Oracle® Retail Back Office

Installation Guide, Volume 2 - IBM Stack

Release 13.3.6

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Oracle® Retail Back Office Installation Guide, Volume 2 - IBM Stack, Release 13.3.6

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Contents

List of Figures

List of Tables

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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 13.3.6 documentation set:

- *Oracle Retail Back Office Installation Guide, Volume 1 - Oracle Stack*
- *Oracle Retail Back Office Release Notes*

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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, 13.3.6). 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.

Oracle Retail Documentation on the Oracle Technology Network

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

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

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

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

Conventions

The following text conventions are used in this document:

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

1

Preinstallation Tasks

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

> **Note:** This is the IBM 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 for the Current Version of the Installation Guide

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

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

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

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

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

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	IBM SLEPOS 11 SP1
Database	IBM DB2 9.7 (64-bit)

Required Setting for Database Installation

During database creation, the database must be set to UTF8.

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	Version Supported
Operating System	IBM SLEPOS 11 SP1
J2EE Application Server	IBM WebSphere ND 7.0.0.15 from WRD 7.1 Standard Edition
J2EE Application Server JVM	IBM JRE 1.6.0 or later within the Java 1.6 code line
Messaging Provider	IBM WebSphere MQ 7.0.1.4 from WRD 7.1 Standard Edition
System Management Agent	IBM WebSphere Admin Console 7.0.0.15

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:

   ```
   <IBM WebSphere installation directory>/jdk/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	13.3.6
Oracle Retail Merchandising System	13.2.6
Oracle Retail Point-of-Service	13.3.6
Oracle Retail Price Management	13.2.6

Check Third-Party Software Dependencies

The following third-party software must be obtained:

- The Pager Tag library must be downloaded.
- The `db2jcc.jar` and `db2jcc_license_cu.jar` files must be obtained from your IBM DB2 database server.

For more information, see "Obtain Third-Party Library Files 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 7
- Microsoft Internet Explorer 9
- Mozilla Firefox ESR 17.0.3+

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: It is 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 IBM Stack on SLEPOS

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. The Java JDK that is included with the IBM WebSphere Application Server will be used to run the application.

> **Note:** The Authentication Cache Timeout setting for the IBM WebSphere application server must be set correctly for Back Office password processing. For information on how to determine the value you should use for this setting and how to set it for the application server, refer to your IBM WebSphere documentation.

Check the WebSphere Application Server Settings

Some application server settings affect Back Office processing and deployment. Verify that the following setting is set correctly for your installation.

Secure Configuration

For a secure configuration, SSL is required for login. The **Requires SSL** flag must be set in the IBM WebSphere master configuration. To set the flag:

1. From the WebSphere Administration Console, under **Security,** select **Global Security**.
2. Select Web and SIP security.
3. Select **Single Sign-on (SSO)**.
4. Select the **Requires SSL** check box.
5. To save the change to the master configuration, select **Save**.

Create the Database Schema Owner and Data Source 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 database source users:

1. Log in using the database administrator user ID.
2. Create the schema owner user.

   ```
   CREATE SCHEMA <schema_name> AUTHORIZATION <schema_username>
   ```

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

   ```
   GRANT CREATETAB, BINDADD, CONNECT, IMPLICIT_SCHEMA ON DATABASE TO USER
   <schema_username>
   ```

4. Grant the following object level privileges to the schema owner user.

   ```
   GRANT CREATEIN, DROPIN, ALTERIN ON SCHEMA <schema_name> TO USER
   <schema_username> WITH GRANT OPTION
   ```

5. Create the data source user.

   ```
   CREATE SCHEMA <data_source_schema_name> AUTHORIZATION <data_source_username>
   ```

6. Grant the privileges, shown in the following example, to the data source user.

   ```
   GRANT CONNECT, IMPLICIT_SCHEMA ON DATABASE TO USER <data_source_username>
   ```

7. Grant the following object level privileges to the data source user.

   ```
   GRANT CREATEIN ON SCHEMA <data_source_schema_name> TO USER <data_source_
   username> WITH GRANT OPTION
   ```

The installer grants the data source 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 13.3.6 distribution zip file.
2. Log in to the UNIX server as the user who owns the IBM WebSphere installation. Create a new staging directory for the Back Office application distribution (`ORBO-13.3.6.zip`), for example, `/tmp/orbo-staging`.

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

3. Copy or upload `ORBO-13.3.6.zip` to *<staging_directory>* and extract its contents. The following files and directories should be created under *<staging_directory>*`/ORBO-13.3.6`:

```
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.cmd
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-13.3.6 is referred to as <*INSTALL_DIR*>.

Obtain Third-Party Library Files Required by Back Office

The Back Office application uses the Pager Tag Library and DB2 drivers. Before running the Back Office application installer, you must download the necessary Pager Tag Library files and obtain the DB2 files from your database server.

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/.

To get the DB2 files:

1. Obtain the db2jcc.jar and db2jcc_license_cu.jar files from your database server at <*IBM_DB2_INSTALL_DIR*>.

Note: The `db2jcc_license_cu.jar` file is needed to permit JDBC/SQLJ connectivity to the IBM DB2 database. The file is the standard license included with all editions of the IBM DB2 database.

2. Copy the jar files 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. To integrate with Central Office, select **Yes** on the screen.

Before running the Back Office installer, verify that the Central Office application is running. 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/technology/documentation/oracle_retail.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:

Database Install 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. You can use the JDK and Ant that are installed with the IBM WebSphere Application Server.

   ```
   JAVA_HOME=<WAS_INSTALL_DIR>/Java; 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 DB2 properties and comment out the properties for the other vendors such as Oracle 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 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:db2://DB_HOST_NAME:DB_PORT_NUMBER/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 port number for the `parameters.apphost` property to point to your Back Office installation.

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

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

6. Uncomment the following properties in `jndi.properties`. This file is in the `jndi` directory.

```
java.naming.factory.initial=com.evermind.server.rmi.RMIInitialContextFactory
java.naming.security.principal=<user>
java.naming.security.credentials=<user>
```

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 IBM DB2 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, you must install the database digital certificate into the application server truststore.
  1. Log in to the WebSphere Integrated Solutions Console (Admin Console).
  2. Expand the Security menu.
  3. Click the **SSL certificate and key management** option.
  4. In the Related Items list, click **Key stores and certificates**.
  5. Click the **NodeDefaultTrustStore** link in the list.
  6. In the Additional Properties list, click the **Signer certificates** link.
  7. Click the **Add** button.
  8. Enter a distinct alias and the full path to the certificate file on the server in the File name field. Make sure the Data type corresponds to the type in the file. The certificate should appear in the list of Signer certificates.
- If **No** is selected and you want to manually set up the secure JDBC after the installer completes, see Appendix G.

Set up the JMS SSL Key Store

Selecting US Strength or Export Strength on the Select JMS SSL Level screen requires that a CA certificate and Key Store are used for IBM WebSphere Application Server and WebSphere MQ. You can manually deploy the CA certificate and Key Store for IBM WebSphere Application Server and WebSphere MQ or you can have the installer perform the deployment.

The Key Store entry alias and the Key Store type that the installer uses are contained in the following script:

`<INSTALL_DIR>/backoffice/appservers/was/cert-env.sh`

The default alias is `myalias`. The default type of the source Key Store is `jks`. These values can be changed in the script. The type has to be a type supported by the IBM `ikeycmd` utility.

To have the installer do the deployment, enter the details on the JMS SSL Keystore Details screen. See Figure A–28.

> **Note:** The JMS SSL level must be the same for Back Office and Central Office.

If **Yes** is selected on the Filter Based on Distinguished Name screen, you enter the filter name on the Distinguished Name Filter screen. See Figure A–22 and Figure A–23. It is recommended that SSL certificates contain a distinguished name which follows the retailer's naming convention.

Run the Back Office Application Installer

The 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 to point to the Java in the IBM WebSphere application server, that is, *<WAS_INSTALL_DIR>*/Java.

   Note: The installer is not compatible with versions of Java earlier than 1.6.

3. If you are using an X server such as Exceed, set the DISPLAY environment variable so that you can run the installer in GUI mode (recommended). If you are not using an X server, or the GUI is too slow over your network, unset DISPLAY for text mode.

   Caution: Password fields are masked in GUI mode, but in text mode your input is shown in plain text in the console window.

4. Run the installer.
   a. Log into the Linux server as a user who is authorized to install software.
   b. Change the mode of `install.sh` to executable.
   c. Run the `install.sh` script. This will launch the installer.

      Note: The usage details for install.sh are shown below. The typical usage for GUI mode does not use arguments.

      ```
      install.sh [text | silent websphere]
      ```

      After installation is complete, a detailed installation log file is created: `orbo-install-app.<timestamp>.log`

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

Resolve 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.

Configure IBM WebSphere MQ

IBM WebSphere MQ must be configured with a queue manager and the JMS queues and topics required by Back Office, before Back Office can be deployed. On the

Configure MQ Series Option screen, you select whether the installer configures IBM WebSphere MQ or if you manually configure it.

> **Note:** If IBM WebSphere MQ is installed on a different machine than IBM WebSphere Application Server, you must manually configure it.

Typically, when IBM WebSphere MQ is installed, a special user ID (usually `mqm`), and a user group (also `mqm`) are created in the operating system. The MQ installation files and directories have their owner and group set to the IBM WebSphere MQ user ID and group ID.

The user ID used for the Back Office installation, must be made a member of IBM WebSphere MQ's user group, before attempting to create the Back Office queue manager, queues, and topics. For example, if Back Office is installed as user `root`, then `root` must be made a member of the `mqm` group.

Use the following commands to configure IBM WebSphere MQ. `MQ_Install_Dir` is the directory where IBM WebSphere MQ was installed. The values for `<input.jms.server.queue>` and `<input.jms.server.port>` come from the `ant.install.properties` file.

```
<MQ_Install_Dir>/bin/crtmqm   -q <input.jms.server.queue>
<MQ_Install_Dir>/bin/strmqm      <input.jms.server.queue>
<MQ_Install_Dir>/bin/runmqlsr -m <input.jms.server.queue> -p
    <input.jms.server.port> -t tcp &
<MQ_Install_Dir>/bin/runmqsc     <input.jms.server.queue> <
    <INSTALL_DIR>/backoffice/appserver/was/createq.dat
<MQ_Install_Dir>/bin/runmqsc     <input.jms.server.queue> <
    <MQ_Install_Dir>/java/bin/MQJMS_PSQ.mqsc
<MQ_Install_Dir>/bin/strmqbrk    -m <input.jms.server.queue>
```

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 and Returns Management. For more information, see the following guides:
>
> - *Oracle Retail Point-of-Service Installation Guide, Volume 2 - IBM Stack*
> - *Oracle Retail Returns Management Installation Guide, Volume 2 - IBM Stack*

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

```
DEFINE QLOCAL( 'BO.TO.RM.ERR' ) usage (NORMAL)

DEFINE QLOCAL( 'BO.TO.RM' ) trigger initq('SYSTEM.CHANNEL.INITQ') usage (xmitq)
BOQNAME('BO.TO.RM.ERR') DEFPSIST(YES) TRIGDATA('BO.TO.RM')
```

```
DEFINE QREMOTE('FINALRESULT') xmitq('BO.TO.RM') RNAME( 'FINALRESULT' )
RQMNAME('<QUEUE_MANAGER>')

DEFINE CHANNEL ('BO.TO.RM') chltype(SDR) xmitq('BO.TO.RM') conname('<HOST(1415)>')
trptype(tcp)
```

1. Replace *<QUEUE_MANAGER>* with the queue manager defined for the Returns Management server.
2. Replace *<HOST(1415)>* with the Returns Management host name and Messaging Engine port.

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 can deploy the Back Office ear file 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.sh 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. 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://<your 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/tmp/db` directory.
2. Execute the following command:

   ```
   ant load_parameters
   ```

Load Optional Purge Procedures

For information on how to invoke 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_username*>.
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:9443/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 IBM Stack

You need specific details about your environment for the installer to successfully deploy the Back Office application on the IBM 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

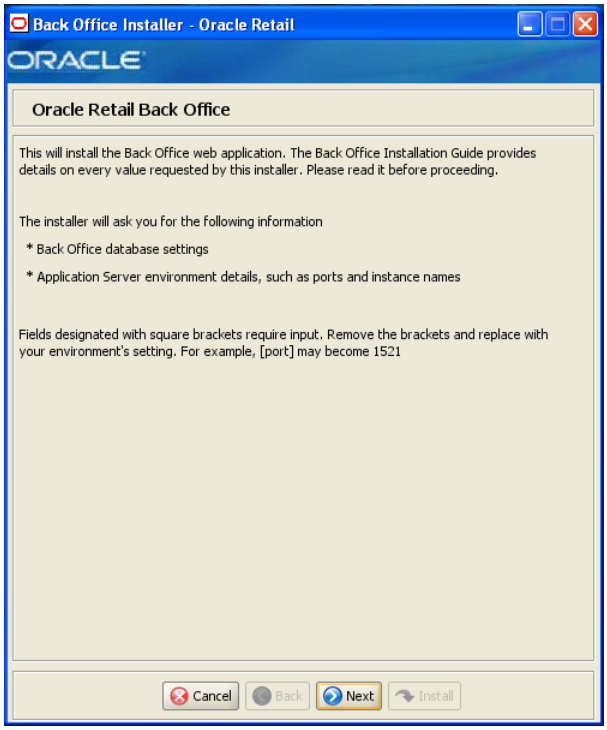
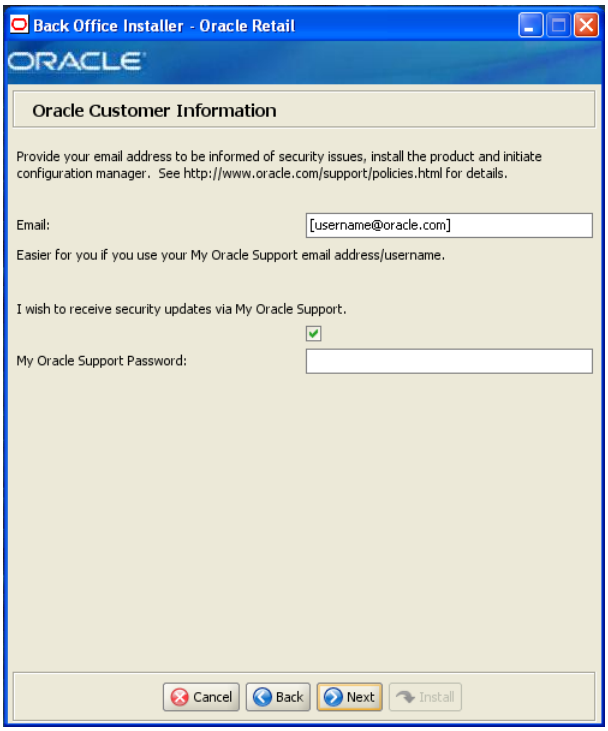


Figure A–2 Oracle Customer Information



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

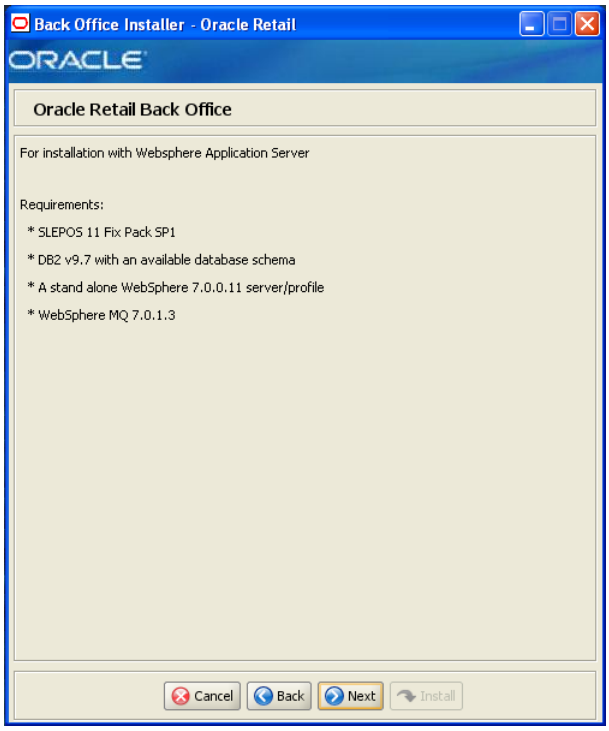
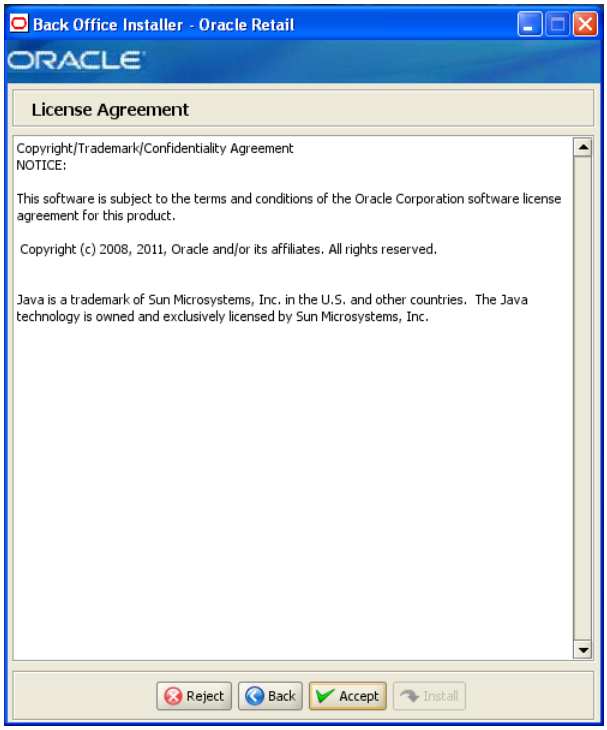
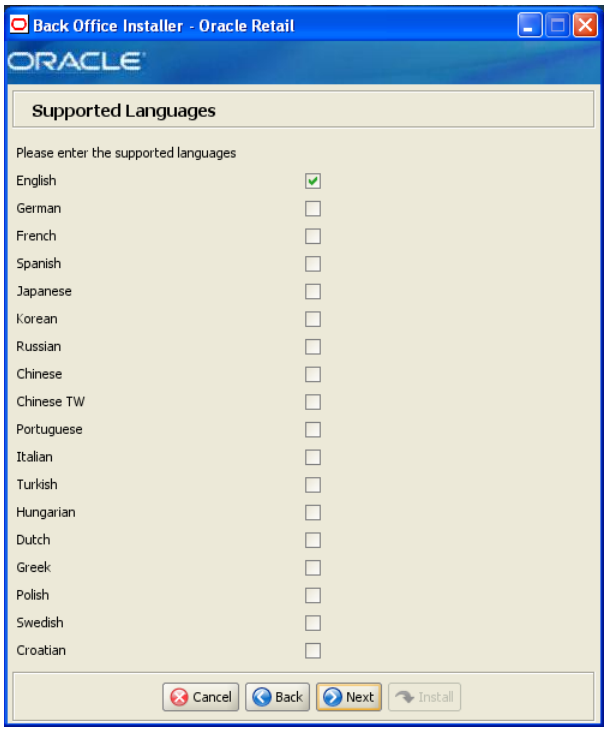


Figure A–4 License Agreement



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

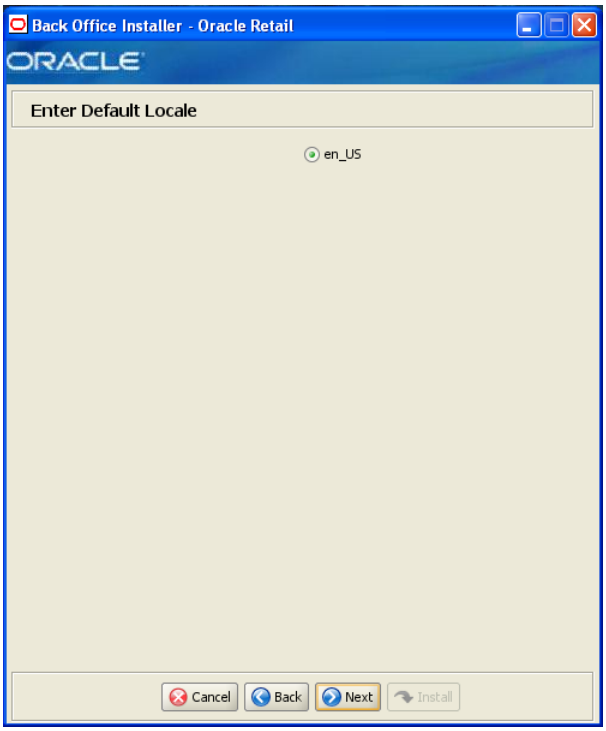
Figure A–5 Supported Languages



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

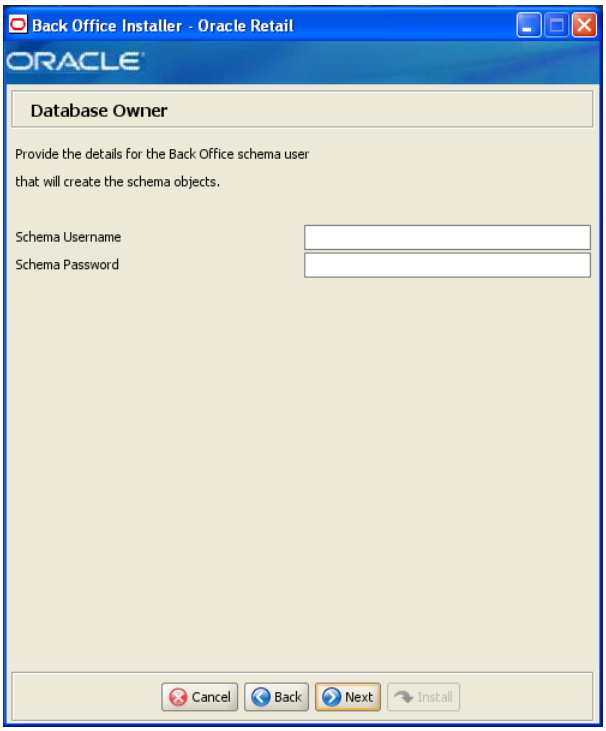
Figure A–6 Enter Default Locale



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

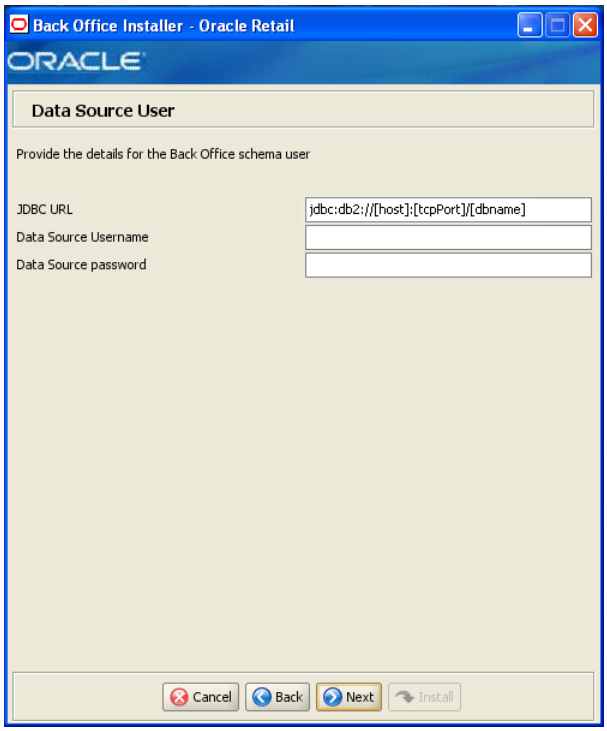


The fields on this screen are described in the following tables.

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 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



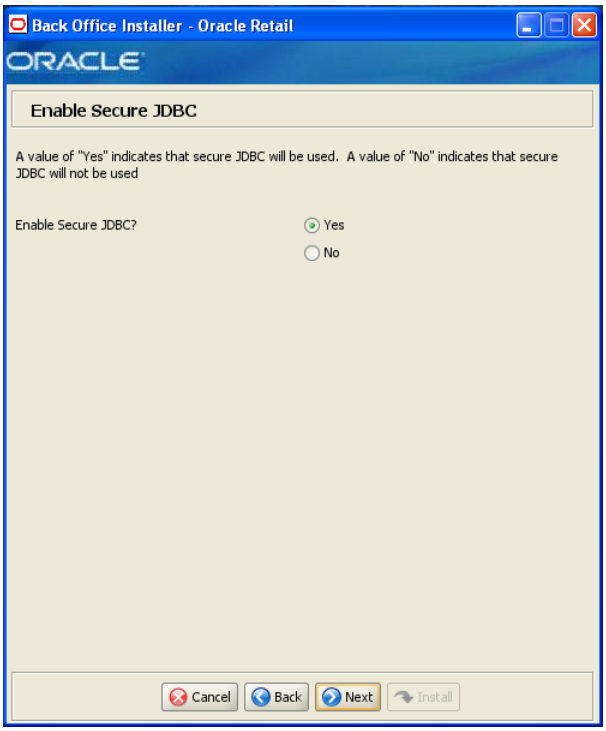
The fields on this screen are described in the following tables.

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:db2://myhost:50001/mydb`

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 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.

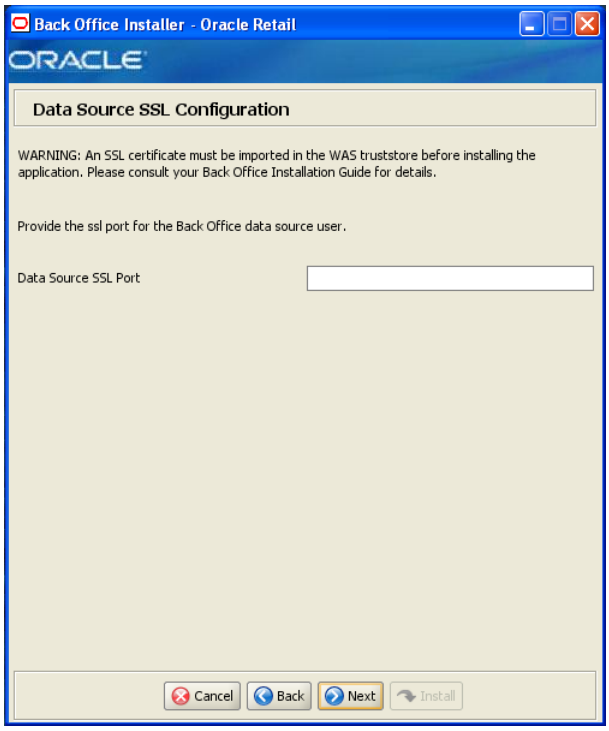
Figure A–9 Enable Secure JDBC



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

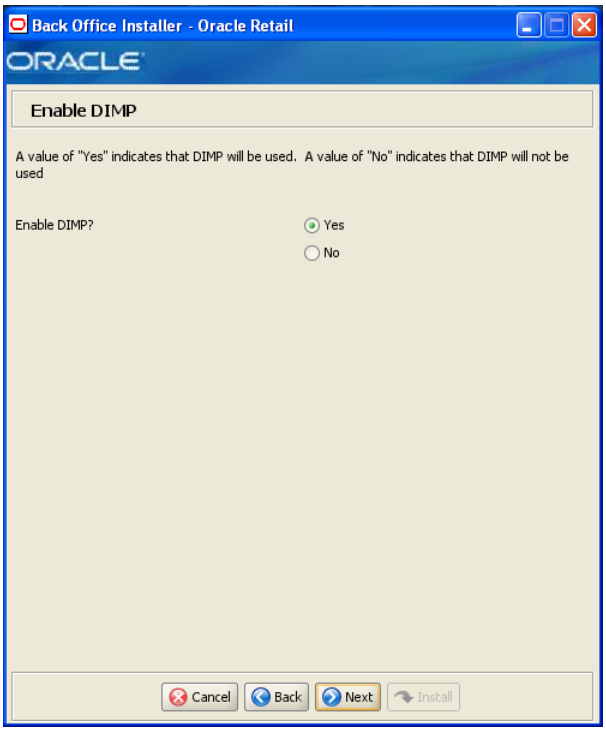
Figure A–10 Data Source SSL Configuration



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	20397

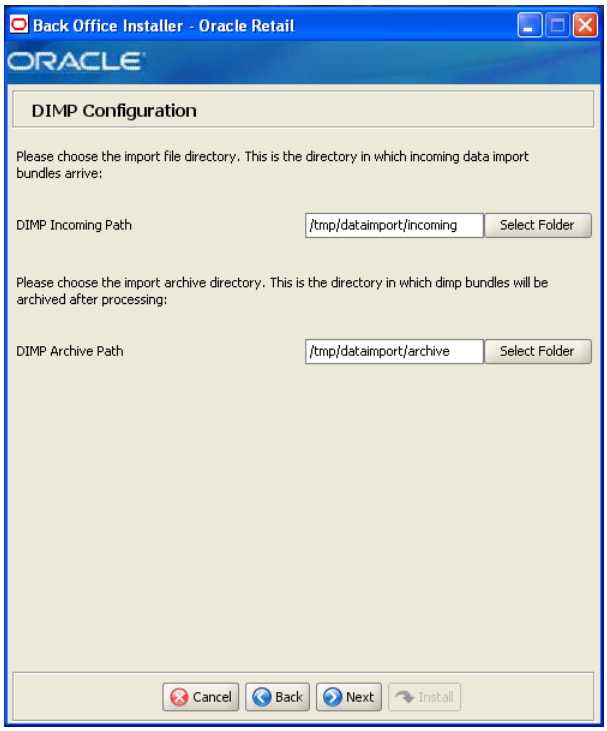
Figure A–11 Enable DIMP



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



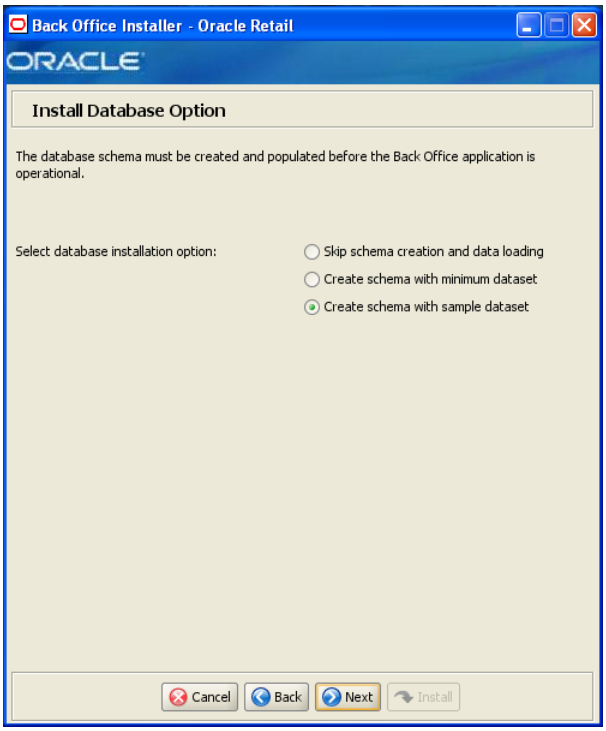
This screen is only displayed if **Yes** is selected on the Enable DIMP screen.

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	`/tmp/dataimport/incoming`

Field Title	DIMP Archive Path
Field Description	Directory where the incoming data import bundles are archived after processing.
Example	`/tmp/dataimport/archive`

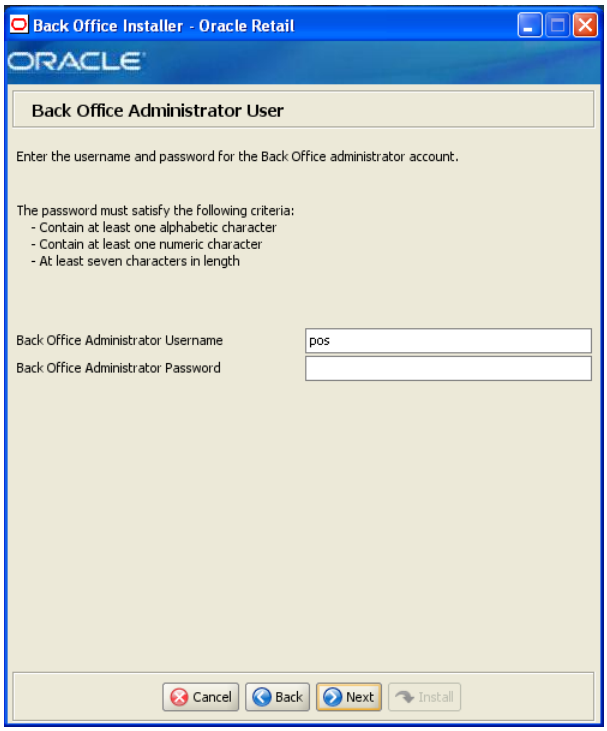
Figure A–13 Database Install Options



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

Field Title	Create the database schema?
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 create and populate the database schema, select **Yes**. ▪ To have the installer leave the database schema unchanged, select **No**. For more information, see "Database Install Options" in Chapter 2.
Example	Yes

Figure A–14 Back Office Administrator User

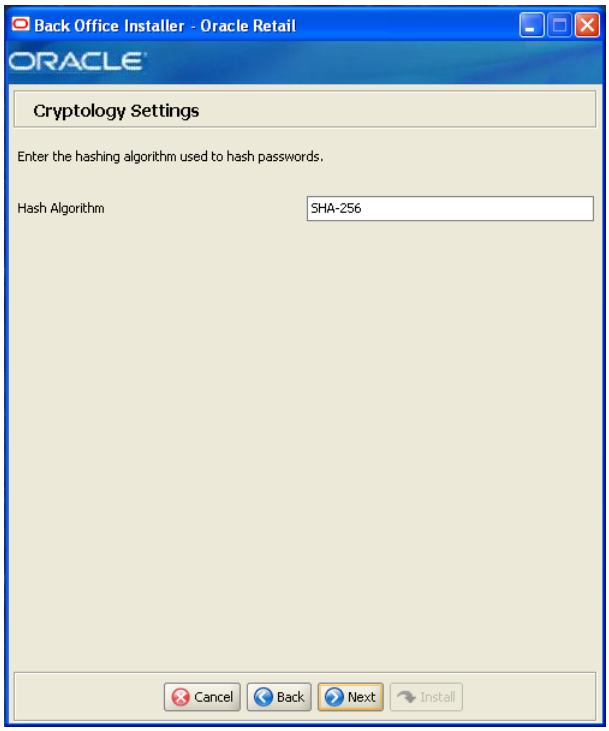


The fields on this screen are described in the following tables.

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.

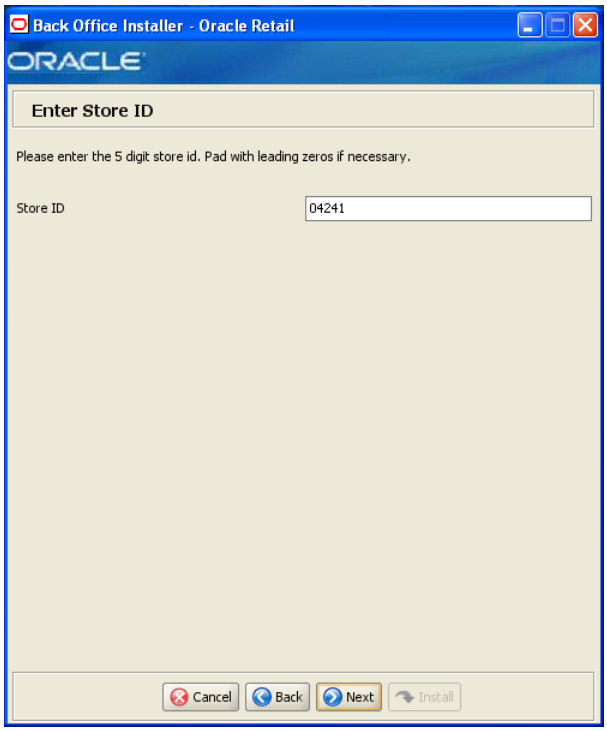
Figure A–15 Cryptology Settings



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

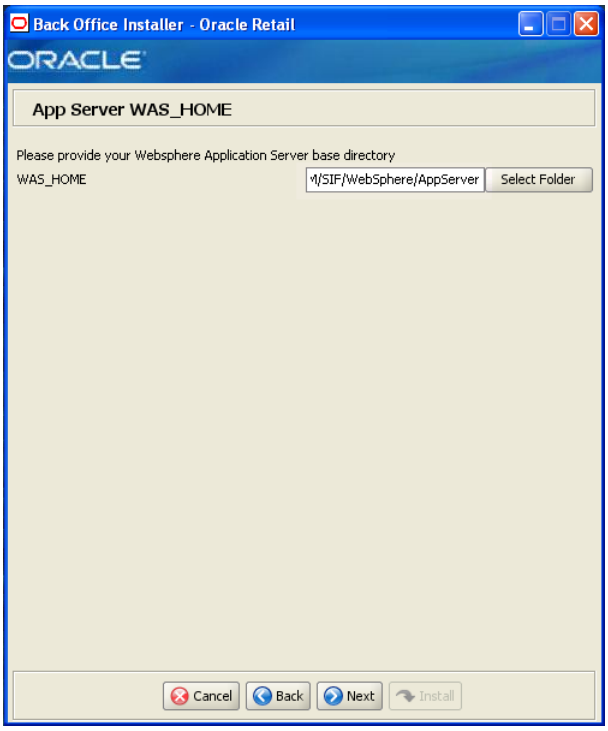
Figure A–16 Enter Store ID



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

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

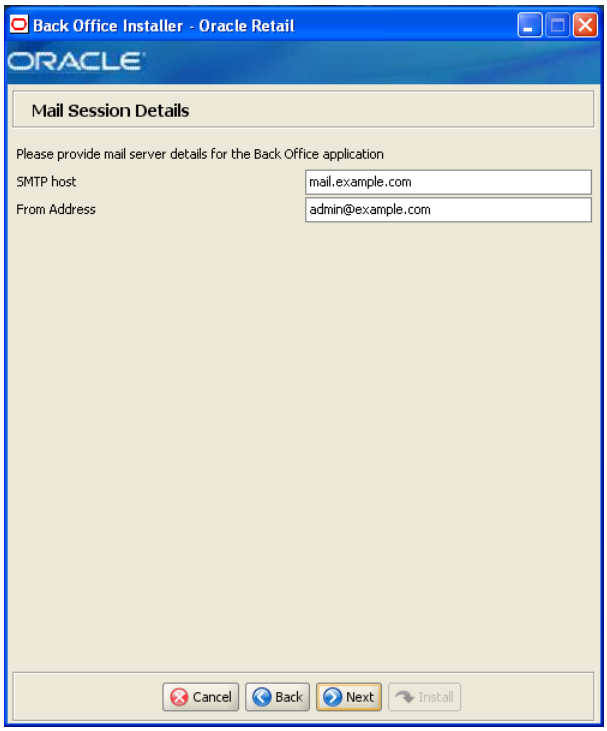
Figure A–17 App Server WAS_HOME



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

Field Title	WAS_HOME
Field Description	Base directory for the IBM WebSphere Application Server installation.
Example	`/opt/IBM/SIF/WebSphere/AppServer`

Figure A–18 Mail Session Details

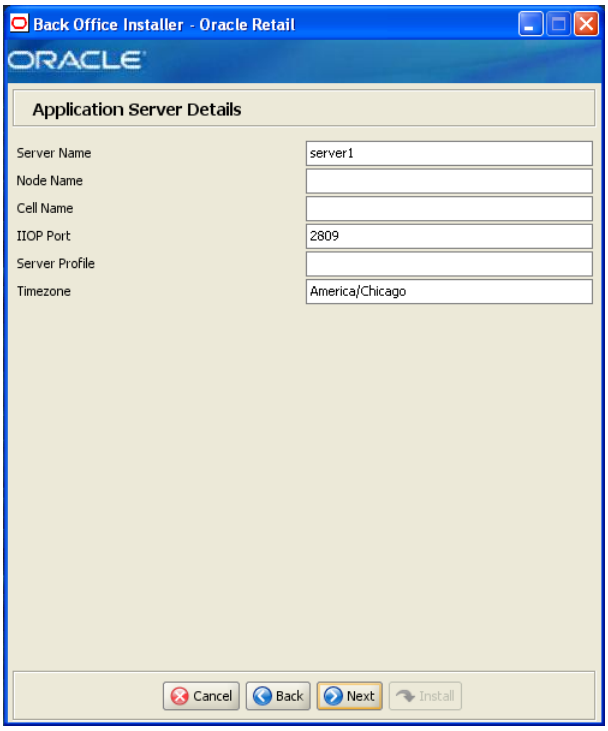


The fields on this screen are described in the following tables.

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

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

Figure A–19 Application Server Details



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

Field Title	Server Name
Field Description	Name of the IBM WebSphere server.
Example	server1

Field Title	Node Name
Field Description	Name of the IBM WebSphere node.
Example	myhostNode01

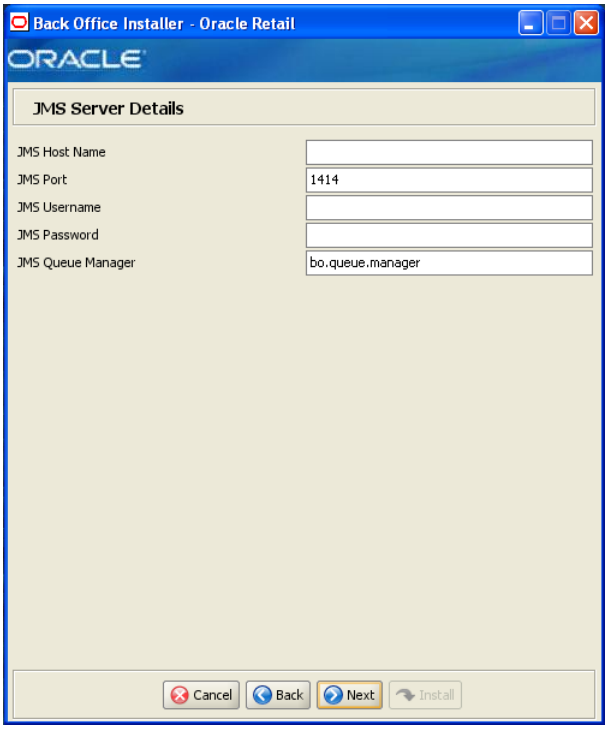
Field Title	Cell Name
Field Description	Name of the IBM WebSphere cell.
Example	myhostNode01Cell

Field Title	IIOP port
Field Description	IIOP/BOOTSTRAP_ADDRESS port of the IBM WebSphere server. This port can be found in the following file: `<WAS_PROFILE_DIR>/logs/AboutThisProfile.txt`
Example	2809

Field Title	Server Profile
Field Description	Name of the IBM WebSphere profile.
Example	AppSrv01

Field Title	Timezone
Field Description	Time zone where this server is running.
Example	America/Chicago

Figure A–20 JMS Server Details



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

Field Title	JMS Host Name
Field Description	Name of the 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	myhost

Field Title	JMS Port
Field Description	Port number used by the JMS server.
Example	1414

Field Title	JMS Username
Field Description	User name for the JMS server. This user must exist in the Back Office schema.
Example	myuser

Field Title	JMS Password
Field Description	Password for the JMS server.
Example	mypassword

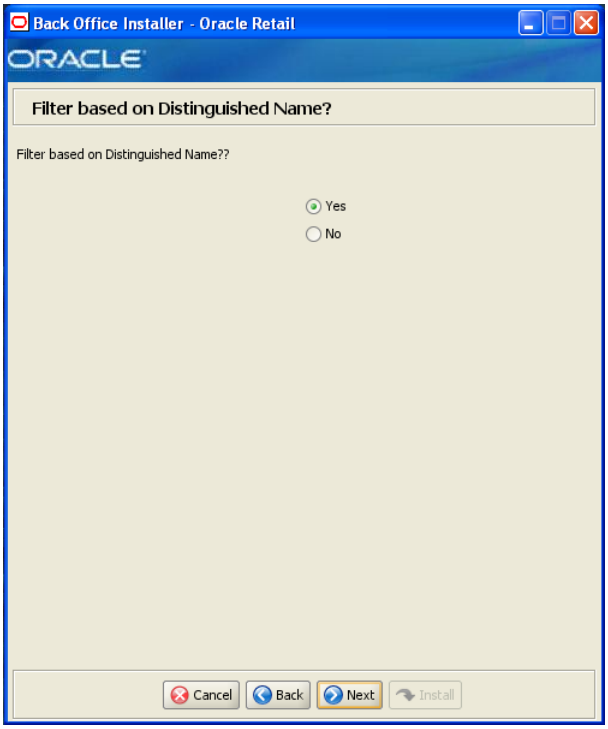
Field Title	JMS Queue Manager
Field Description	Name of the JMS queue manager.
Example	bo.queue.manager

Figure A–21 Select JMS SSL Level

The field on this screen is described in the following table. For more information, see "Set up the JMS SSL Key Store" in Chapter 2.

Field Title	Select JMS SSL Level
Field Description	JMS SSL level to be used. ▪ To use US strength, select **US Strength(TRIPLE_DES_SHA_US)**. The next screen displayed is Figure A–22. ▪ To use export strength, select **Export Strength(RC4_MDS_EXPORT)**. The next screen displayed is Figure A–22. ▪ To not use ssl support, select **No SSL Support**. The next screen displayed is Figure A–24.
Example	US Strength(TRIPLE_DES_SHA_US)

Figure A–22 Filter Based on Distinguished Name

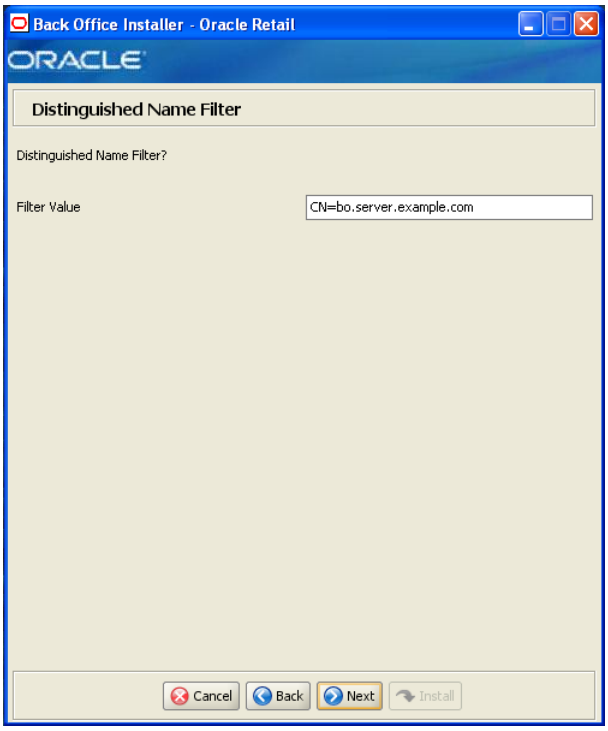


This screen is only displayed if **US Strength(TRIPLE_DES_SHA_US)** or **Export Strength(RC4_MDS_EXPORT)** is selected on the Select JMS SSL Level screen.

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

Field Title	Filter based on Distinguished Name?
Field Description	This screen gives you the option to filter based on the distinguished name.
Example	Yes

Figure A–23 Distinguished Name Filter

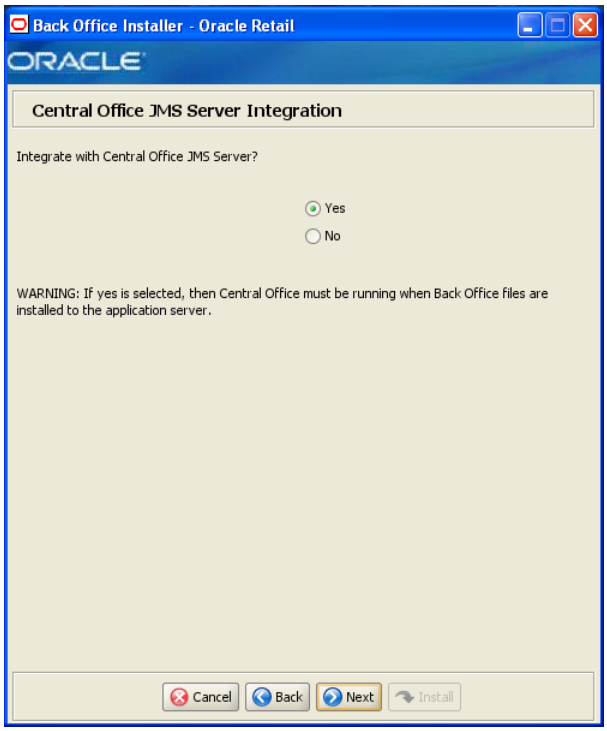


This screen is only displayed if **Yes** is selected on the Filter based on Distinguished Name screen.

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

Field Title	Filter Value
Field Description	Distinguished name for the JMS SSL filter.
Example	CN=bo.server.example.com

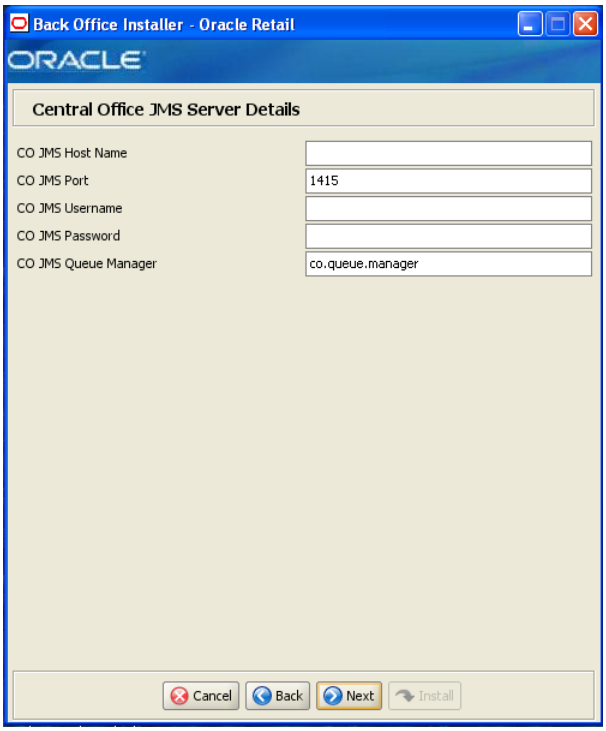
Figure A–24 Central Office JMS Server Integration



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 Details



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

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

Field Title	CO JMS Server 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 Server Port
Field Description	Port number used by the Central Office JMS server.
Example	1414

Field Title	CO JMS Username
Field Description	User name for the Central Office JMS server. This user must exist in the operating system where Central Office is running and the user must be in the `mqm` group.
Example	myuser

Field Title	CO JMS Password
Field Description	Password for the user name entered in the CO JMS Username field.

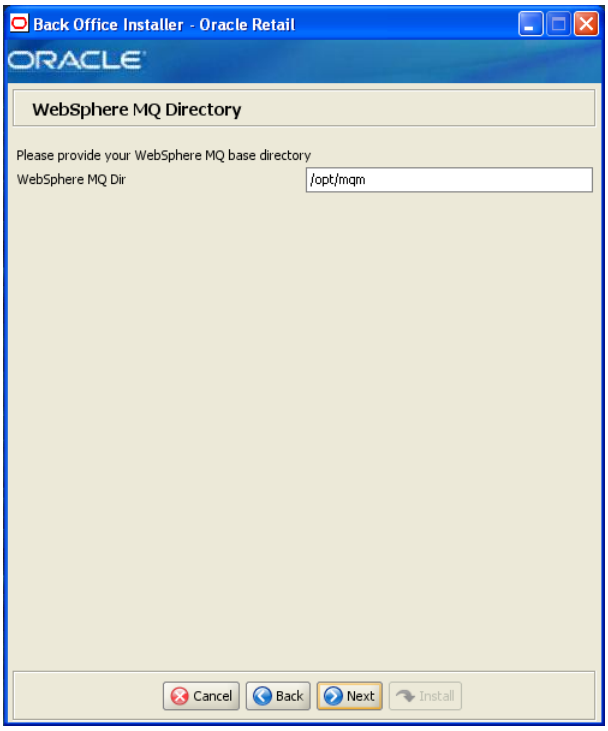
Field Title	CO JMS Queue Manager
Field Description	Name of the Central Office JMS queue manager.
Example	co.queue.manager

Figure A–26 Configure WebSphere MQ Option

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

Field Title	Configure WebSphere MQ?
Field Description	IBM WebSphere MQ must be configured with a queue manager and the queues and topics required by Back Office before Back Office can be deployed. This screen gives you the option to configure IBM WebSphere MQ manually. If you choose No, see "Configure IBM WebSphere MQ" in Chapter 2 for the manual steps you need to perform after the installer completes.
Example	Yes

Figure A–27 WebSphere MQ Directory



This screen is only displayed if **Yes** is selected on the Configure WebSphere MQ Option screen.

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

Field Title	WebSphere MQ Dir
Field Description	Base directory for IBM WebSphere MQ.
Example	/opt/mqm

Figure A–28 JMS SSL Keystore Passwords

This screen is only displayed if **US Strength(TRIPLE_DES_SHA_US)** or **Export Strength(RC4_MDS_EXPORT)** is selected on the Select JMS SSL Level screen.

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

Field Title	Corporate CA Certificate File
Field Description	Location of the corporate certificate file.
Example	/tmp/root-cert.pem

Field Title	MQ Keystore Password
Field Description	Key Store password for WebSphere MQ.

Field Title	MQ Source Keystore
Field Description	Location of the source Key Store for WebSphere MQ.
Example	/tmp/mq-keystore.jks

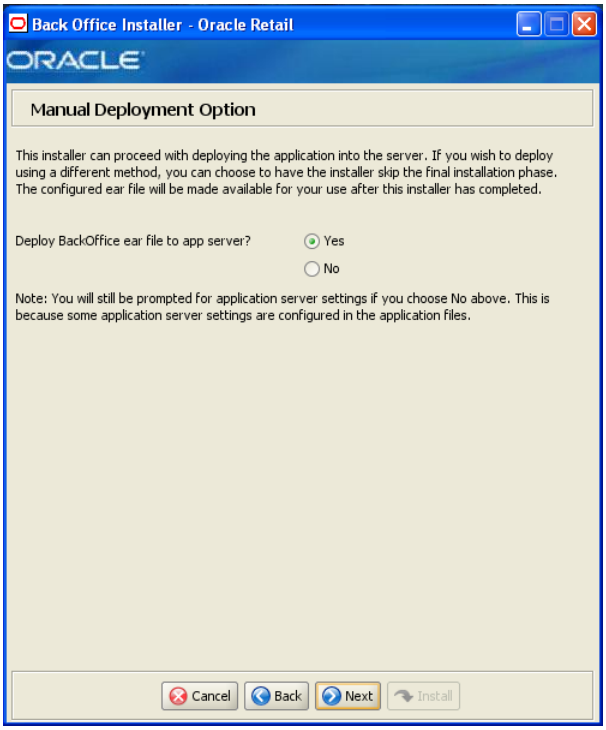
Field Title	Password for MQ Source Keystore
Field Description	Key Store password for MQ source.

Field Title	WebSphere Keystore Password
Field Description	Key Store password for the WebSphere Application Server.

Field Title	WebSphere Source Keystore
Field Description	Location of the source Key Store for WebSphere.
Example	/tmp/was-keystore.jks

Field Title	Password for WebSphere Source Keystore
Field Description	Key Store password for WebSphere.

Figure A–29 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. This screen gives you the option to 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 the deployed files must be reviewed by another party before being applied.
Example	Yes

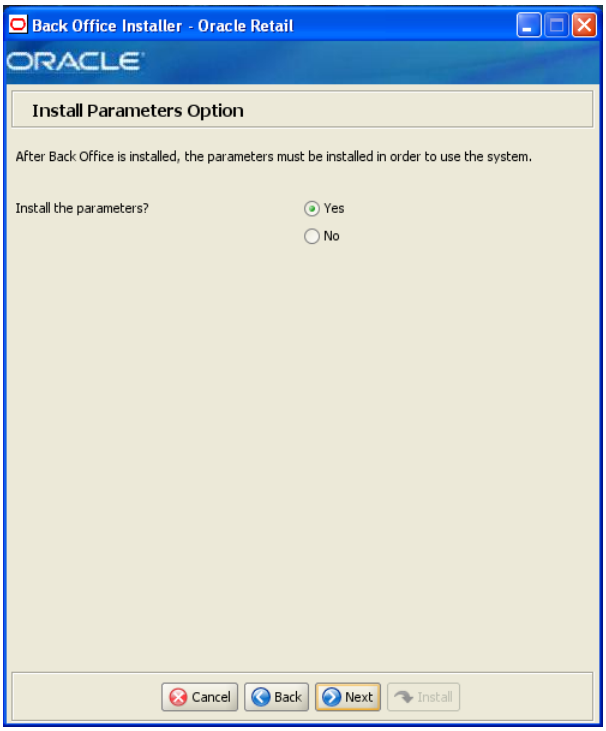
Figure A–30 Application Deployment Details

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

Field Title	App Deployment Name
Field Description	Name by which this 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

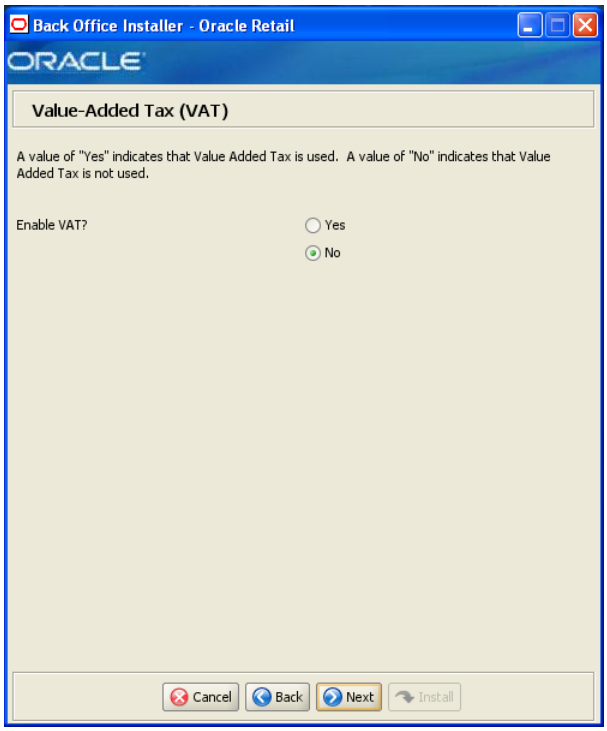
Figure A–31 Install Parameters Option



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 "Import Initial Parameters" in Chapter 2 for the manual steps you need to perform after the installer completes.
Example	Yes

Figure A–32 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–33 Installation Progress

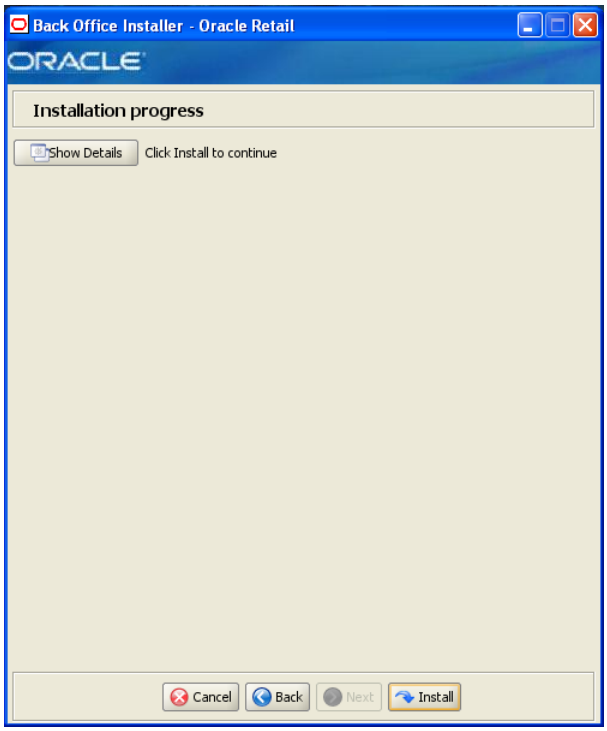
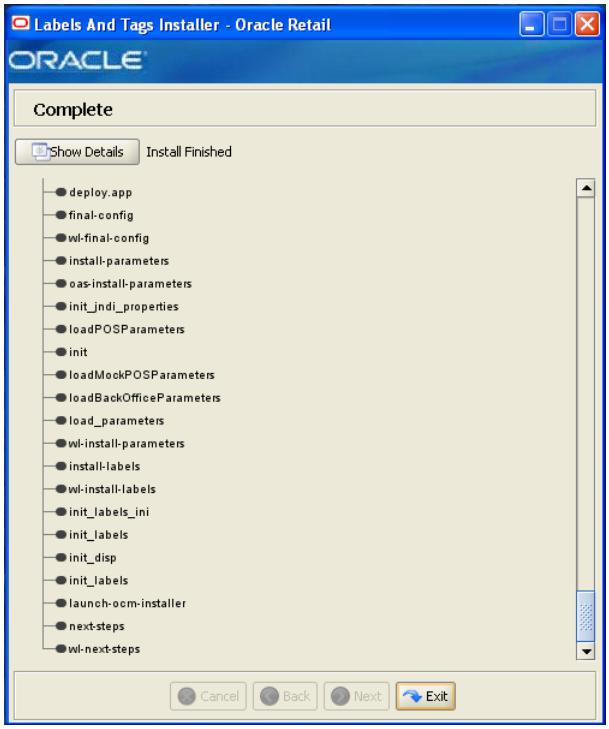


Figure A–34 Installation Complete



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.sh silent websphere
   ```

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 IBM Stack

To reinstall:

1. Stop the WebSphere application server in the profile that contains Back Office.
2. Delete the profile.
3. Stop the WebSphere MQ queue manager and listener. For example, stop `bo.queue.manager`.
4. Delete the queue manager.
5. Recreate the profile.
6. Start the WebSphere application server in the profile.
7. 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.

URLs for the IBM Stack

The following sections describe the URLs used for the IBM stack.

JDBC URL for a Database

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

Syntax: `jdbc:db2://<dbhost>:<dbport>/<dbname>`

- *<dbhost>*: host name of the database server
- *<dbport>*: database listener port
- *<dbname>*: system identifier for the database

For example, `jdbc:db2://myhost:50000/mydatabase`

JNDI Provider URL for an Application

Used for server-to-server calls between applications.

Syntax: `corbaloc:iiop:<host>:<iioport>`

- *<host>*: host name of the WebSphere server
- *<iioport>*: IIOP/BOOTSTRAP_ADDRESS port of the WebSphere server. This can be found in the *<WAS_HOME>*`/profiles/`*<profile_name>*`/properties/portdef.props` file.

For example, `corbaloc:iiop:myhost:2809`

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 1.6 JDK. Set JAVA_HOME to a Java development kit of version 1.6 or later and run the installer again.

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

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 IBM DB2 Databases

The security for DB2 is done at the operating system level. Consult your IBM DB2 documentation for information on creating a security profile that follows the password guidelines.

G

Appendix: Secure JDBC with IBM DB2

This appendix has information on how to enable SSL for IBM DB2. Information from the DB2 V9 Information Center, *Global Security Kit Secure Sockets Layer Introduction*, and *iKeyman User's Guide* is included in this appendix.

IBM DB2 has supported SSL encryption since version 9.1 Fix Pack 3. Information on how to configure SSL on the server and client can be found at the following Web sites:

- http://publib.boulder.ibm.com/infocenter/db2luw/v9/index.jsp?topic=/com.ibm.db2.udb.uprun.doc/doc/t0025241.htm
- http://www-1.ibm.com/support/docview.wss?uid=swg21249656

Summary

To secure JDBC on IBM DB2 requires the following:

- An SSL provider must be established on the DB2 server.
- The provider requires a digital certificate and corresponding private key to provide the secure communications.
- The client either needs to have a copy of the digital certificate or trust the signer of the server certificate.
- The client needs to be configured to use the secure service, and optionally use a FIPS-compliant SSL provider.

Prerequisites

The information in this section is from the DB2 V9 Information Center.

1. Make sure you have the required fix pack version of DB2.

   To determine the fix pack level you have, run the `db2level` command at the command line. If you have Version 9.1 with a fix pack version earlier than Fix Pack 3, you need to obtain Fix Pack 3 or a later version.

2. Make sure the GSKit is installed.

   On linux, it is located in `/usr/local/ibm/gsk7`.

3. Make sure the GSKit libraries are in the path.

   Make sure the `/usr/local/ibm/gsk7/lib` directory is included in LD_LIBRARY_PATH.

4. For information on how to check if the connection concentrator is in use, see the IBM documentation.

Setting up the Key Store

The information in this section is from *Global Security Kit Secure Sockets Layer Introduction* and *iKeyman User's Guide*.

1. If you are not already logged in to the server, log in as the instance owner.
2. Start iKeyman GUI gsk7ikm.

   If the Java Cryptographic Extension(JCE) files were not found, make sure the JAVA_HOME environment variable points to a JDK that contains the JCE.
3. Click **Key Database File** and then **New**.
4. Select a key database type, filename, and location.

   It is suggested that a CMS key database is created. This is consistent with the DB2 Infocenter example. For example:

   ```
   /home/db2inst1/GSKit/Keystore/key.kdb
   ```
5. Click **OK**. The Password Prompt window is displayed.
6. Enter a password for the key database.
7. Click **OK**. A confirmation window is displayed. Click **OK**.

Creating a Self-signed Digital Certificate for Testing

The information in this section is from *Global Security Kit Secure Sockets Layer Introduction* and *iKeyman User's Guide*.

1. If you are not already logged in to the server, log in as the instance owner.
2. Start iKeyman GUI gsk7ikm.

   If the Java Cryptographic Extension(JCE) files were not found, make sure the JAVA_HOME environment variable points to a JDK that contains the JCE.
3. Click **Key Database File** and then **Open**.
4. Select the key database file where you want to add the self-signed digital certificate.
5. Click **Open**. The Password Prompt window is displayed.
6. Select **Personal Certificates** from the menu.
7. Click **New Self-Signed**. The Create New Self-Signed Certificate Window is displayed.
8. Type a Key Label, such as `keytest`, for the self-signed digital certificate.
9. Type a **Common Name and Organization**, and select a **Country**. For the remaining fields, accept the default values or enter new values.
10. Click **OK**. The IBM Key Management Window is displayed. The Personal Certificates field shows the name of the self-signed digital certificate you created.

Configuring the IBM DB2 Server

The information in this section is from the DB2 V9 Information Center.

1. If you are not already logged in to the server, log in as the instance owner.
2. Create an SSL configuration file:

- For Linux and UNIX:

  <*INSTHOME*>/cfg/SSLconfig.ini

  For example:

  /home/db2inst1/sqllib/cfg/SSLconfig.ini

- For Windows:

  <*INSTHOME*>\SSLconfig.ini

  For example:

  F:\IBM\SQLLIB\DB2\SSLconfig.ini

<*INSTHOME*> is the home directory of the instance.

Caution: It is recommended that you set the file permission to limit access to the SSLconfig.ini, as the file might contain sensitive data. For example, limit read and write authority on the file to members of the SYSADM group if the file contains the password for the Key Store.

3. Add SSL parameters to the SSL configuration file. The SSLconfig.ini file contains the SSL parameters that are used to load and start SSL. The list of SSL parameters are shown in the following table:

SSL parameter name	Description
DB2_SSL_KEYSTORE_FILE	Fully qualified file name of the Key Store that stores the Server Certificate.
DB2_SSL_KEYSTORE_PW	Password of the Key Store that stores the Server Certificate.
DB2_SSL_KEYSTORE_LABEL	Label for the Server Certificate. If it is omitted, the default certificate for the Key Store is used.
DB2_SSL_LISTENER	Service name or port number for the SSL listener.

The following is an example of an SSLconfig.ini file:

```
DB2_SSL_KEYSTORE_FILE=/home/db2inst1/GSKit/Keystore/key.kdb
DB2_SSL_LISTENER=20397
DB2_SSL_KEYSTORE_PW=abcd1234
```

4. Add the value SSL to the DB2COMM registry variable. For example, use the following command:

   db2set -i <*db2inst1*> DB2COMM=SSL

   where <*db2inst1*> is the IBM DB2 instance name.

   The database manager can support multiple protocols at the same time. For example, to enable both TCP/IP and SSL communication protocols:

   db2set -i <*db2inst1*> DB2COMM=SSL,TCPIP

5. Restart the IBM DB2 instance. For example, use the following commands:

   db2stop

   db2start

At this point, the server should be ready to start serving SSL connections. You can check the `db2diag.log` file for errors. There should be no errors pertaining to SSL after the restart.

Exporting a Certificate from iKeyman

The information in this section is from *Global Security Kit Secure Sockets Layer Introduction* and *iKeyman User's Guide*.

In order to be able to talk to the server, the clients need to have a copy of the self-signed certificate from the server.

1. Start iKeyman. The IBM Key Management window is displayed.
2. Click **Key Database File** and then **Open**. The Open window is displayed.
3. Select the source key database. This is the database that contains the certificate you want to add to another database as a signer certificate.
4. Click **Open**. The Password Prompt window is displayed.
5. Enter the key database password and click **OK**. The IBM Key Management window is displayed. The title bar shows the name of the selected key database file, indicating that the file is open and ready.
6. Select the type of certificate you want to export: Personal or Signer.
7. Select the certificate that you want to add to another database.
   - If you selected Personal, click **Extract Certificate**.
   - If you selected Signer, click **Extract**.

   The Extract a Certificate to a File window is displayed.
8. Click **Data type** and select a data type, such as Base64-encoded ASCII data. The data type needs to match the data type of the certificate stored in the certificate file. The iKeyman tool supports Base64-encoded ASCII files and binary DER-encoded certificates.
9. Enter the certificate file name and location where you want to store the certificate, or click **Browse** to select the name and location.
10. Click **OK**. The certificate is written to the specified file, and the IBM Key Management window is displayed.

Configuring the IBM FIPS-compliant Provider for SSL (optional)

The information in this section is from the DB2 V9 Information Center.

The Sun JSSE SSL provider works with the IBM DB2 driver by following the above instructions. If you want to use the IBM FIPS-compliant provider, you have to use the IBM JDK and make the following configuration changes.

Note: If you are following the IBM documentation, note the following issues:

- Prior to the numbered steps, it says to add several lines to `java.security`. Do not add the lines.
- Step two incorrectly shows setting `ssl.SocketFactory.provider` twice. It only needs to be done once.

1. Set the `IBMJSSE2 FIPS` system property to enable FIPS mode:

   ```
   com.ibm.jsse2.JSSEFIPS=true
   ```

2. Set security properties to ensure that all JSSE code uses the IBMJSSE2 provider. The following example shows the entries in `java.security`.

   ```
   ssl.SocketFactory.provider=com.ibm.jsse2.SSLSocketFactoryImpl
   ssl.ServerSocketFactory.provider=com.ibm.jsse2.SSLServerSocketFactoryImpl
   ```

3. Add the IBMJCEFIPS cryptographic provider.

   Add com.ibm.crypto.fips.provider.IBMJCEFIPS to the provider list before the IBMJCE provider. Do not remove the IBMJCE provider. The IBMJCE provider is required for Key Store support.

   The following example shows the entries in `java.security`.

   ```
   # List of providers and their preference orders (see above):
   #
   security.provider.1=com.ibm.jsse2.IBMJSSEProvider2
   # inserted provider 2 for FIPS
   security.provider.2=com.ibm.crypto.fips.provider.IBMJCEFIPS
   security.provider.3=com.ibm.crypto.provider.IBMJCE
   security.provider.4=com.ibm.security.jgss.IBMJGSSProvider
   security.provider.5=com.ibm.security.cert.IBMCertPath
   security.provider.6=com.ibm.security.sasl.IBMSASL
   ```

Specific Instructions for Back Office

It is difficult to configure Oracle Retail Back Office to use secure JDBC from the start by using the URL that includes the sslConnection property and secure port number. The following instructions are for retrofitting it into the configuration after the install is complete.

To complete the configuration:

1. Install the database digital certificate into the application server truststore.
   a. Log in to the WebSphere Integrated Solutions Console (Admin Console).
   b. Expand the Security menu.
   c. Click the **SSL certificate and key management** option.
   d. In the Related Items list, click **Key stores and certificates**.
   e. Click the **NodeDefaultTrustStore** link in the list.
   f. In the Additional Properties list, click the **Signer certificates** link.
   g. Click the **Add** button.

h. Enter a distinct alias and the full path to the certificate file on the server in the File name field. Make sure the Data type corresponds to the type in the file. The certificate should appear in the list of Signer certificates.

2. Update all the data sources to use SSL. (jdbc/DataSource, jdbc/DimpDataSource, jdbc/DimpDataSource)
   a. Log in to the WebSphere Integrated Solutions Console (Admin Console).
   b. Expand the Resources menu option.
   c. Expand the JDBC menu option.
   d. Click the **Data sources** option. The list of data sources is displayed.
   e. Click on the data source to be edited.
   f. In the Additional Properties list, click the **Custom properties** link.
   g. Click the **New** button.
   h. Enter sslConnection in the Name field, true in the Value field, and click **OK**.
   i. Click the data source name in the bread crumb trail to return to the data source edit page.
   j. Change the Port number field from the TCPIP port to the SSL port.
   k. Click **OK**.
   l. Edit the remaining data sources.
   m. Save the configuration.
3. Stop the server.
4. Edit the custom user registry properties in `customRegistry.properties`.
   a. Change the JDBC URL to use the SSL port.
   b. Append `:sslConnection=true;` to the end.
5. Start the server.

Useful Links

For more information, see the following Web sites:

- http://publib.boulder.ibm.com/infocenter/db2luw/v9/topic/com.ibm.db2.udb.apdv.java.doc/doc/rjvdsprp.htm

  This Web site has documentation of all the properties available in the DB2 Driver for JDBC.

- http://publib.boulder.ibm.com/infocenter/db2luw/v9/topic/com.ibm.db2.udb.apdv.java.doc/doc/tjvjcccn.htm

  This Web site contains documentation of the URL syntax for connecting to DB2 using JDBC.

- http://www.redbooks.ibm.com/abstracts/sg247555.html

  An IBM Redbook on security related issues with DB2, including auditing and data encryption. The IBM Form Number is SG24-7555-00.

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)