is replaced with a secure trust store.
>
> It is also recommended that the passwords for key stores and trust stores are changed from the values set by default.

The following document is available through My Oracle Support. Access My Oracle Support at the following URL:

https://support.oracle.com

Oracle Retail POS Suite Implementation Guide, Volume 2 - Security **(Doc ID: 1277445.1)**

This implementation guide volume describes specific security features and implementation guidelines for the POS Suite products.

2

Installation of the Oracle Stack on Windows

Before proceeding, you must install the database and application server software. For a list of supported versions, see Chapter 1.

During installation, the Back Office database schema will be created and the Back Office application will be deployed to an Oracle WebLogic domain. When the domain was created, the JDK was selected. This is the JDK that is used to run the Back Office application. For the remainder of this chapter, the JDK installation directory is referred to as *<JDK_INSTALL_DIR>*.

Create a New WebLogic Domain for Back Office

You can skip this section if you are redeploying to an existing domain.

The Back Office application must be deployed to its own dedicated domain. For information on how to perform the following steps, consult your Oracle WebLogic documentation.

To create a new domain:

1. Log on to the server, which is running your WebLogic installation, as the user who owns the WebLogic installation.

2. Choose a name for the new domain. In the remainder of this installation guide, *<orbo-domain>* is used for the name.

3. Create this domain. If you are using a managed server, add the managed server as part of creating the domain.

    - Oracle Retail Back Office is accessed through a secure HTTP connection. You need to enable SSL when creating the domain.

    - Set the listen port and SSL listen port numbers so that the numbers are unique for each domain in your configuration.

    Note: All domains running Oracle Retail applications must have the same domain credentials.
    ---

4. If using a managed server, start the managed server. Start the administration domain.

5. Verify that the administration domain and the managed server are started and are in running mode.

6. If you are using a managed server and WebLogic is installed with Oracle's Sun JDK, you may encounter out-of-memory exceptions during the installation of Back Office.

> **Note:** The out-of-memory exceptions only occur if WebLogic is installed with Oracle's Sun JDK. If WebLogic is installed with Oracle JRockit, do not perform the following steps.

To avoid the out-of-memory exceptions, increase the PermSize space:

a. On the WebLogic Administration console, under Environments, select **Servers**.

b. In Summary of Servers, select *<managedServerName>*.

c. In Settings, select the **Server Start** tab.

d. In the Arguments text box, add the following if it does not already exist:

```
-Xms512m -Xmx512m -XX:PermSize=512m  -XX:MaxPermSize=512m
```

e. Select **Save**.

7. When the Weblogic Admin server startup mode is set to production mode after domain creation, create the following directories:

a. Create a security directory:

```
<WEBLOGIC_INSTALL_DIR>\user_
projects\domains\<orbo-domain>\servers\<AdminServerName>\security
```

b. If using a managed server, create a directory for the persistent store:

```
<WEBLOGIC_INSTALL_DIR>\user_
projects\domains\<orbo-domain>\servers\<ManagedServerName>\data\store\orbo-
persistent-store
```

Deploying to a Managed Server

If you are deploying Back Office to a managed server, note the following.

If any of the servers are remote from the admin server, copy the contents of the `domain\lib` directory to the corresponding directory on the remote systems. Also, a directory for the persistent store needs to be created on the remote systems. It should be located in the following location:

```
<WEBLOGIC_INSTALL_DIR>\user_
projects\domains\<orbo-domain>\servers\<ServerName>\data\store\orbo-persistent-sto
re
```

Create the Database Schema Owner and Data Source Connection Users

The following recommendations should be considered for schema owners:

- Database administrators should create an individual schema owner for each application, unless the applications share the same data. In the case of Oracle Retail Back Office and Point-of-Service, the database schema owner are the same because these applications share a database.

- The schema owners should only have enough privileges to install the database.

For information on the best practices for passwords, see Appendix F.

> **Note:** Do not delete the database schema owner after installation. When using Data Import (DIMP), the schema owner privileges are needed for DIMP processing which includes creating and dropping tables. For information on DIMP, see "Enable Data Import".

To create the database schema owner and data source connection users:

1. Log in using the database administrator user ID.

2. Create a role in the database to be used for the schema owner.

    ```
    CREATE ROLE <schema_owner_role>;
    ```

3. Grant the privileges, shown in the following example, to the role.

    ```
    GRANT CREATE TABLE, CREATE VIEW, CREATE SEQUENCE, CREATE PROCEDURE, ALTER
    SESSION, CONNECT, SELECT_CATALOG_ROLE TO <schema_owner_role>;
    ```

4. Create a role in the database to be used for the data source user.

    ```
    CREATE ROLE <data_source_role>;
    ```

5. Grant the privileges, shown in the following example, to the role.

    ```
    GRANT CONNECT, CREATE SYNONYM, SELECT_CATALOG_ROLE TO
    <data_source_role>;
    ```

6. Create the schema owner user in the database.

    ```
    CREATE USER <schema_username>
    IDENTIFIED BY <schema_password>
    DEFAULT TABLESPACE users
    TEMPORARY TABLESPACE TEMP
    QUOTA UNLIMITED ON users;
    ```

7. Grant the schema owner role to the user.

    ```
    GRANT <schema_owner_role> TO <schema_username>;
    ```

8. Create the data source user.

    ```
    CREATE USER <data_source_username>
    IDENTIFIED BY <data_source_password>
    DEFAULT TABLESPACE users
    TEMPORARY TABLESPACE TEMP
    QUOTA UNLIMITED ON users;
    ```

9. Grant the data source role to the user.

    ```
    GRANT <data_source_role> TO <data_source_username>;
    ```

The installer grants the data source connection user access to the application database objects. If you choose **No** on the Manual Deployment Option screen, you need to grant the access after the installer completes. For more information, see "Manual Deployment of the Back Office Application".

Expand the Back Office Distribution

To extract the Back Office files:

1. Extract the Back Office 13.3.8 distribution zip file.

2. Create a new staging directory for the Back Office application distribution (`ORBO-13.3.8.zip`) file, for example, `c:\tmp\j2ee\<orbo-domain>\orbo-staging`.

> **Note:** The staging area (`<staging_directory>`) can exist anywhere on the system. It does not need to be under `<WEBLOGIC_INSTALL_DIR>`.

3. Copy or upload `ORBO-13.3.8.zip` to `<staging_directory>` and extract its contents. The following files and directories should be created under `<staging_directory>\ORBO-13.3.8`:

```
ant\
ant-ext\
antinstall\
backoffice\
connectors\
external-lib\
installer-resources\
ocm-integration\
retail-public-security-api\
.postinstall.cmd
.postinstall.sh
.preinstall.cmd
.preinstall.sh
.preinstall-oas.cmd
.preinstall-oas.sh
.preinstall-was.cmd
.preinstall-was.sh
.preinstall-wl.cmd
.preinstall-wl.sh
antinstall-config.xml
build.xml
build-common.xml
build-common-backoffice.xml
build-common-oas.xml
build-common-retailinv.xml
build-common-was.xml
build-common-webapps.xml
build-common-wl.xml
build-test.xml
checkdeps.cmd
checkdeps.sh
install.cmd
install.sh
jmsconfiguration.dat
prepare.xml
retail-OCM-stores.zip
wallet.xml
```

For the remainder of this chapter, `<staging_directory>\ORBO-13.3.8` is referred to as `<INSTALL_DIR>`.

Obtain the Third-Party Library File Required by Back Office

The Back Office application uses the Pager Tag Library. Before running the Back Office application installer, you must download the necessary Pager Tag Library files.

To get the Pager Tag library:

1. Download the `pager-taglib-2.0.jar` file from the following Web site: http://mirrors.ibiblio.org/maven2/jsptags/pager-taglib/2.0/

2. Rename the jar file to `pager-taglib.jar` and copy that file into `<INSTALL_DIR>/external-lib/`.

Set Up to Integrate with the Central Office JMS Server

On the Central Office JMS Server Integration installer screen, you select whether Back Office will be integrated with the Central Office JMS server. See Figure A–24.

If **Yes** is selected on the screen, the Central Office application must be running in order for the Back Office files to be installed correctly.

Enable Data Import

Data Import (DIMP) is used by external systems to send data bundles to Back Office for routine data loading of certain types of data. To use DIMP, you need to create a directory for the incoming bundles and a directory where the bundles are archived after being processed.

On the Enable DIMP installer screen, you select whether DIMP will be used. See Figure A–11. If **Yes** is selected on the screen, you then provide the paths to the directories on the DIMP Configuration installer screen. See Figure A–12.

For detailed information on DIMP, see the *Oracle Retail POS Suite/Merchandising Operations Management Implementation Guide*.

Oracle Configuration Manager

The Oracle Retail OCM Installer packaged with this release installs the latest version of OCM.

The following document is available through My Oracle Support. Access My Oracle Support at the following URL:

https://support.oracle.com

Oracle Retail Oracle Configuration Manager (OCM) Installer Guide **(Doc ID: 1071030.1)**

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/technetwork/documentation/oracle-retail-100266.html

Installation Options

During installation, there are options that enable you to select whether the installer completes parts of the installation or if you want to complete those parts manually. For information on the available options, see the following sections:

- "Install Database Options"

- "Manual Deployment of the Back Office Application"

- "Install Parameters"

Install Database Options

The database schema must be created and populated before configuring the application server. On the Install Database Option screen, you select whether the installer creates and populates the database schema or if you want to do this manually.

- If you choose **Create schema with sample dataset**, the installer creates and populates the database with sample data, such as item data. This is the default selection on the screen. The sample dataset includes the minimum dataset and report data. If you want data available to use for demonstrating Back Office functionality after installation, you can select this option.

- If you choose **Create schema with minimum dataset**, the installer creates and populates the database with the minimum amount of data needed to launch and run Back Office. The minimum dataset includes report data. If you want to load your own data after installation, you can select this option.

- If you choose **Skip schema creation and data loading**, the installer does not create and populate the database schema. You choose this option if you want to create and populate the database schema manually. For information on manually creating and populating the database schema, see "Manually Creating the Database Schema".

> **Note:** You must populate the database schema before running the installer. Otherwise, the installer will fail when configuring security.

Manually Creating the Database Schema

To manually create and populate the database schema:

1. Change to the *<INSTALL_DIR>*\backoffice\db directory.

2. Set the JAVA_HOME and ANT_HOME environment variables.

   ```
   JAVA_HOME=<JDK_INSTALL_DIR>\jdk; ANT_HOME=<INSTALL_DIR>\ant;
   export JAVA_HOME ANT_HOME
   ```

3. Add $JAVA_HOME\bin and $ANT_HOME\bin to the front of the PATH environment variable.

   ```
   PATH=$JAVA_HOME\bin:$ANT_HOME\bin:$PATH; export PATH
   ```

4. Expand the backofficeDBInstall.jar file.

   ```
   jar -xvf backofficeDBInstall.jar
   ```

5. Modify db.properties.

   a. Uncomment the Oracle properties and comment out the properties for the other vendors such as DB2 and MS-SqlServer.

   b. Set the following properties with your database settings. The values to be set are shown in bold in the examples.

      Set the hash algorithm, for example, to SHA-256.

      ```
      # Hash Algorithm
      ```

```
inst.hash.algorithm=HASH_ALGORITHM
```

Enter the values for the users shown in bold in the following example:

```
inst.app.admin.user=my-pos-admin-user
inst.app.admin.password-encrypted=my-encrypted-pos-admin-password

db.user=DB_USER_ID
db.password-encrypted=DB_PASSWORD_ENCRYPTED

db.owner.user=DB_OWNER_USER_ID
db.owner.password-encrypted=DB_OWNER_PASSWORD_ENCRYPTED
```

The ant target will prompt for the passwords. Run the following ant target to encrypt the passwords:

```
ant -f db.xml encrypt-webapp-passwords
```

Enter the values for the URL used by the Back Office application to access the database schema. See Appendix D for the expected syntax:

```
db.jdbc-url=jdbc:oracle:thin:@DB_HOST_NAME:1521:DB_NAME
```

Enter the value for the store ID shown in the following example:

```
configured.store.id=04241
```

Enter the value for the supported locales shown in the following example:

```
gen.locales=fr,zh
```

c. Set the host name and rmi port number for the `parameters.apphost` property to point to your Back Office installation.

```
parameters.apphost=t3://localhost:<port_number>
```

d. In the `parameters.classpath` property, replace the semicolons used as separators with colons. This is needed to run with Linux systems.

e. To enable VAT functionality, uncomment the tax.enableTaxInclusive property in the tax properties section.

6. Modify `jndi.properties`. This file is in the `jndi` directory.

a. Uncomment the following property.

```
java.naming.factory.initial=weblogic.jndi.WLInitialContextFactory
```

b. Set the user name and password.

```
java.naming.security.principal=<user>
java.naming.security.credentials=<encrypted_password>
```

7. Run one of the available Ant targets to create the database schema and load data.

   - load_sample: creates the database schema containing the sample dataset. The sample dataset includes the minimum dataset and report data.

   - load_minimum: creates the database schema containing the minimum dataset. The minimum dataset includes report data.

   - load_reports: loads report data.

For example: `ant load_sample`

To specifically load the report data, use the following command:
```
ant -f db.xml load_reports
```

Secure the JDBC for the Oracle 11g Database

On the Enable Secure JDBC screen, you select whether secure JDBC will be used for communication with the database. See Figure A–9.

- If **Yes** is selected, the installer sets up the secure JDBC.

- If **No** is selected and you want to manually set up the secure JDBC after the installer completes, see Appendix G.

Run the Back Office Application Installer

An WebLogic domain must be configured and started before you can run the Back Office application installer. This installer will configure and deploy the Back Office application.

> **Note:** To see details on every screen and field in the application installer, see Appendix A.

1. Change to the *<INSTALL_DIR>* directory.

2. Set the JAVA_HOME environment variable. JAVA_HOME should point to *<JDK_INSTALL_DIR>*.

> **Note:** The installer is not compatible with versions of Java earlier than 7.

3. Set the account of the user running the installer to run as an administrator. Set the account using Microsoft Windows 2008 Server.

4. Run the `install.cmd` script. This will launch the installer. After installation is complete, a detailed installation log file is created: `orbo-install-app.<timestamp>.log`.

> **Note:** The usage details for install.cmd are shown below. The typical usage for GUI mode does not use arguments.
>
> ```
> install.cmd [text | silent weblogic]
> ```

The installer leaves behind the `ant.install.properties` and `cwallet.sso` files for repeat installations.

Resolving Errors Encountered During Application Installation

If the application installer encounters any errors, it will halt execution immediately. You can run the installer in silent mode so that you do not have to reenter the settings for your environment. For instructions on silent mode, see Appendix B.

For a list of common installation errors, see Appendix E.

Since the application installation is a full reinstall every time, any previous partial installs will be overwritten by the successful installation.

Update JMS Configuration for Integration of Point-of-Service with Returns Management

If Point-of-Service will be integrated with Returns Management and a JMS queue is the method that will be used for sending return result messages to Returns Management, you can create a remote queue for the store server for processing the final result messages. Use of the remote queue is an optional alternative to the default released configuration.

> **Note:** To use the remote queue, updates are also needed to the JMS configuration for Point-of-Service. For more information, see the following guide:
>
> - *Oracle Retail Point-of-Service Installation Guide, Volume 1 - Oracle Stack*

To connect the Back Office JMS server FinalResults queue to the Returns Management JMS server:

1. From the WebLogic console for Back Office, select **Services**, **Messaging**, **JMSModules**, and then **ORBO-JMSSystemResource**.

2. Create a remote context:

    a. To create a new resource, click **New**.

    b. For Type, select **Remote SAF Context**.

    c. Click **Next**.

    d. In the following, replace *<rmservername>* with the name of your server, and *<port>* with your non-secure or secure port respectively.

    ```
    Name: ORRM-context
    url: t3://<rmservername>:<port> or
    secure url: t3s://<rmservername>:<port>
    ```

3. Create import destinations:

    a. To create a new resource, click **New**.

    b. Select **SAF Imported Destinations** for the type.

    c. Click **Next**.

    d. Set the name to ORRM-imported-destinations.

    e. Leave jndi prefix blank.

    f. Select **ORRM-context for remote context**.

    g. Click **Next**.

    h. Select targeting here or **Advanced Targeting** to be identical to the targeting for ORCO.

4. Create a new queue:

    a. Select **ORRM-imported-destinations**.

    b. Click the **Queues** tab.

    c. Click **New**.

    d. Enter `FinalResult` for the name.

    e. Enter `jms/FinalResult` for the remote jndi name.

    f. Click **OK**.

    g. Click **Final Result Queue**.

    h. Set the local jndi name to `jms/Final Result`.

    i. Click **Save**.

Manual Deployment of the Back Office Application

Skip this section if you chose the default option of allowing the installer to complete installation to the application server.

The installer includes the option to configure the application locally and skip deployment to the application server. If this option is chosen, the installer will make the configured application files available under `<INSTALL_DIR>\backoffice\configured-output\`.

If you chose this installer option, you complete the installation by following these steps:

- To deploy using the ant target:

  1. Update the following property in the `ant.install.properties` file.

  ```
  input.install.to.appserver = true
  ```

  2. Run the following ant target:

  ```
  install.cmd ant init app-ear-deploy -propertyfile ant.install.properties
  ```

- To deploy from the application server console:

  > **Note:** When deploying the ear file, provide the same application name and context root you gave to the installer. These values were stored in the `<INSTALL_DIR>\ant.install.properties` file by the installer.

  1. Move your ear file to `<INSTALL_DIR>\backoffice\ear`.

  2. Change to the `<INSTALL_DIR>` directory.

  3. Configure the ear file.

  ```
  install.cmd  ant init configure
  ```

  4. Change to the `<INSTALL_DIR>\backoffice\appservers\weblogic` directory.

  5. Update the ear file.

  ```
  ant init update_dd
  ```

  6. Manually deploy the ear file from the following location:

  ```
  <INSTALL_DIR>\backoffice\backoffice.ear
  ```

Install Parameters

The application parameters must be installed before the Back Office application is fully operational. On the Install Parameters screen, you select whether the installer completes installation of the parameters.

■ If you chose Yes, you do not need to perform any further steps to install the parameters. This is the default selection on the screen.

■ If you chose No, the installer did not install the parameters. For information on installing the parameters, see "Import Initial Parameters".

Import Initial Parameters

> **Note:** If you did not choose to have the installer set the initial parameters, you must import an initial set of parameters before you can use Oracle Retail Back Office. For more information on parameters, see the *Oracle Retail POS Suite Configuration Guide*.

This section provides an overview of the procedures for importing an initial set of parameters. You can import the parameters through the Oracle Retail Back Office user interface or by using an ant target. You only need to use one of the procedures. The procedure for importing parameters through the application user interface is described in more detail in the *Oracle Retail Back Office User Guide*.

These instructions assume you have already expanded the `backofficeDBInstall.jar` file under the `<INSTALL_DIR>` directory as part of the database schema installation earlier in this chapter.

Importing Parameters Through the User Interface

To import the initial parameters through the user interface:

1. Open the Oracle Retail Back Office application in a web browser. The address is provided at the end of the installer output and in the log file.

   `https:\\<host name>:<port number>\<context root>`

2. Log in to the application with a user ID that has full administrative rights.

3. Click the **Admin** tab and then the **Job Manager** subtab. Click the **Available Imports** left navigation link. The Available Imports screen appears.

4. To import the master parameter set, click the **File** link in the Import Parameters for Distribution row. Follow the instructions to import `parameterset.xml` from the `<INSTALL_DIR>\backoffice\db` folder.

5. To import the initial set of Oracle Retail Back Office application parameters, click the **File** link in the Import BackOffice Parameters row. Follow the instructions to import `backoffice.xml` from the `<INSTALL_DIR>\backoffice\db` folder.

Importing Parameters by using an Ant Target

To import parameters using an ant target:

1. Change to the `<INSTALL_DIR>\backoffice\configured-output\db` directory.

2. Edit the `db.properties` file. Update the following properties in the "Properties for Parameter Loading" section.

   a. Change `ora.home.dir` to your installation directory.

   ```
   ora.home.dir=C:\Oracle\10.1.3.4\OracleAS_1
   ```

   b. Change `<ORA_HOST_NAME>` to your host name. Change `<port number>` to your port number.

   ```
   parameters.apphost=t3:\\<ORA_HOST_NAME>:<port number>
   ```

3. Execute the following command:

   ```
   ant load_parameters
   ```

Load Optional Purge Procedures

For information on the procedures provided for purging aged data, see the *Oracle Retail Back Office Operations Guide*.

To load the purge procedures:

1. Run the available Ant target to load the procedures.

   ```
   ant load_purge_procedures
   ```

2. Log in as the database schema owner, <schema_owner_user>.

3. Create a user for running the purge procedures. This user should only have the privileges required to run the purge procedures.

Using the Back Office Application

> **Note:** When you are done installing Back Office, log out and close the browser window. This ensures that your session information is cleared and prevents another user from accessing Back Office with your login information.

After the application installer completes and you have run the initial parameter load, you should have a working Back Office application installation. To launch the application, open a web browser and go to
`https:\\<servername>:<portnumber>\<context root>`

For example, https:\\myhost:7002\backoffice

> **Note:** Before viewing any reports for the first time after Back Office is installed, you must open the store. Opening the store creates data that is needed for Reports functionality to work correctly.

A
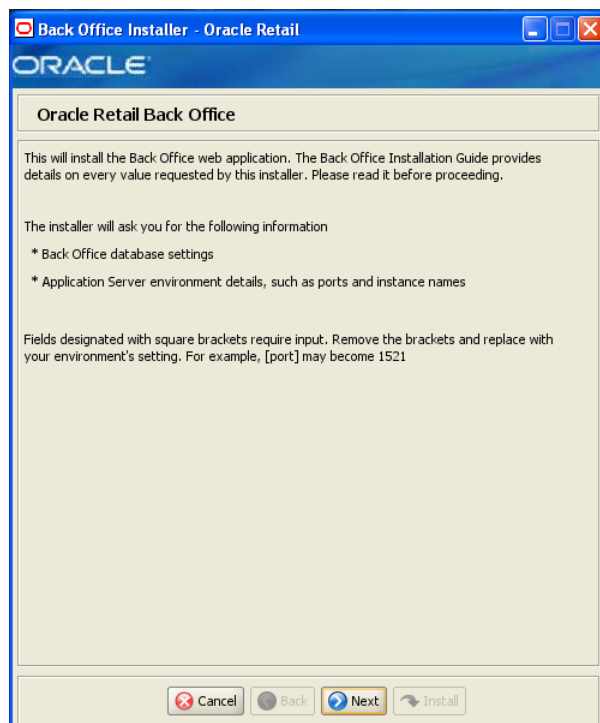
Appendix: Installer Screens for the Oracle Stack

You need specific details about your environment for the installer to successfully deploy the Back Office application on the Oracle Stack. Depending on the options you select, you may not see some screens or fields.

For each field on a screen, a table is included in this appendix that describes the field.

Figure A–1   Introduction

Figure A–2 Oracle Customer Information

This screen is only displayed if Oracle Configuration Manager (OCM) is to be installed. The OCM collector must be registered with your My Oracle Support account so that the uploaded configuration information can be stored properly and be readily available during the resolution of a service request.

After the Central Office installer completes, the OCM installer runs if OCM is not already installed. For information on OCM, see "Oracle Configuration Manager" in Chapter 2.

The fields on this screen are described in the following tables.

Field Title	Email
Field Description	Email address to use for OCM installation.

Field Title	I wish to receive security updates via My Oracle Support.
Field Description	To receive security updates, check the box.

Field Title	My Oracle Support Password
Field Description	Password for the My Oracle Support user to receive security updates.

Figure A–3   Requirements
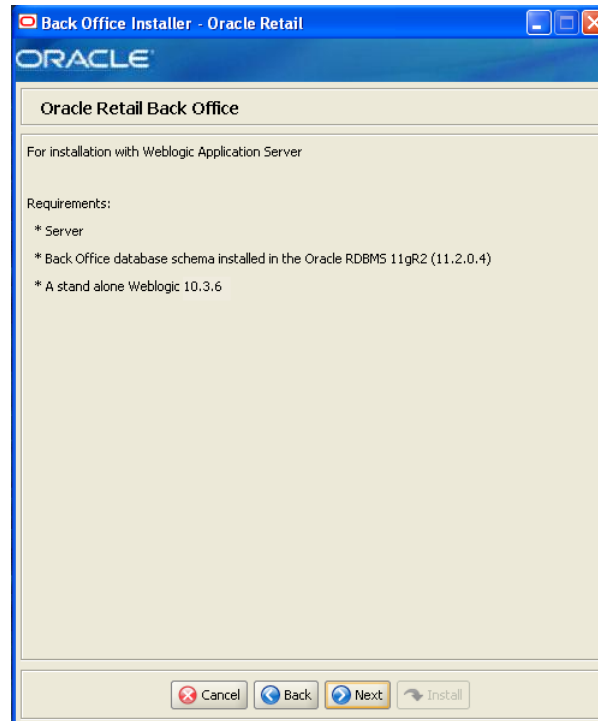
Figure A–4   License Agreement

> **Note:** You must choose to accept the terms of the license agreement in order for the installation to continue.

Figure A–5   Supported Languages
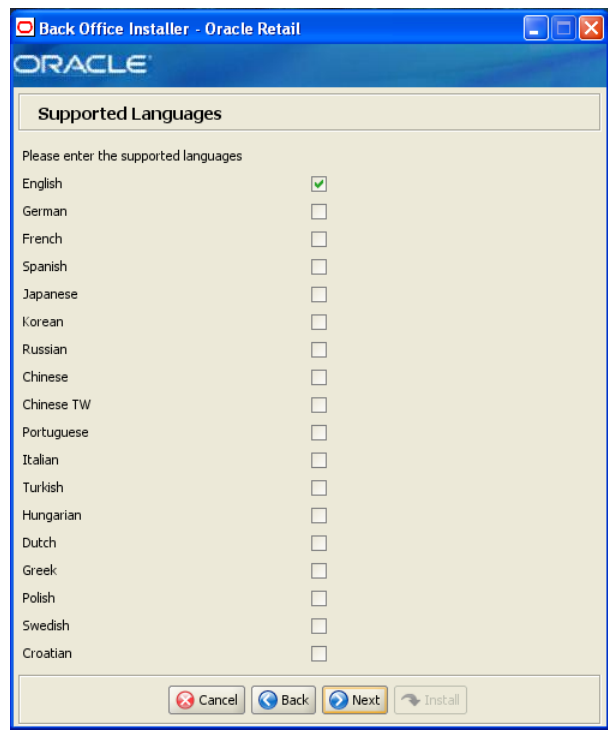
The field on this screen is described in the following table.

Field Title	Please enter the supported languages
Field Description	Select the languages that will be available for the Back Office application.
	The languages selected on this screen determine the available choices on the Enter Default Locale screen.
Example	English

Figure A–6 Enter Default Locale
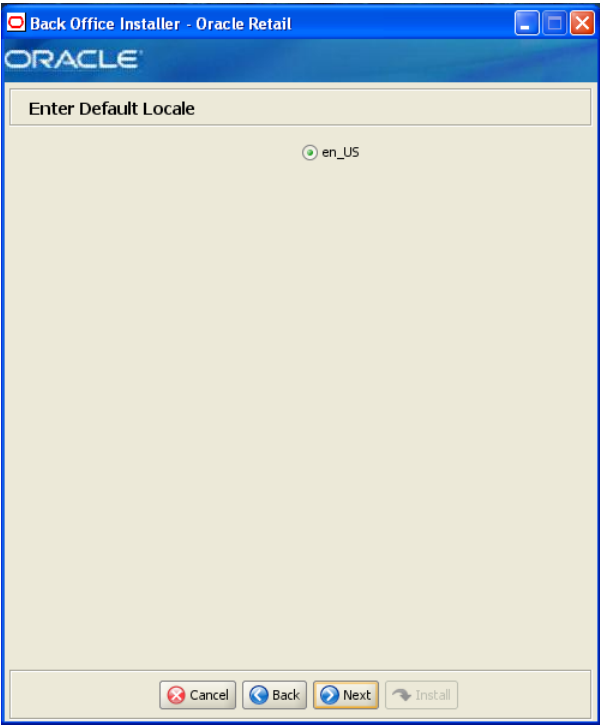
The field on this screen is described in the following table.

Field Title	Enter Default Locale
Field Description	Locale support in Back Office enables the date, time, currency, calendar, address, and phone number to be displayed in the format for the selected default locale.
	The choices for default locale are dependent on the selections made on the Supported Languages screen. For each selected language, the default locale for that language is displayed on the Enter Default Locale screen. For example, if English and French are selected on the Supported Languages screen, en_US and fr_FR are the available choices for the default locale.
Example	en_US

Figure A–7   Database Owner

The fields on this screen are described in the following tables.

Field Title	Schema Username
Field Description	Schema user name that manages the objects in the schema. This user has Create, Drop, and Alter privileges in the schema, that is, Data Definition Language (DDL) execution privileges. For information on creating this user, see "Create the Database Schema Owner and Data Source Connection Users" in Chapter 2. **Note:** This user creates the database objects used by Back Office.
Example	DBOWNER

Field Title	Schema Password
Field Description	Password for the database owner.

Figure A–8   Data Source User

The fields on this screen are described in the following tables.

Field Title	JDBC URL
Field Description	URL used by the Back Office application to access the database schema. See Appendix D for the expected syntax.
Example	`jdbc:oracle:thin:@myhost:1525:mydatabase`

Field Title	Data Source Username
Field Description	Database user name that can access and manipulate the data in the schema. This user can have Select, Insert, Update, Delete, and Execute privileges on objects in the schema, that is, Data Manipulation Language (DML) execution privileges. For information on creating this user, see "Create the Database Schema Owner and Data Source Connection Users" in Chapter 2.
	Note: This schema user is used by Back Office to access the database.
Example	DBUSER

Field Title	Data Source Password
Field Description	Password for the data source user.

Figure A–9   Enable Secure JDBC
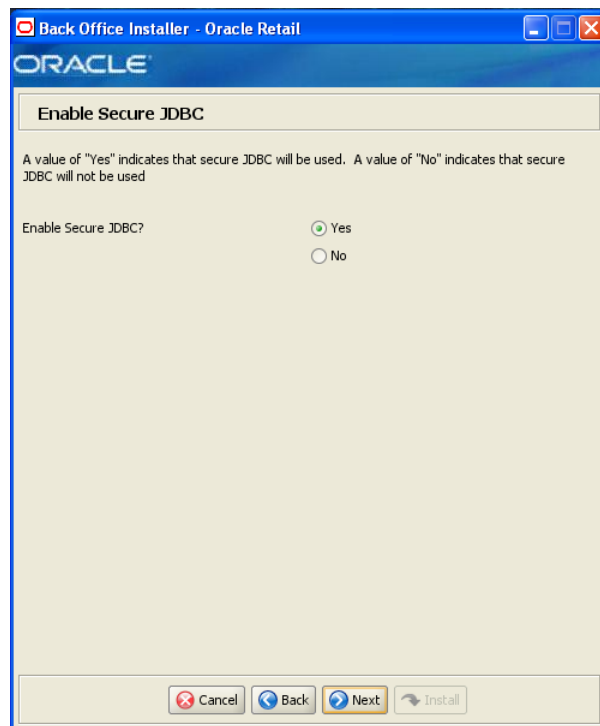
The field on this screen is described in the following table.

Field Title	Enable Secure JDBC?
Field Description	Select whether secure JDBC is to be used for communication with the database.
Example	Yes

Figure A–10   Data Source SSL Configuration
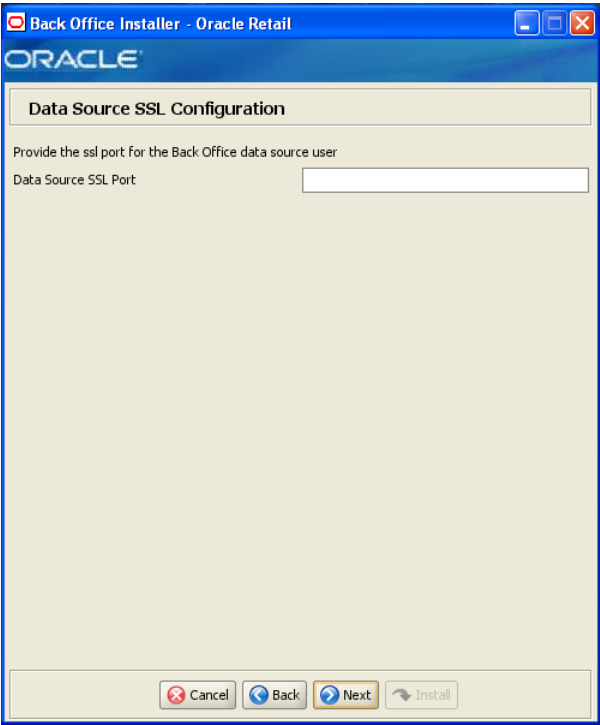
This screen is only displayed if **Yes** is selected on the Enable Secure JDBC screen. The field on this screen is described in the following table.

Field Title	Data Source SSL Port
Field Description	SSL port used to access the database.
Example	7004

Figure A–11 Enable DIMP
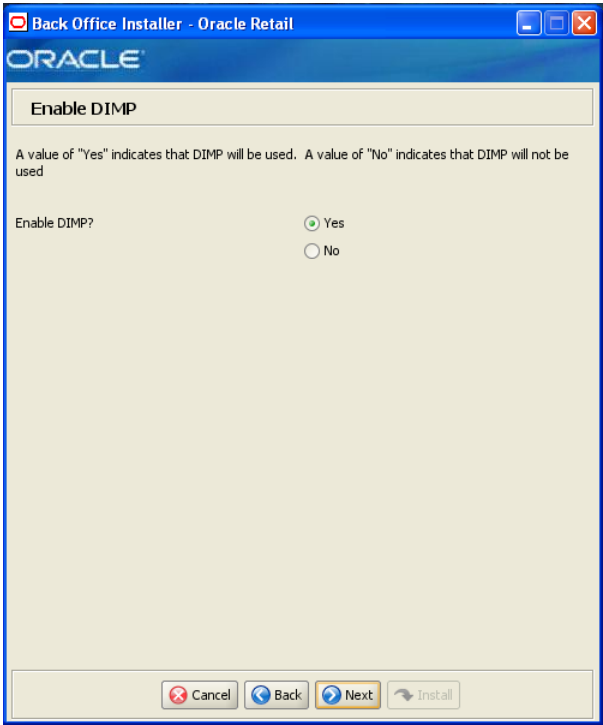
The field on this screen is described in the following table.

Field Title	Enable DIMP?
Field Description	Select whether DIMP will be used. For information on DIMP, see "Enable Data Import" in Chapter 2.
Example	Yes

Figure A–12   DIMP Configuration
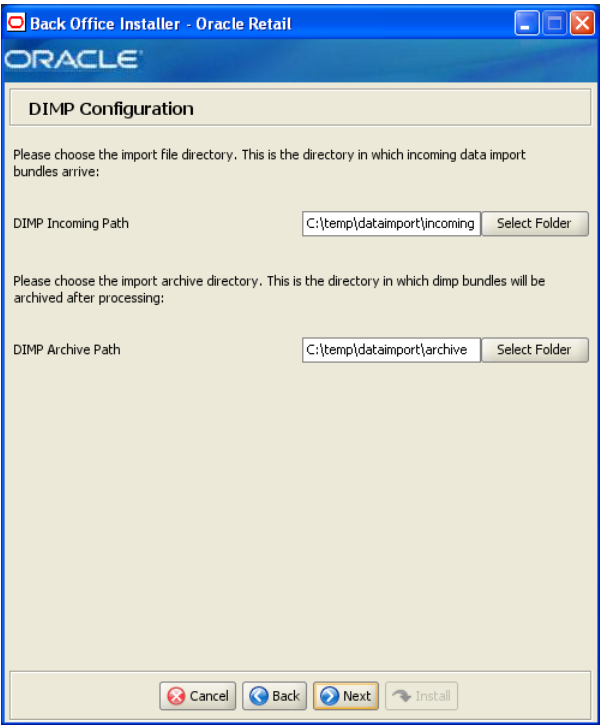
This screen is only displayed if **Yes** is selected on the Enable DIMP screen.

The fields on this screen are described in the following tables.

Field Title	DIMP Incoming Path
Field Description	Directory where the incoming data import bundles arrive.
Example	`C:\temp\dataimport\incoming`

Field Title	DIMP Archive Path
Field Description	Directory where the incoming data import bundles are archived after processing.
Example	`C:\temp\dataimport\archive`

Figure A–13 Install Database Option
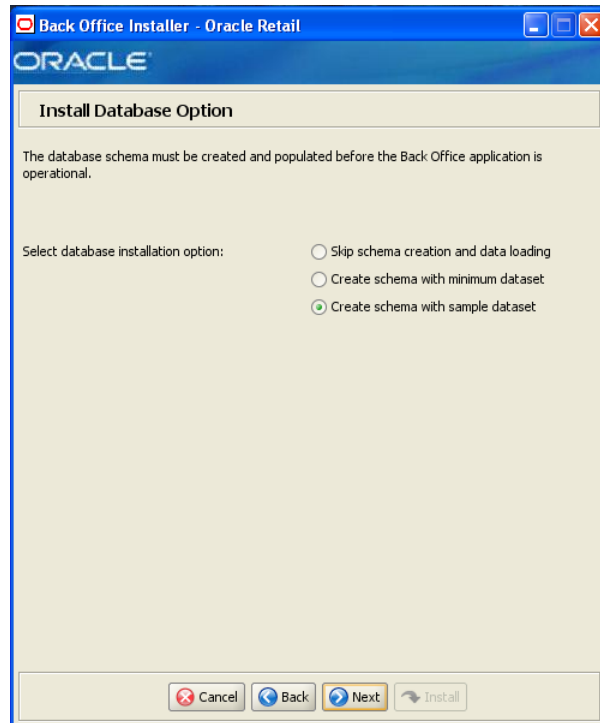
The field on this screen is described in the following table.

Field Title	Select database installation option
Field Description	The database schema must be created and populated before starting Back Office. This screen gives you the option to have the installer create and populate the database schema or leave the database schema unmodified.
	■ To have the installer leave the database schema unchanged, select **Skip schema creation and data loading**.
	■ To have the installer create and populate the database schema with the minimum dataset, select **Create schema with minimum dataset**.
	■ To have the installer create and populate the database schema with the sample dataset, select **Create schema with sample dataset**.
	For more information, see "Install Database Options" in Chapter 2.
Example	Yes

Figure A–14   Back Office Administrator User

The fields on this screen are described in the following tables.

Field Title	Back Office Administrator Username
Field Description	Administrator user for the Back Office application.
Example	pos

Field Title	Back Office Administrator Password
Field Description	Password for the administrator user.

Figure A–15   Cryptology Settings

The field on this screen is described in the following table.

Field Title	Hash Algorithm
Field Description	Enter the name of the algorithm used to hash passwords.
Example	SHA-256

Figure A–16   Enter Store ID

The field on this screen is described in the following tables.

Field Title	Store ID
Field Description	ID for this store.
Example	04241

Figure A–17   App Server WL_HOME
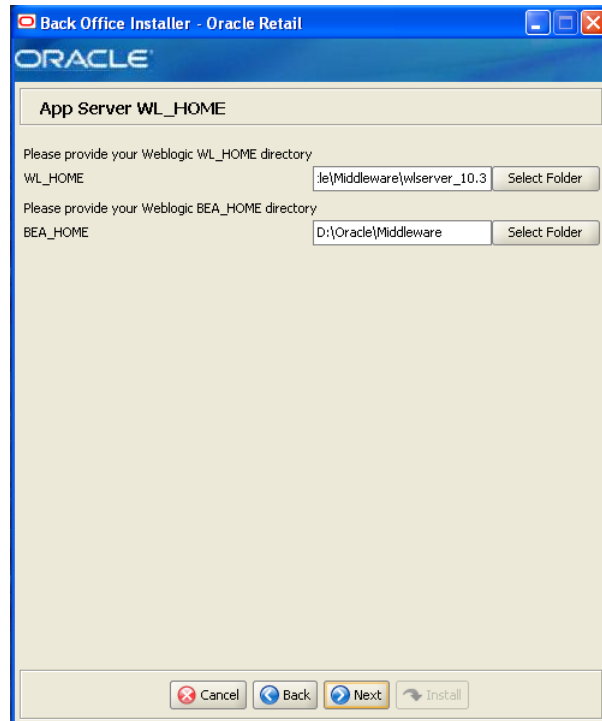
The fields on this screen are described in the following tables.

Field Title	WL_HOME
Field Description	Home directory for the Oracle WebLogic installation.
Example	`D:\Oracle\Middleware\wlserver_10.3`

Field Title	BEA_HOME
Field Description	Home directory for the Oracle BEA installation.
Example	`D:\Oracle\Middleware`

Figure A–18   Mail Session Details

The fields on this screen are described in the following tables.

Field Title	SMTP host
Field Description	Host where the SMTP server is running.
Example	`mail.example.com`

Field Title	Reply-To Address
Field Description	Reply-to address in e-mails generated by Back Office.
Example	`notreply@example.com`

Field Title	From Address
Field Description	From address in e-mails generated by Back Office.
Example	`admin@example.com`

Figure A–19 Domain Details

The fields on this screen are described in the following tables.

Field Title	Weblogic Admin Server
Field Description	Name of the admin server to which the Back Office application is being deployed.
Example	AdminServer

Field Title	Admin Server port
Field Description	Port used by the administration server. This port was selected when the administration domain was created.
Example	7001

Field Title	Weblogic Domain Path
Field Description	Path to the domain to which the Back Office application is being deployed.
Example	D:\Oracle\Middleware|user_projects\domains\base_domain

Field Title	Weblogic Domain Credential
Field Description	Password shared between domains in order to establish a trust relationship. **Note:** Use the same password for all Oracle Retail applications in the trust relationship in your configuration.

Figure A–20 Weblogic Administrative User
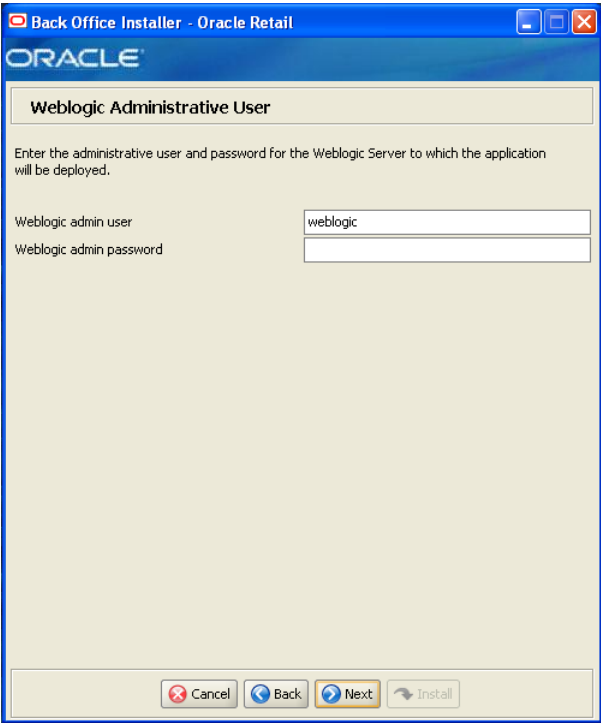
The fields on this screen are described in the following tables.

Field Title	Weblogic admin user
Field Description	User name of the administrative user for the WebLogic server to which the Back Office application is being deployed.
Example	weblogic

Field Title	Weblogic admin password
Field Description	Password for the WebLogic administrative user. You chose this password when you created the WebLogic server.

Figure A–21   Weblogic Deploy Server Type
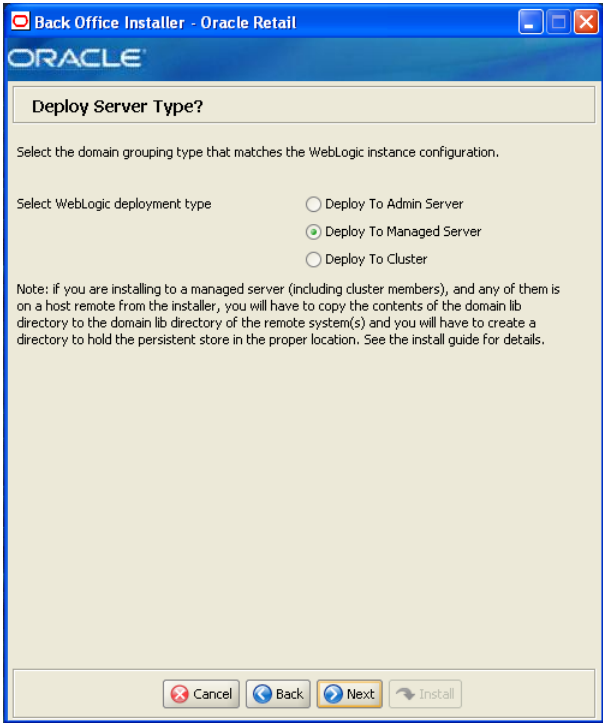
The field on this screen is described in the following table.

Field Title	Select WebLogic deployment type
Field Description	Select how the Back Office application is deployed. ■ Deploy to Admin Server ■ Deploy to Managed Server ■ Deploy to Cluster **Note:** Back Office does not support a clustered environment. For more information, see "Deploying to a Managed Server" in Chapter 2.
Example	Deploy to Managed Server

Figure A–22   Managed Server Details
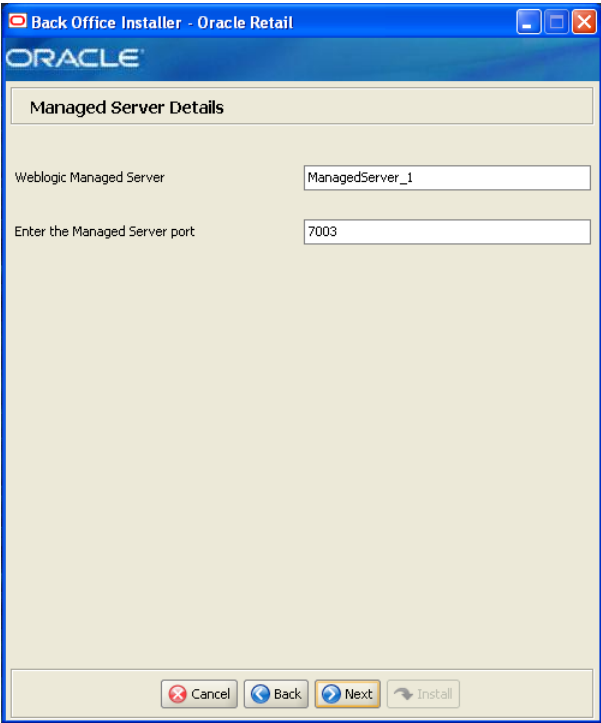
This screen is only displayed if **Deploy to Managed Server** is selected on the Weblogic Deploy Server Type screen.

The fields on this screen are described in the following tables.

Field Title	Weblogic Managed Server
Field Description	Name of the managed server.
Example	ManagedServer_1

Field Title	Enter the Managed Server port
Field Description	Port number used to access the managed server.
Example	7003

Figure A–23   Cluster Details

This screen is only displayed if **Deploy to Cluster** is selected on the Weblogic Deploy Server Type screen.

The fields on this screen are described in the following tables.

Field Title	Weblogic Cluster
Field Description	Name of the cluster.
Example	Cluster_1

Field Title	Enter port of first Managed Server in cluster
Field Description	Port number used to load parameters.
Example	7003

Figure A–24   Central Office JMS Server Integration
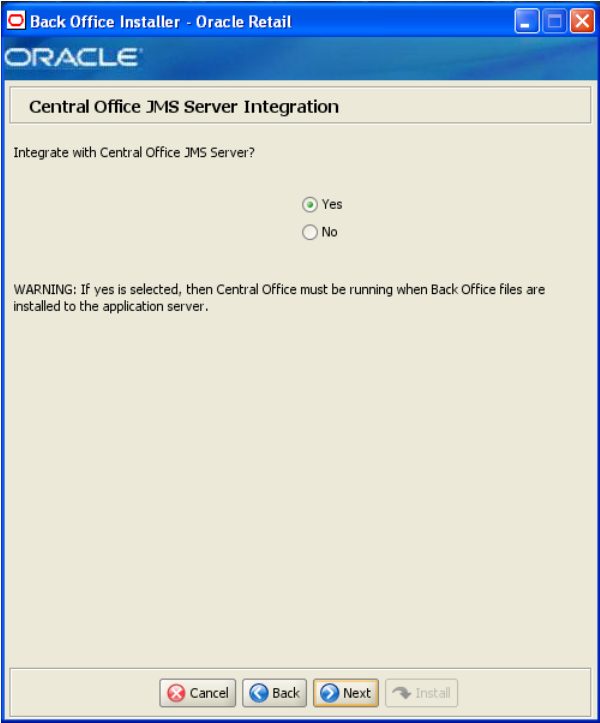
The field on this screen is described in the following table.

Field Title	Integrate with Central Office JMS Server?
Field Description	This screen gives you the option to integrate the Back Office application with a Central Office JMS server.
	Note: If you select **Yes**, the Central Office application must be running in order for the Back Office files to be installed correctly.
Example	Yes

Figure A–25   Central Office JMS Server Secure
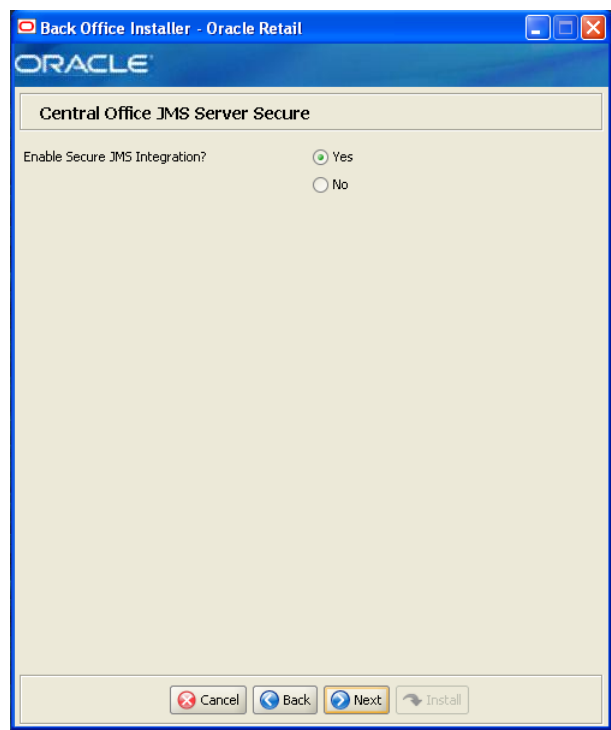
The field on this screen is described in the following table.

Field Title	Enable Secure JMS Integration?
Field Description	This screen gives you the option to use secure integration with the Central Office JMS server.
Example	Yes

Figure A–26   Central Office JMS Server Details

This screen is only displayed if **Yes** is selected on the Central Office JMS Server Secure screen.

The fields on this screen are described in the following tables.

Field Title	CO JMS Host Name
Field Description	Name of the Central Office JMS server.
	Note: Always use the actual host name and not the IP address or "localhost". There may be problems integrating with Point-of-Service if the actual host name is not used.
Example	Server1

Field Title	CO JMS Secure Port
Field Description	Secure port number used by the Central Office JMS server.
Example	7002

Figure A–27   Manual Deployment Option
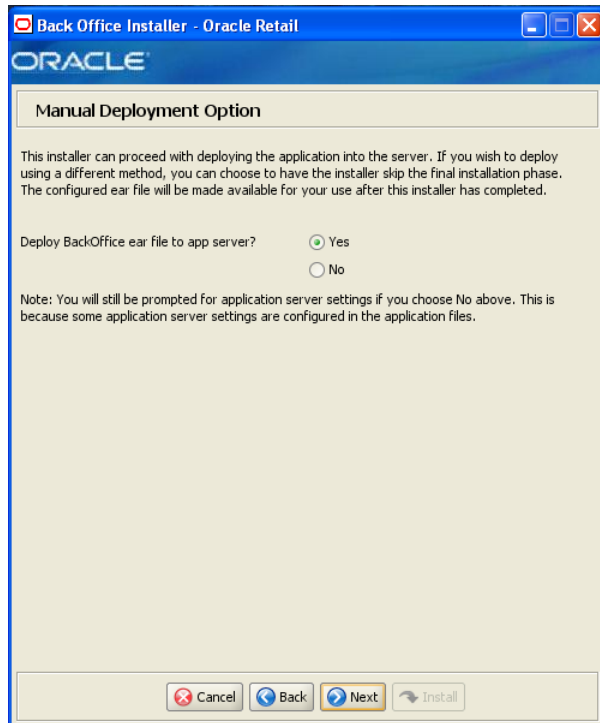
The field on this screen is described in the following table.

Field Title	Install files to app server?
Field Description	By default, the installer will deploy the ear file and copy files under the application server ORACLE_HOME. This screen gives you the option to leave ORACLE_HOME unmodified and configure the application in the staging area for use in a manual installation at a later time. This option can be used in situations where modifications to files under ORACLE_HOME must be reviewed by another party before being applied.
	If you choose No, see "Manual Deployment of the Back Office Application" in Chapter 2 for the manual steps you need to perform after the installer completes.
Example	Yes

Figure A–28   Application Deployment Details

The fields on this screen are described in the following tables.

Field Title	App Deployment Name
Field Description	Name by which the Back Office application will be identified in the application server.
Example	BackOffice

Field Title	Context Root
Field Description	Path under the HTTPS URL that will be used to access the Back Office application. For example, a context root of backoffice will result in the application being accessed at `https://host:port/backoffice/index.jsp`.
Example	backoffice

Figure A–29   Install Parameters Options
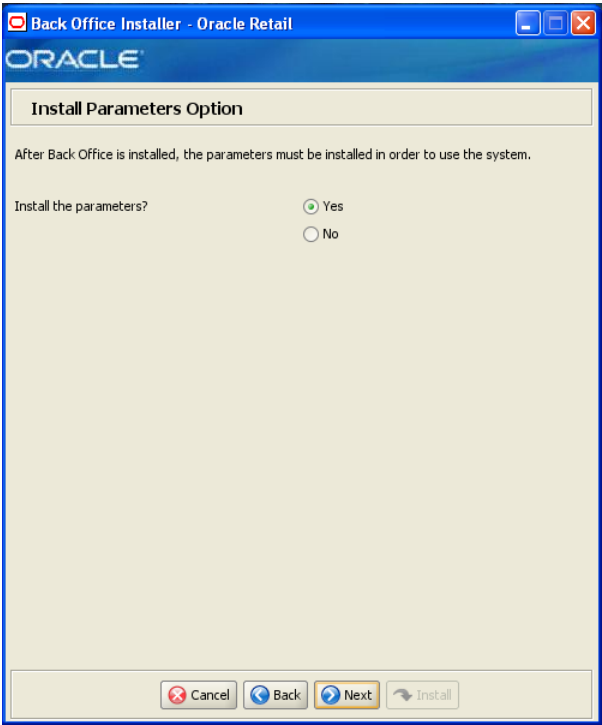
The field on this screen is described in the following table.

Field Title	Install the parameters?
Field Description	The application parameters must be set up before Back Office can be used. This screen gives you the option to set up the parameters manually. If you choose No, see "Install Parameters" in Chapter 2 for the manual steps you need to perform after the installer completes.
Example	Yes

Figure A–30   Value-Added Tax (VAT)
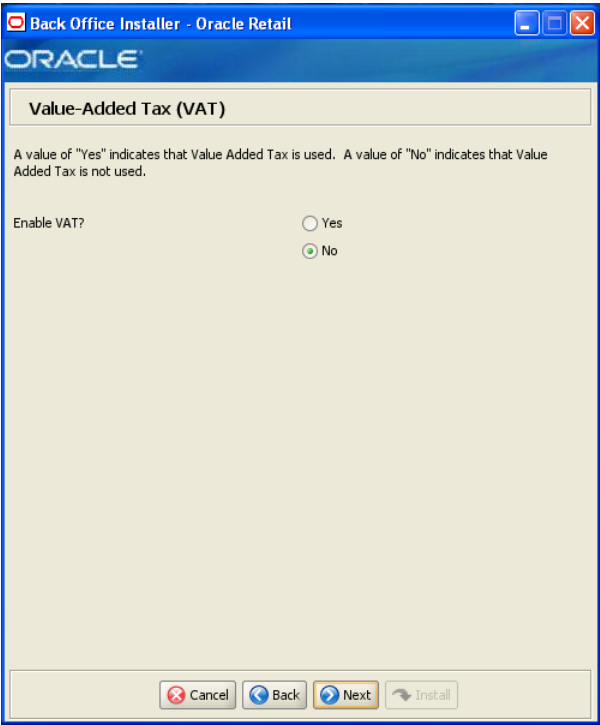
The field on this screen is described in the following table.

Field Title	Enable VAT?
Field Description	Sets whether Value-Added Tax is used in Back Office.
	■ To enable Back Office to use VAT, choose Yes.
	■ To not use VAT, choose No.
Example	No

Figure A–31   Installation Progress
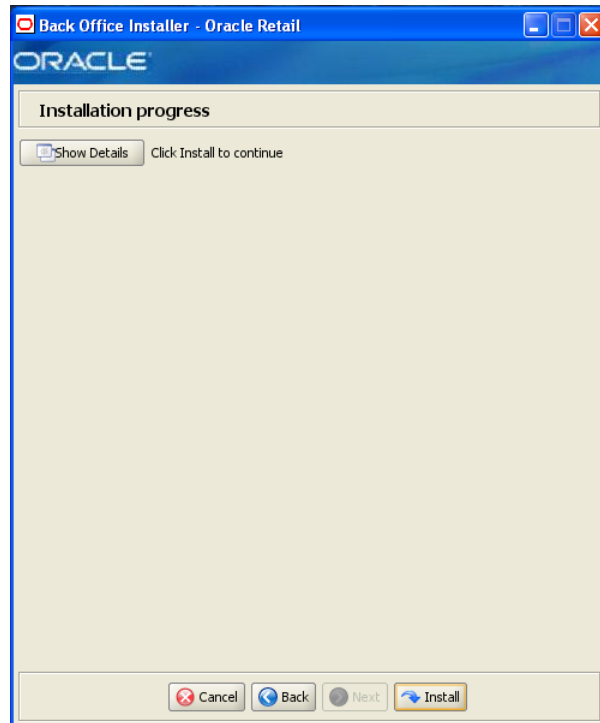
Figure A–32   Installation Complete
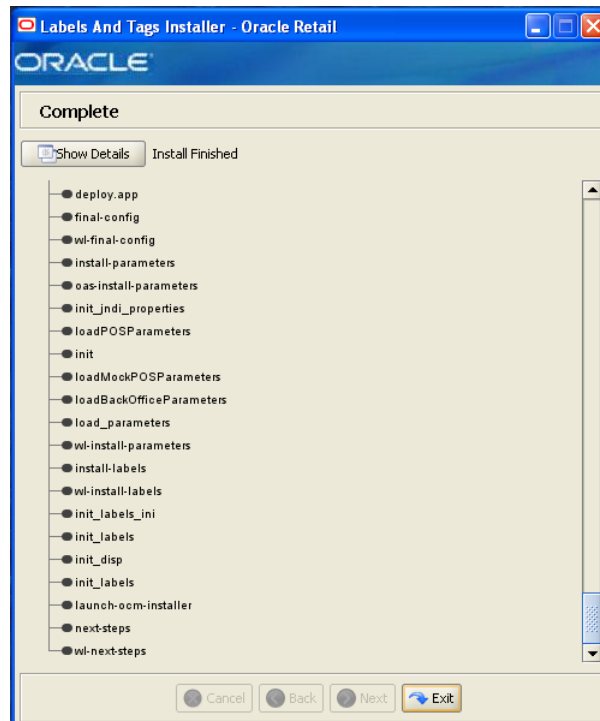
After the installer completes, the Oracle Configuration Manager (OCM) installer runs if OCM is not already installed. For information on OCM, see "Oracle Configuration Manager" in Chapter 2.

B

Appendix: Installer Silent Mode

In addition to the GUI and text interfaces of the Back Office installer, there is a silent mode that can be run. This mode is useful if you wish to run a new installation and use the settings you provided in a previous installation. It is also useful if you encounter errors during an installation and wish to continue after resolving them.

The installer runs in two distinct phases. The first phase involves gathering settings from the user. At the end of the first phase, a properties file named `ant.install.properties` is created with the settings that were provided and the `cwallet.sso` file is created. In the second phase, this properties file is used to provide your settings for the installation.

To skip the first phase and re-use the `ant.install.properties` and `cwallet.sso` files from a previous run, follow these instructions:

1. Edit the `ant.install.properties` file and correct any invalid settings that may have caused the installer to fail in its previous run.

2. If the previous install was successful, the `cwallet.sso` file is found in the installation directory for that install. Copy the `cwallet.sso` file to `<INSTALL_DIR>` for this silent install.

3. Run the installer again with the silent argument.

   ```
   install.cmd silent weblogic
   ```

C

Appendix: Reinstalling Back Office

Back Office does not provide the capability to uninstall and reinstall the application. If you need to run the Back Office installer again, perform the following steps.

Reinstalling Back Office on the Oracle Stack

To reinstall:

1. If you are using a managed server, stop the managed server. Stop the WebLogic server.

2. Delete the domain.

3. Recreate the Back Office domain. If you are using a managed server, add the managed server as part of recreating the domain.

4. If you are using a managed server, start the managed server. Start the administration domain.

5. Run the Back Office installer. For more information, see "Run the Back Office Application Installer" in Chapter 2.

D

Appendix: URL Reference

Both the database schema and application installers for the Back Office product will ask for several different URLs. These include the following.

JDBC URL for a Database

Used by the Java application and by the installer to connect to the database.

Syntax: `jdbc:oracle:thin:@<host>:<port>:<sid>`

- `<host>`: host name of the database server
- `<port>`: database listener port
- `<sid>`: system identifier for the database

For example, `jdbc:oracle:thin:@myhost:1525:mysid`

JNDI Provider URL for an Application

Used for server-to-server calls between applications.

Syntax: `t3://<host>:<port>`

- `<host>`: host name selected when the WebLogic domain was created
- `<port>`: port number selected when the WebLogic domain was created

For example, `t3://adminserver:7001`

Deployer URI

Used by the Oracle Ant tasks to deploy an application to a WebLogic. The application installer does not ask the user for this value. It is constructed based on other inputs and written to the `ant.install.properties` file for input to the installation script. For repeat installations using silent mode, you may need to correct mistakes in the deployer URI.

Syntax: `input.deployer.uri = t3://<host>:<port>`

- `<host>`: host name selected when the WebLogic domain was created
- `<port>`: port number selected when the WebLogic domain was created

For example, `input.deployer.uri = t3://localhost:7003`

E

Appendix: Common Installation Errors

This appendix describes some common errors encountered during installation of Back Office.

Unreadable Buttons in the Installer

If you are unable to read the text within the installer buttons, it probably means that your JAVA_HOME needs to be set to a version 6 JDK. Set JAVA_HOME to a Java development kit of version 6 or later and run the installer again.

WebLogic Domain Does Not Exist

Symptom:

The application installer quits with the following error message:

```
BUILD FAILED
C:\tmp\j2ee\orbo\staging\ORBO-trunk\build.xml:941: The following error occurred
 while executing this line:
C:\tmp\j2ee\orbo\staging\ORBO-trunk\build-common-wl.xml:83: startWebLogic.sh
 under C:/Oracle/Middleware/user_projects/domains/base_domain is missing.
 Installation cannot continue.
```

Solution:

This error occurs because the WebLogic domain provided does not exist.

Make sure that the domain exists, and then check the ant.install.properties file for entry mistakes. Pay close attention to the input.deployer.uri (see Appendix D), input.admin.user, and input.admin.password properties. If you need to make a correction, you can run the installer again with this file as input by running silent mode (see Appendix B).

WebLogic Domain Server is Not Started

Symptom:

The application installer quits with the following error message:

```
BUILD FAILED
C:\tmp\j2ee\orbo\staging\ORBO-trunk\build.xml:1022: The following error occurred w
hile executing this line:
C:\tmp\j2ee\orbo\staging\ORBO-trunk\build-common-wl.xml:152: url http://localhost:
7001/console is not available. Installation cannot continue.
```

Solution:

This error occurs because the WebLogic domain server provided is not running.

Make sure that the WebLogic domain server is running, and then check the `ant.install.properties` file for entry mistakes. Pay close attention to the input.deployer.uri (see Appendix D), input.oc4j.instance, input.admin.user, and input.admin.password properties. If you need to make a correction, you can run the installer again with this file as input by running silent mode (see Appendix B).

"Could not create system preferences directory" Warning

Symptom:

The following text appears in the installer Errors tab:

```
[May 22, 2006 11:16:39 AM java.util.prefs.FileSystemPreferences$3 run
WARNING: Could not create system preferences directory. System preferences are
 unusable.
May 22, 2006 11:17:09 AM java.util.prefs.FileSystemPreferences
 checkLockFile0ErrorCode
WARNING: Could not lock System prefs. Unix error code -264946424
```

Solution:

This is related to Java bug 4838770. The `/etc/.java/.systemPrefs` directory may not have been created on your system. See `http://bugs.sun.com` for details.

This is an issue with your installation of Java and does not affect the Oracle Retail product installation.

F

Appendix: Best Practices for Passwords

This appendix has information on the practices that should be followed for passwords. The following topics are covered:

- "Password Guidelines"
- "Special Security Options for Oracle Databases"

Password Guidelines

To make sure users and their passwords are properly protected, follow these guidelines. The guidelines are based on the Payment Card Industry Data Security Standard (PCI-DSS):

- Verify the identity of the user before resetting any passwords.
- Set first-time passwords to a unique value for each user and require the password to be changed immediately after the first use.
- Immediately revoke access for any terminated users.
- Remove inactive user accounts at least every 90 days.
- Enable accounts used by vendors for remote maintenance only during the time period when access is needed.
- Communicate password procedures and policies to all users who have access to cardholder data.
- Do not use group, shared, or generic accounts and passwords.
- Require user passwords to be changed at least every 90 days.
- Require a minimum password length of at least seven characters.
- Require that passwords contain both numeric and alphabetic characters.
- Do not accept a new password that is the same as any of the last four passwords used by a user.
- Limit the number of repeated access attempts by locking out the user ID after not more than six attempts.
- Set the lockout duration to thirty minutes or until an administrator enables the user ID.

Special Security Options for Oracle Databases

The following information is based on Oracle Database version 11.2.0.1 and is found in the *Oracle Database Security Guide*.

Enforcing Password Policies Using Database Profiles

Password policies can be enforced using database profiles. The options can be changed using a SQL statement, for example:

```
alter profile appsample limit
```

Option	Setting	Description
FAILED_LOGIN_ATTEMPTS	4	Maximum number of login attempts before the account is locked.
PASSWORD_GRACE_TIME	3	Number of days a user has to change an expired password before the account is locked.
PASSWORD_LIFE_TIME	90	Number of days that the current password can be used.
PASSWORD_LOCK_TIME	30	Amount of time in minutes that the account is locked.
PASSWORD_REUSE_MAX	10	Number of unique passwords the user must supply before the first password can be reused.
PASSWORD_VERIFY_FUNCTION	*<routine_name>*	Name of the verification script that is used to ensure that the password meets the requirements of the password policy. See "Enforcing Password Policies Using a Verification Script".

Enforcing Password Policies Using a Verification Script

Password policies can be enforced via a password complexity verification script, for example:

```
UTLPWDMG.SQL
```

The password complexity verification routine ensures that the password meets the following requirements:

- Is at least four characters long
- Differs from the user name
- Has at least one alpha, one numeric, and one punctuation mark character
- Is not simple or obvious, such as welcome, account, database, or user
- Differs from the previous password by at least three characters

For example, to set the password to expire as soon as the user logs in for the first time:

```
CREATE USER jbrown
IDENTIFIED BY zX83yT
...
PASSWORD EXPIRE;
```

G

Appendix: Secure JDBC with Oracle 11g Database

This appendix has information on setting up and communicating with a secured Oracle 11g database server based on the following assumptions:

- Client authentication is not needed.

- The Oracle wallet is used as a trust store on the database server.

SSL encryption for Oracle JDBC has been supported in the JDBC-OCI driver since Oracle JDBC 9.2.x, and is supported in the THIN driver starting in 10.2. SSL authentication has been supported in the JDBC-OCI driver since Oracle JDBC 9.2.x. The THIN driver supports Oracle Advanced Security SSL implementation in Oracle Database 11g Release 1 (11.2).

For more information, see the following Web sites:

- http://www.oracle.com/technetwork/database/enterprise-edition/wp-oracle-jdbc-thin-ssl-130128.pdf

- http://docs.oracle.com/cd/E11882_01/index.htm

- http://download.oracle.com/docs/cd/B28359_01/java.111/b31224/toc.htm

Creating the Oracle Wallet and Certificate for the Database Server

Note the following information:

- If you want have a user interface, run the server administration console.

- The wallet you create must support Auto Login. It must be enabled on the new wallet.

- The following is the wallet directory default:

    - For UNIX–ORACLE_HOME/admin/ORACLE_SID

    - For Microsoft Windows–%USERPROFILE%\ORACLE\WALLETS

    - Test server wallet information:

        * Wallet password: securedb11g

        * Wallet directory: /u01/oracle/admin/SECURDB11G

- When generating a self-signed certificate, note the following:

    - Do not use keytool to create a certificate for using Oracle wallets. They are incompatible.

- – Two wallets are needed to generate a self-signed certificate. One wallet is needed to sign the certificate and another wallet is needed to use the certificate.

- – For command line wallet access, use `orapki`.

- – For instructions on generating a self-signed certificate, see *APPENDIX B CREATING TRUSTSTORES AND KEYSTORES* in the following document:

  http://www.oracle.com/technetwork/database/enterprise-edit
  ion/wp-oracle-jdbc-thin-ssl-130128.pdf

- – The following are examples of `orapki` commands:

  - * To create the wallet:

    ```
    orapki wallet create -wallet <wallet directory>
    ```

  - * To add the self-signed certificate:

    ```
    orapki wallet add -wallet <wallet directory> -dn CN=<certificate
    name>,C-US -keysize 2048 -self_signed -validity 3650
    ```

  - * To view the wallet:

    ```
    orapki wallet display -wallet <wallet directory>
    ```

- The Wallet Manager UI can also be used to import certificates.

Securing the Listener on the Server

The `listener.ora`, `tnsnames.ora`, and `sqlnet.ora` files are found in the `ORACLE_HOME/network/admin` directory. If the `sqlnet.ora` file does not exist, you need to create it.

To secure the listener on the server:

1. Add TCPS protocol to the `listener.ora` file.

2. Add TCPS protocol to the `tnsnames.ora` file.

3. Add the Oracle Wallet location to the `sqlnet.ora` and `listener.ora` files.

4. Add disabling of client authentication to the `sqlnet.ora` and `listener.ora` files.

5. Add encryption-only cipher suites to the `sqlnet.ora` file.

6. Bounce the listener once the file is updated.

Examples of Network Configuration Files

Examples of the following network configuration files are shown in this section:

- "listener.ora"

- "sqlnet.ora"

- "tnsnames.ora"

listener.ora

```
SID_LIST_LISTENER =
  (SID_LIST =
    (SID_DESC =
```

```
        (SID_NAME = PLSExtProc)
        (ORACLE_HOME = /u01/oracle/11g)
        (PROGRAM = extproc)
    )
  )

LISTENER =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS = (PROTOCOL = TCP)(HOST = 10.143.44.108)(PORT = 1521))
      (ADDRESS = (PROTOCOL = TCPS)(HOST = 10.143.44.108)(PORT = 2484))
      (ADDRESS = (PROTOCOL = IPC)(KEY = EXTPROCO))
    )
  )

WALLET_LOCATION=(SOURCE=(METHOD=FILE)
  (METHOD_DATA=(DIRECTORY=/u01/oracle/admin/SECURDB11G)))

SSL_CLIENT_AUTHENTICATION=FALSE
```

> **Caution:** To generate a trace log, add the following entries to the `listener.ora` file:
>
> ```
> TRACE_LEVEL_LISTENER = ADMIN
> TRACE_DIRECTORY_LISTENER = /u01/oracle/11g/network/trace
> TRACE_FILE_LISTENER = listener.trc
> ```

sqlnet.ora

```
SSL_CLIENT_AUTHENTICATION=FALSE

SSL_CIPHER_SUITES=(SSL_DH_anon_WITH_3DES_EDE_CBC_SHA, SSL_DH_anon_WITH_RC4_128_
MD5, SSL_DH_anon_WITH_DES_CBC_SHA)

WALLET_LOCATION=(SOURCE=(METHOD=FILE)
  (METHOD_DATA=(DIRECTORY=/u01/oracle/admin/SECURDB11G)))
```

tnsnames.ora

```
SECURDB11G =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = 10.143.44.108)(PORT = 1521))
      (ADDRESS = (PROTOCOL = TCPS)(HOST = 10.143.44.108)(PORT = 2484))
    )
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = SECURDB11G)
    )
  )
```

Securing Client Access

> **Caution:** Ensure you are using `ojdbc.jar` version 10.2.x or later. Version 10.1.x or earlier will not connect over TCPS.

To secure client access:

1. Export the self-signed certificate from the server Oracle Wallet and import it into a local trust store.

2. Use the following URL format for the JDBC connection:

   ```
   jdbc:oracle:thin:@(DESCRIPTION= (ADDRESS= (PROTOCOL=tcps) (HOST=10.143.44.108)
   (PORT=2484) ) (CONNECT_DATA= (SERVICE_NAME=SECURDB11G)))
   ```

3. The database connection call requires the following properties to be set, either as system properties or JDBC connection properties:

Property	Value
oracle.net.ssl_cipher_suites	(SSL_DH_anon_WITH_3DES_EDE_CBC_SHA, SSL_DH_anon_WITH_RC4_128_MD5, SSL_DH_anon_WITH_DES_CBC_SHA)
javax.net.ssl.trustStore	Path and file name of trust store
	For example:
	/DevTools/Testing/Secure11g/truststore/truststore
javax.net.ssl.trustStoreType	JKS
javax.net.ssl.trustStorePassword	Password for trust store

Specific Instructions for Back Office

Complete the following steps.

Configure the Application Server Machine

As a client, the application server machine needs to have the trusted certificate added to a local trust store. Follow the previous instructions for exporting the known certificate and importing it to a local trust store.

This is not required as the Release 13.3 Oracle Retail Stores applications use Diffie-Hellman anonymous authentication. With Diffie-Hellman anonymous authentication, neither the server nor the client will be authenticated.

Secure the Data Source

To edit the data source definition in `data-sources.xml`:

1. Navigate to domain->services->jdbc->datasources->configuration->connection pool.

2. Update the URL to use the expanded Oracle format:

   ```
   ***(ex. jdbc:oracle:thin:@(DESCRIPTION= (ADDRESS= (PROTOCOL=tcps)
   (HOST=10.143.44.108) (PORT=2484) ) (CONNECT_DATA= (SERVICE_NAME=SECURDB11G)))
   ```

3. Add the SSL JDBC properties. The following example shows part of the `data-sources.xml` file.

   ```
   Update the properties :
   User=MyUserName
   DatabaseName=jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS=(PROTOCOL=tcps)(HOST=10.14
   3.44.108)(PORT=2484))(CONNECT_DATA=(SERVICE_NAME=SECURDB11G)))
   oracle.net.ssl_cipher_suites=(SSL_DH_anon_WITH_3DES_EDE_CBC_SHA, SSL_DH_anon_
   WITH_RC4_128_MD5, SSL_DH_anon_WITH_DES_CBC_SHA)
   ```

H

Appendix: Installation Order

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

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

Enterprise Installation Order

1. Oracle Retail Merchandising System (RMS), Oracle Retail Trade Management (RTM), Oracle Retail Sales Audit (ReSA), Optional: Oracle Retail Fiscal Management (ORFM)

   > **Note:** ORFM is an optional application for RMS if you are implementing Brazil localization.

2. Oracle Retail Service Layer (RSL)

3. Oracle Retail Extract, Transform, Load (RETL)

4. Oracle Retail Active Retail Intelligence (ARI)

5. Oracle Retail Warehouse Management System (RWMS)

6. Oracle Retail Allocation

7. Oracle Retail Invoice Matching (ReIM)

8. Oracle Retail Price Management (RPM)

   > **Note:** During installation of RPM, you are asked for the RIBforRPM provider URL. Since RIB is installed after RPM, make a note of the URL you enter. If you need to change the RIBforRPM provider URL after you install RIB, you can do so by editing the remote_service_locator_info_ribserver.xml file.

9. Oracle Retail Central Office (ORCO)

10. Oracle Retail Returns Management (ORRM)

11. Oracle Retail Back Office (ORBO)

12. Oracle Retail Store Inventory Management (SIM)

> **Note:** During installation of SIM, you are asked for the RIB provider URL. Since RIB is installed after SIM, make a note of the URL you enter. If you need to change the RIB provider URL after you install RIB, you can do so by editing the remote_service_locator_info_ ribserver.xml file.

13. Oracle Retail Predictive Application Server (RPAS)

14. Oracle Retail Demand Forecasting (RDF)

15. Oracle Retail Category Management (CM)

16. Oracle Retail Replenishment Optimization (RO)

17. Oracle Retail Analytic Parameter Calculator Replenishment Optimization (APC RO)

18. Oracle Retail Regular Price Optimzation (RPO)

19. Oracle Retail Merchandise Financial Planning (MFP)

20. Oracle Retail Size Profile Optimization (SPO)

21. Oracle Retail Assortment Planning (AP)

22. Oracle Retail Item Planning (IP)

23. Oracle Retail Item Planning Configured for COE (IP COE)

24. Oracle Retail Advanced Inventory Planning (AIP)

25. Oracle Retail Integration Bus (RIB)

26. Oracle Retail Point-of-Service (ORPOS)

27. Oracle Retail Markdown Optimization (MDO)

28. Oracle Retail Clearance Optimization Engine (COE)

29. Oracle Retail Analytic Parameter Calculator for Markdown Optimization (APC-MDO)

30. Oracle Retail Analytic Parameter Calculator for Regular Price Optimization (APC-RPO)

31. Oracle Retail Promotion Intelligence and Promotion Planning and Optimization (PI-PPO)

32. Oracle Retail Workspace (ORW)