

Oracle® Retail Back Office

Installation Guide, Volume 2 - IBM Stack

Release 13.4.7

E52409-01

March 2014

E52409-01

Copyright © 2014, Oracle and/or its affiliates. All rights reserved.

Primary Author: Bernadette Goodman

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

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

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

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

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

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

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

Value-Added Reseller (VAR) Language

Oracle Retail VAR Applications

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

- (i) the **MicroStrategy** Components developed and licensed by MicroStrategy Services Corporation (MicroStrategy) of McLean, Virginia to Oracle and imbedded in the MicroStrategy for Oracle Retail Data Warehouse and MicroStrategy for Oracle Retail Planning & Optimization applications.
- (ii) the **Wavelink** component developed and licensed by Wavelink Corporation (Wavelink) of Kirkland, Washington, to Oracle and imbedded in Oracle Retail Mobile Store Inventory Management.
- (iii) the software component known as **Access Via™** licensed by Access Via of Seattle, Washington, and imbedded in Oracle Retail Signs and Oracle Retail Labels and Tags.
- (iv) the software component known as **Adobe Flex™** licensed by Adobe Systems Incorporated of San Jose, California, and imbedded in Oracle Retail Promotion Planning & Optimization application.

You acknowledge and confirm that Oracle grants you use of only the object code of the VAR Applications. Oracle will not deliver source code to the VAR Applications to you. Notwithstanding any other term or condition of the agreement and this ordering document, you shall not cause or permit alteration of any VAR Applications. For purposes of this section, "alteration" refers to all alterations, translations, upgrades, enhancements, customizations or modifications of all or any portion of the VAR Applications including all reconfigurations, reassembly or reverse assembly, re-engineering or reverse engineering and recompilations or reverse compilations of the VAR Applications or any derivatives of the VAR Applications. You

acknowledge that it shall be a breach of the agreement to utilize the relationship, and/or confidential information of the VAR Applications for purposes of competitive discovery.

The VAR Applications contain trade secrets of Oracle and Oracle's licensors and Customer shall not attempt, cause, or permit the alteration, decompilation, reverse engineering, disassembly or other reduction of the VAR Applications to a human perceivable form. Oracle reserves the right to replace, with functional equivalent software, any of the VAR Applications in future releases of the applicable program.

Contents

Send Us Your Comments	xi
Preface	xiii
Audience.....	xiii
Documentation Accessibility	xiii
Related Documents	xiii
Customer Support	xiii
Review Patch Documentation	xiv
Improved Process for Oracle Retail Documentation Corrections	xiv
Oracle Retail Documentation on the Oracle Technology Network	xiv
Conventions	xv
 1 Preinstallation Tasks	
Check Supported Database Server Requirements.....	1-1
Required Setting for Database Installation.....	1-1
Check Supported Application Server Requirements.....	1-1
Check for SSL Certificate.....	1-2
Check that the Fonts Needed for Reports are Installed.....	1-2
Check Oracle Retail Software Dependencies	1-2
Check Third-Party Software Dependencies.....	1-2
Check Additional Oracle Technologies	1-2
Check Supported Client PC and Web Browser Requirements	1-3
Hardware Requirements	1-3
Implementation Guidelines for Security	1-3
 2 Secure Configuration	
Operating System	2-1
Additional Resource	2-2
Infrastructure/Middleware	2-2
Database	2-2
Application Server	2-2
Messaging.....	2-2
Network Considerations	2-3
Oracle Retail POS Suite Application Configuration	2-3

Technology Considerations	2-3
Wireless Technology.....	2-3
Application Specific Settings.....	2-3
Application Runtime Settings	2-4
Application Parameters.....	2-4
Temporary Password Length.....	2-4
Database Configuration	2-4
Integration with Other Applications.....	2-5
Scripts and Command Line Utilities	2-5
Purge Scripts	2-5

3 Installation of the IBM Stack on SLEPOS

Create the Database Schema Owner and Data Source Users	3-1
Expand the Back Office Distribution	3-2
Obtain Third-Party Library Files Required by Back Office	3-3
Set Up for Integration with Central Office and Returns Management	3-3
Enable Data Import.....	3-3
Oracle Configuration Manager.....	3-4
Installation Options	3-4
Database Install Options	3-4
Manually Create the Database Schema.....	3-5
Secure the JDBC for the IBM DB2 Database	3-6
Set up the JMS SSL Key Store	3-6
Install the Java Cryptography Extension (JCE).....	3-7
Run the Back Office Application Installer.....	3-7
Resolve Errors Encountered During Application Installation	3-8
Configure IBM WebSphere MQ.....	3-8
Manual Deployment of the Back Office Application	3-9
Install Parameters	3-10
Import Initial Parameters.....	3-10
Import Parameters Through the User Interface.....	3-10
Import Parameters by using an Ant Target.....	3-11
Load Optional Purge Procedures	3-11
Update Local Time Zone for Bank Deposit Summary Report.....	3-11
Using the Back Office Application	3-12

A Appendix: Installer Screens for the IBM Stack

B Appendix: Installer Silent Mode

C Appendix: Reinstalling Back Office

Reinstalling Back Office on the IBM Stack	C-1
---	-----

D Appendix: URL Reference

JDBC URL for a Database.....	D-1
JNDI Provider URL for an Application	D-1

E Appendix: Common Installation Errors

Unreadable Buttons in the Installer E-1

F Appendix: Troubleshooting

Deployment Failure F-1

G Appendix: Installation Order

Enterprise Installation Order G-1

List of Figures

3-1	Update Local Time Zone for Report Example	3-12
A-1	Introduction	A-1
A-2	Oracle Customer Information	A-2
A-3	Oracle Customer Information	A-3
A-4	Requirements	A-3
A-5	License Agreement	A-4
A-6	Supported Languages	A-5
A-7	Enter Default Locale	A-6
A-8	Integrate Applications	A-7
A-9	Database Owner	A-8
A-10	Data Source User	A-9
A-11	Enable Secure JDBC	A-10
A-12	Data Source SSL Configuration	A-11
A-13	Enable DIMP	A-12
A-14	DIMP Configuration	A-13
A-15	Database Install Options	A-14
A-16	Sample Dataset	A-15
A-17	Back Office Administrator User	A-16
A-18	Cryptology Settings	A-17
A-19	Enter Store ID	A-18
A-20	App Server WAS_HOME	A-19
A-21	Mail Session Details	A-20
A-22	Application Server Details	A-21
A-23	JMS Server Details	A-22
A-24	Select JMS SSL Level	A-24
A-25	Filter Based on Distinguished Name	A-25
A-26	Distinguished Name Filter	A-26
A-27	Central Office JMS Server Details	A-27
A-28	Returns Management JMS Server Details	A-28
A-29	Configure WebSphere MQ Option	A-29
A-30	WebSphere MQ Directory	A-30
A-31	JMS SSL Keystore Passwords	A-31
A-32	Manual Deployment Option	A-33
A-33	Application Deployment Details	A-34
A-34	Install Parameters Option	A-35
A-35	Sample Template Data	A-36
A-36	Value-Added Tax (VAT)	A-37
A-37	Turn Off the Application Server's Non-SSL Port	A-38
A-38	Logging Detail Options	A-39
A-39	Installation Progress	A-40
A-40	Installation Complete	A-40

List of Tables

1-1	Database Server Requirements	1-1
1-2	Application Server Requirements	1-1
1-3	Supported Oracle Retail Products	1-2
1-4	Additional Oracle Technologies	1-3

Send Us Your Comments

Oracle Retail Back Office Installation Guide, Volume 2 - IBM Stack, Release 13.4.7

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

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

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

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

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

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

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

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

If you require training or instruction in using Oracle software, then please contact your Oracle local office and inquire about our Oracle University offerings. A list of Oracle offices is available on our Web site at <http://www.oracle.com>.

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

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Related Documents

For more information, see the following documents in the Oracle Retail Back Office Release 13.4.7 documentation set:

- *Oracle Retail Back Office Installation Guide, Volume 1 - Oracle Stack*
- *Oracle Retail Back Office Release Notes*
- *Oracle Retail POS Suite Data Dictionary*
- *Oracle Retail POS Suite Implementation Guide, Volume 1 - Implementation Solutions*

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, 13.4) or a later patch release (for example, 13.4.7). If you are installing the base release or additional patch releases, read the documentation for all releases that have occurred since the base release before you begin installation. Documentation for patch releases can contain critical information related to the base release, as well as information about code changes since the base release.

Improved Process for Oracle Retail Documentation Corrections

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

This process will prevent delays in making critical corrections available to customers. For the customer, it means that before you begin installation, you must verify that you have the most recent version of the Oracle Retail documentation set. Oracle Retail documentation is available on the Oracle Technology Network at the following URL:

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

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

If a more recent version of a document is available, that version supersedes all previous versions.

Oracle Retail Documentation on the Oracle Technology Network

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

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

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

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.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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 are installing multiple Oracle Retail applications, see [Appendix G](#) 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	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	SLEPOS 11 SP1
J2EE Application Server	IBM WebSphere ND 7.0.0.15 from WRS 7.1 Standard Edition
J2EE Application Server JVM	IBM Java 1.6 or later within the Java 1.6 code line
Messaging Provider	IBM WebSphere MQ 7.0.1.4 from WRS 7.1 Standard Edition
System Management Agent	IBM WebSphere Admin Console 7.0.0.15

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:

`<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	13.4.7
Oracle Retail Merchandising System	13.2.7
Oracle Retail Point-of-Service	13.4.7
Oracle Retail Price Management	13.2.7
Oracle Retail Returns Management	2.4.7

Check Third-Party Software Dependencies

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 3](#).

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

The following Web browsers are supported on Microsoft Windows XP SP2:

- Microsoft Internet Explorer 7
- Mozilla Firefox ESR 17.0.3+

Note: Microsoft Windows XP is supported until its End-of-Life (April 2014).

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. If this is not done, the system could be vulnerable to access by any unauthorized user with knowledge of the default passwords.

For information on implementing security, see the *Oracle Retail POS Suite Security Guide*. This guide describes specific security features and implementation guidelines for the POS Suite products.

Secure Configuration

This chapter serves as a guide for administrators and anyone installing the product to securely configure Oracle Retail Back Office. To see a broader spectrum of suggested security-related practices for this application, see the *Oracle Retail POS Suite Security Guide*.

Note: All the Oracle Retail POS Suite applications should follow the same practices for configuring a secure environment.

This chapter is intended for security administrators and anyone installing the products who will deploy and configure the Oracle Retail POS Suite applications. These users perform the following tasks:

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

It is assumed that the readers of this chapter have a general knowledge of administering the underlying technologies and the Back Office application.

This chapter begins with the operating system and moves through the supporting middleware to the Back Office application, and its connections with other resources.

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

Any references to Payment Card Industry Data Security Standard (PCI-DSS) requirements are from PCI-DSS version 2.0.

Operating System

To see the operating systems and browsers supported for this release of Back Office, see [Chapter 1](#).

The Release 13.4.7 Oracle Retail POS Suite applications do not rely on insecure services or protocols. If the retailer or systems integrator customizes or extends the applications, these extensions must not rely on insecure services or protocols.

For more information about securing services and protocols, see the *Oracle Retail POS Suite Security Guide*.

Additional Resource

The Center for Internet Security has published benchmarks for securing your systems at the operating system level. You can find the benchmark for SUSE Linux (SLEPOS) at the following link:

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

Infrastructure/Middleware

To see the database and application server supported for this release of Back Office, see [Chapter 1](#).

Database

For recommendations on securing the database as well as JDBC communications between the POS Suite applications and the database, see the *Oracle Retail POS Suite Security Guide*.

Do not store sensitive data on Internet-accessible systems. For example, your Web server and database server must not be on the same physical server. Oracle Retail POS Suite applications do not require the database server and Web server to be hosted on the same physical server machine.

For information about secure configuration of IBM DB2, see the *IBM DB2 9.7 Database Security Guide* at the following Web site:

ftp://public.dhe.ibm.com/ps/products/db2/info/vr97/pdf/en_US/DB2Security-db2sece971.pdf

Application Server

For information about secure configuration of IBM AIX Application Server, see the following documentation available at the following Web site:

- *WebSphere Application Server V7.0 Security Guide*:
<http://www.redbooks.ibm.com/abstracts/sg247660.html>
- *WebSphere Application Server V7 Advanced Security Hardening*:
http://www.ibm.com/developerworks/websphere/techjournal/1004_botzum/1004_botzum.html?ca=drs-
http://www.ibm.com/developerworks/websphere/techjournal/1005_botzum/1005_botzum.html

Messaging

Secure JMS messaging configuration is specific to the application server. For information about securing the JMS messaging, see the *Oracle Retail POS Suite Security Guide*.

The Release 13.4.7 Oracle Retail POS Suite applications do not permit a user to send unencrypted sensitive data by end-user messaging technologies, such as e-mail. If you customize an application to permit sending sensitive data, by end-user messaging

technologies, you must use a solution that renders the sensitive data unreadable or implements strong cryptography.

Back Office can send notifications of the results of a scheduled job to a designated e-mail address. The e-mail contains the job name entered by the end user. Therefore, the user must take care that the scheduled job name does not contain sensitive data.

Network Considerations

For recommendations on securing the network and other enterprise security considerations, see the *Oracle Retail POS Suite Security Guide*.

Oracle Retail POS Suite Application Configuration

This section covers secure configuration that is recommended for all Oracle Retail POS Suite applications.

Technology Considerations

These technologies should be considered.

Wireless Technology

Oracle Retail POS Suite applications are not designed as wireless applications. If wireless technology is used, you must adhere to PCI-DSS compliant wireless settings, per PCI-DSS Requirements 1.2.3, 2.1.1, and 4.1.1.

Application Specific Settings

The Release 13.4.7 Oracle Retail POS Suite applications enable out-of-the-box audit logging by default. These logs should not be disabled.

Application log files are configurable. If you modify the settings, you must ensure they are compliant with PCI-DSS requirements 10.2 and 10.3.

The POS Suite applications implement automated audit trails for all system components to reconstruct the following events:

- All actions taken by any individual with administrative privileges as assigned in the application
- Access to application audit trails managed by or within the application
- Invalid logical access attempts
- Use of application's identification and authentication mechanisms
- Initialization of the application audit logs
- Creation and deletion of system-level objects within or by the application

The Release 13.4.7 Oracle Retail POS Suite applications implement an automated audit trail logging of various events happening on the system. The audit trail logging is configured in the log4j configuration file maintained for each application. The various events that need to be logged and the file where the audit logging information will be captured are configured in the log4j configuration file.

Caution: Do not comment out any of the entries or prevent the logging from occurring.

For each event, the Oracle Retail Audit log service logs the point of Origination of the event. In addition, the audit log framework logs the Initialization of the Audit log itself.

The log files are created with the following names and in following locations:

File Name: BackOffice_audit.log

Location:

`$WAS_HOME/profiles/<Profile Name>/logs`

The following events should be captured at the system level:

- Login or logoff
- Start or stop a process
- Use of user rights
- Account administration
- Change the security policy
- Restart and shut down the system
- USB events and Mount and Unmount events
- Access a file or directory (create a file, remove a file, read a file, or change file descriptors)

Various tools are available to collect audit trail information. Audit trails should be maintained for the applications and for external system events.

Application Runtime Settings

After installation, these settings should be used.

Application Parameters

Set these application parameters before running Back Office.

Temporary Password Length The Temporary Password Length parameter is used to determine the length of system generated temporary passwords. This parameter resides in the application XML parameter file.

Caution: This parameter can be set to generate passwords to have a length between 7 and 12 characters. In order to comply with PCI-DSS section 8.5.10, the Oracle Retail POS Suite applications must not be modified to allow fewer than 7 characters.

Database Configuration Password policy settings are configured through the database. By default, the password policy is compliant with PCI-DSS section 8.5.

Caution: If you change the password policy, ensure the modified settings comply with the PCI-DSS.

Integration with Other Applications

The Oracle Retail POS Suite applications integrate through the use of Web services and Java RMI. For information about securing these interface protocols, see the *Oracle Retail POS Suite Security Guide*.

Scripts and Command Line Utilities

This section covers scripts and utilities used after installation.

Purge Scripts

The Release 13.4.7 Oracle Retail POS Suite applications come with stored procedures and scripts that permit a DBA to purge the databases of data that the retailer determines are no longer necessary to store. Access to these scripts should be restricted. For more information about the purge scripts, see the *Oracle Retail POS Suite Security Guide*.

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.

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 is 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 the *Oracle Retail POS Suite Security Guide*.

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_<br/>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 13.4.7 distribution zip file.
2. Log into the UNIX server as the user who owns the IBM WebSphere installation. Create a new staging directory for the Back Office application distribution (ORBO-13.4.7.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-13.4.7.zip to <staging_directory> and extract its contents. The following files and directories should be created under <staging_directory>/ORBO-13.4.7:

```
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-easpi.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
prepare.xml
retail-OCM-stores.zip
wallet.xml

```

For the remainder of this chapter, *<staging_directory>/ORBO-13.4.7* is referred to as *<INSTALL_DIR>*.

Obtain Third-Party Library Files Required by Back Office

The Back Office application uses DB2 drivers from IBM. Before running the Back Office application installer, you must obtain the DB2 files from your database server.

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 for Integration with Central Office and Returns Management

On the Integrate Applications screen, you select the applications that Oracle Retail Back Office is integrated with. See [Figure A-8](#). If Central Office or Returns Management is selected on the screen, that application must be running in order for the Back Office files to be installed correctly. Before running the Back Office installer, verify that the application is running.

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-13](#). If **Yes** is selected on the screen, you then provide the paths to the directories on the DIMP Configuration installer screen. See [Figure A-14](#).

For detailed information on DIMP, see the *Oracle Retail POS Suite/Merchandising Products 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.

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"](#)
- ["Manual Deployment of the Back Office Application"](#)
- ["Install Parameters"](#)

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. See [Figure A-15](#).

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

To use this option, you must provide the location of the zip file containing the sample dataset on the Sample Dataset installer screen. See [Figure A-16](#). You can obtain the `sample-dataset-13.4.1.zip` file from the Oracle Software Delivery Cloud at the following Web site:

<https://edelivery.oracle.com/>

- If you choose **Create schema with minimum dataset**, the installer creates and populates the database schema with the minimum amount of data needed to launch and run Back Office. The minimum dataset includes report configuration 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 Create the Database Schema"](#).

Note: If Back Office is being installed for the first time and a clean schema is being used, do not select the **Skip schema creation and data loading** option. The installer will fail at some point if there is no data available in the database. You must populate the database schema before running the installer by selecting one of the other options.

If the schema is already populated and you want to manually restore or update the data, select the **Skip schema creation and data loading** option.

Manually Create 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.
- 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-bo-admin-user
inst.app.admin.password-encrypted=my-encrypted-bo-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=corbaloc:iiop:<hostname>:<iiop listenport>
```

- d. In the `parameters.classpath` property, replace the semicolons used as separators with colons. This is needed to run with Linux systems.
- e. If loading sample data, replace `FILE_DATASET_SAMPLE` with the full path and file name for the sample dataset zip file.

```
dataset.sample.zip=FILE_DATASET_SAMPLE
```

6. 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 configuration data.

To use this option, you must provide the location of the zip file containing the sample dataset. You can obtain the `sample-dataset-13.4.1.zip` file from Oracle Software Delivery Cloud at the following Web site:

<https://edelivery.oracle.com/>

- `load_minimum`: creates the database schema containing the minimum dataset. The minimum dataset includes report configuration data.
- `load_reports`: loads report configuration data.

For example: `ant load_sample`

To specifically load the report configuration 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-11](#). If **No** is selected and you want to manually set up the secure JDBC after the installer completes, see the Oracle Retail POS Suite Security Guide.

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 default alias is `myalias`.

To have the installer do the deployment, enter the details on the JMS SSL Keystore Details screen. See [Figure A-31](#).

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-25](#) and [Figure A-26](#). It is recommended that SSL certificates contain a distinguished name which follows the retailer's naming convention.

Install the Java Cryptography Extension (JCE)

If you are using US Strength for the JMS SSL level, you must update the security for your JRE. You need to obtain version 1.4.2+ of the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files. The 1.4.2+ version for the JCE Unlimited Strength Encryption is compatible with the IBM Java6 JRE.

1. Make a backup copy of `local_policy.jar` and `US_export_policy.jar`.

```
cd <WAS_INSTALL_DIR>/java/jre/lib/security
mv local_policy.jar local_policy.jar.bak
mv US_export_policy.jar US_export_policy.jar.bak
```

2. Download version 1.4.2+ of JCE.

- a. Go to the following Web site:

<http://www.ibm.com/developerworks/java/jdk/security/50/>

- b. Click **IBM SDK Policy Files**. You are prompted to log in. You need an IBM ID, which you can request from the Sign in screen, in order to log in to this Web site.
- c. After you log in, follow the instructions to download the JCE.

3. Copy the `local_policy.jar` and `US_export_policy.jar` files into the JRE security directory. The files are bundled as `unrestricted.zip`.

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 `runmqsc` command to configure IBM WebSphere MQ. Set up the following variables in the `<INSTALL_DIR>/backoffice/appserver/was/createq.dat` file before running the command:

- `@mq.port@`
- `@configured_store_id@`

If Back Office is integrating with Central Office, set up the following variables:

- `@mq.co.queue.manager@`
- `@mq.co.host@`
- `@mq.co.port@`

If Back Office is integrating with Returns Management, set up the following variables:

- `@mq.rm.queue.manager@`
- `@mq.rm.host@`
- `@mq.rm.port@`

In the following command, `MQ_Install_Dir` is the directory where IBM WebSphere MQ was installed. The value for `<input.jms.server.queue>` comes from the `ant.install.properties` file.

```
<MQ_Install_Dir>/bin/runmqsc <input.jms.server.queue> <
  <INSTALL_DIR>/backoffice/appserver/was/createq.dat
```

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 on the Manual Deployment Option screen. See [Figure A-32](#).

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, manually deploy the ear file from the following location:

<INSTALL_DIR>/backoffice/backoffice.ear

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.

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 after the installation is complete. 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*.

Import 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/configured-output/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/configured-output/db folder.

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

```
parameters.apphost=corbaloc:iiop:<hostname>:<iiop listenport>
```

3. Set the `JAVA_HOME` and `ANT_HOME` environment variables.

```
JAVA_HOME=<WAS_INSTALL_DIR>/java/jre
```

```
ANT_HOME=<INSTALL_DIR>/ant
```

4. Execute the following command:

```
$ANT_HOME/bin/ant load_parameters
```

Load Optional Purge Procedures

For information on how to invoke the procedures provided for purging aged data, see the *Oracle Retail POS Suite Operations Guide*.

To load the purge procedures:

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

```
ant load_purge_procedures
```

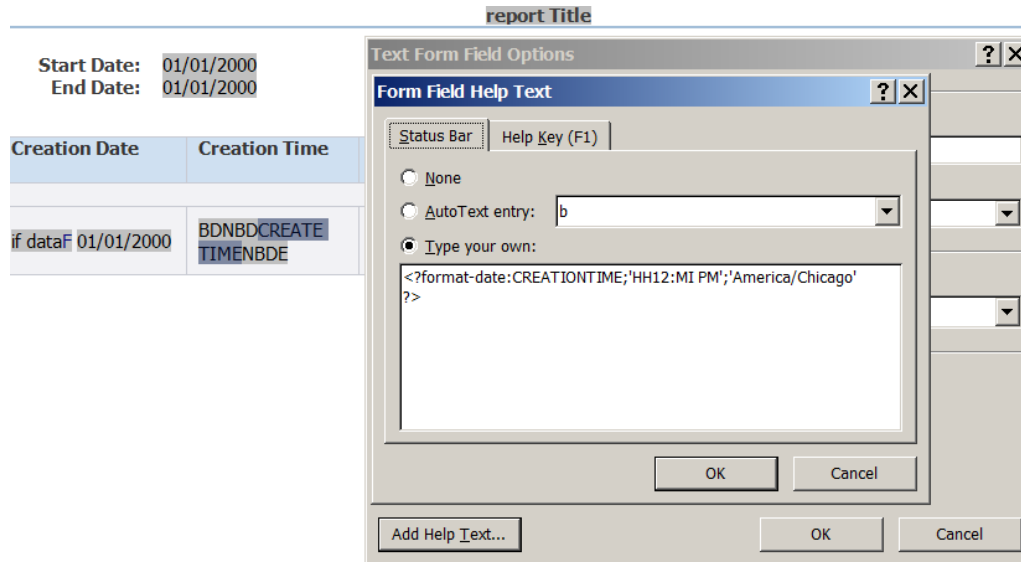
2. Log in as the database schema owner, `<schema_username>`.
3. Create a user for running the purge procedures. This user should only have the privileges required to run the purge procedures.

Update Local Time Zone for Bank Deposit Summary Report

The default local time zone for the Bank Deposit Summary Report is America/Chicago. If this is not your local time zone for Back Office, the correct time zone needs to be set for the report. To change the local time zone:

1. In the `<INSTALL_DIR>/backoffice/configured-output/db/reports/financial` folder, open the `BO_BankDepositSummaryReport.rtf` file.
2. Update the create time in the file:
 - a. Double-click `CREATE TIME` under `Creation Time`. The Text Form Field Options window appears.

Note: Double-click only `CREATE TIME` and not the other two values which are also in the same area. The value is highlighted when selected. [Figure 3-1](#) shows the `CREATE TIME` value selected.

Figure 3–1 Update Local Time Zone for Report Example

- b. Click **Add Help Text**. The Form Field Help Text window appears.
 - c. Under the Status Bar tab, select **Type your own**. The date format appears.
 - d. Change America/Chicago to your local time zone. [Figure 3–1](#) shows the America/Chicago value that you change.
 - e. Save the change.
3. Reload the reports:
 1. Change to the `<INSTALL_DIR>/backoffice/configured-output/db` directory.
 2. Run the following command:


```
ant -f db.xml load_reports
```

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`

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

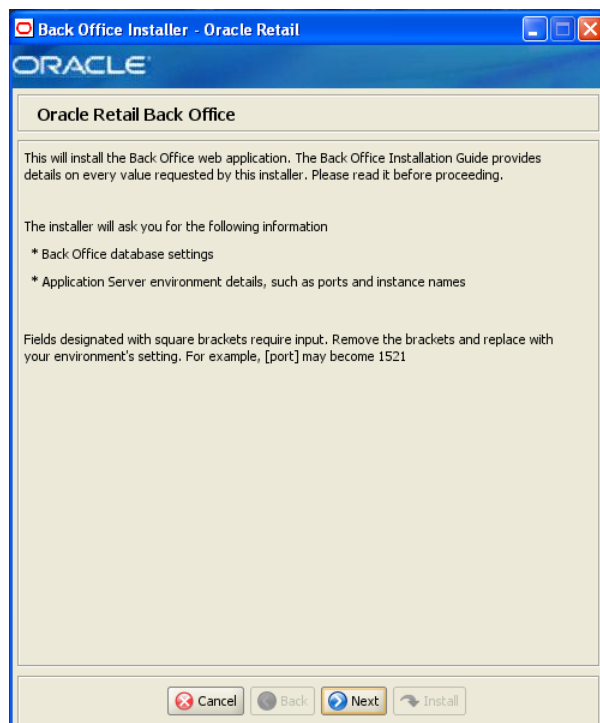


Figure A–2 Oracle Customer Information

The screenshot shows a window titled "Back Office Installer - Oracle Retail". Inside, there's a section titled "ORACLE" and "Oracle Customer Information". Below this, a message states: "Provide your email address to be informed of security issues, install the product and initiate configuration manager. See <http://www.oracle.com/support/policies.html> for details." There are three input fields: "Email:" with the placeholder "[username@oracle.com]", "My Oracle Support Password:" (empty), and a checkbox for "I wish to receive security updates via My Oracle Support." which is checked. At the bottom, there are buttons for "Cancel", "Back", "Next", and "Install".

This screen sets up the information needed for Oracle Configuration Manager (OCM). 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 3](#).

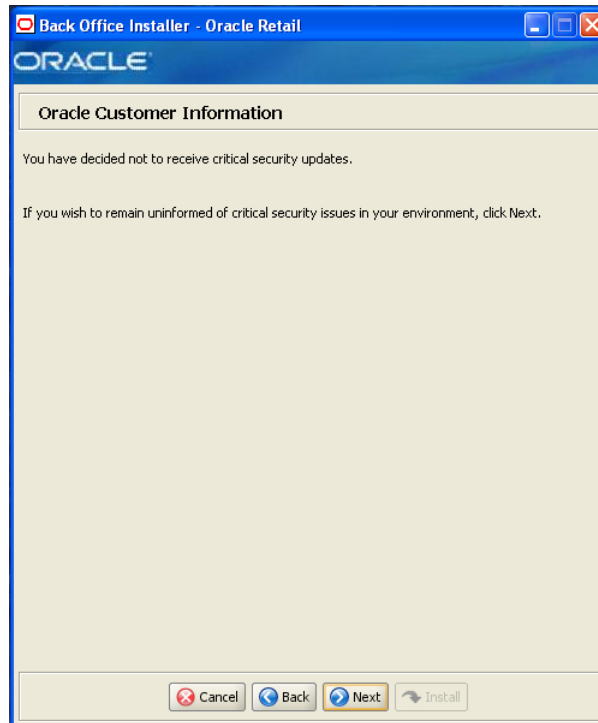
The fields on this screen are described in the following tables.

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

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

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

Figure A–3 Oracle Customer Information



This screen is only displayed if **No** is selected on the previous Oracle Customer Information screen.

Figure A–4 Requirements

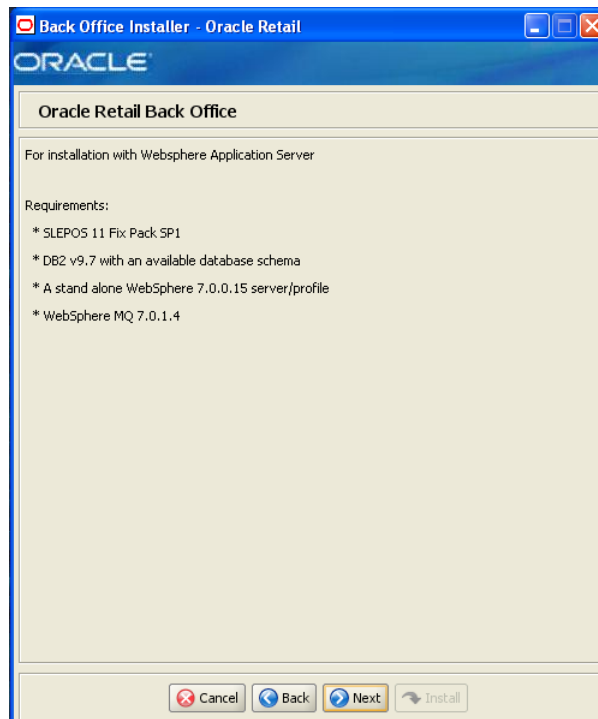
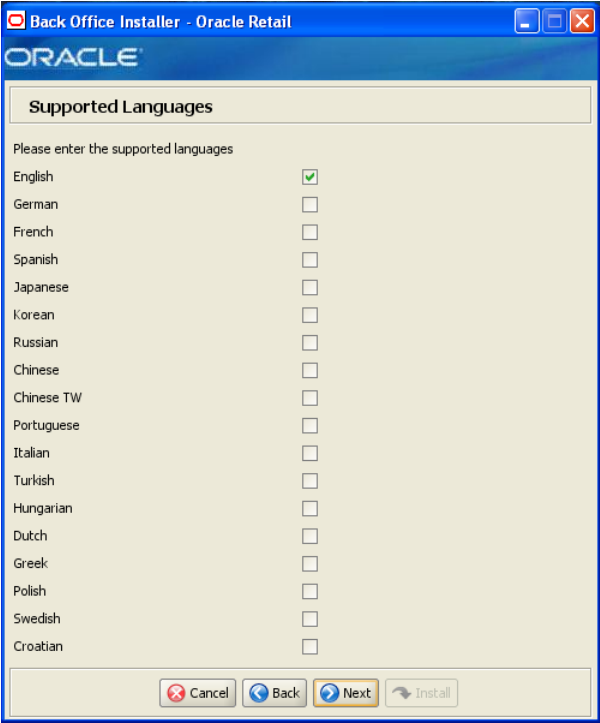


Figure A–5 License Agreement



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

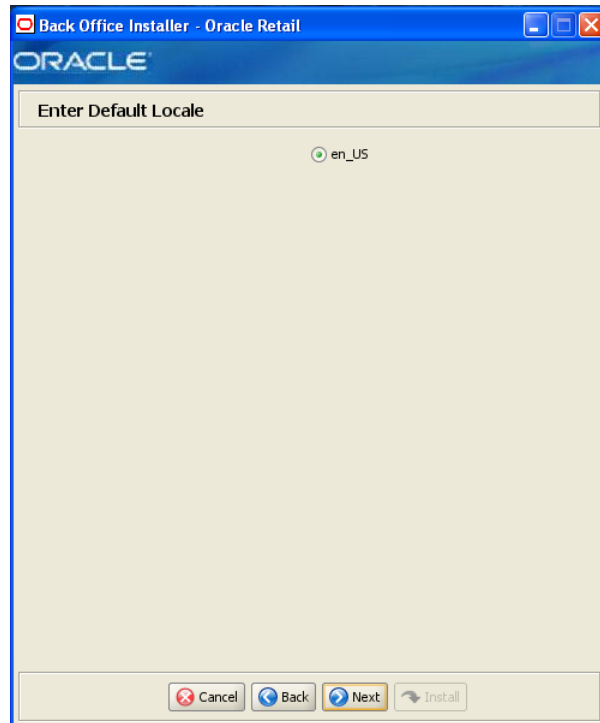
Figure A-6 Supported Languages



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

Details	Content
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

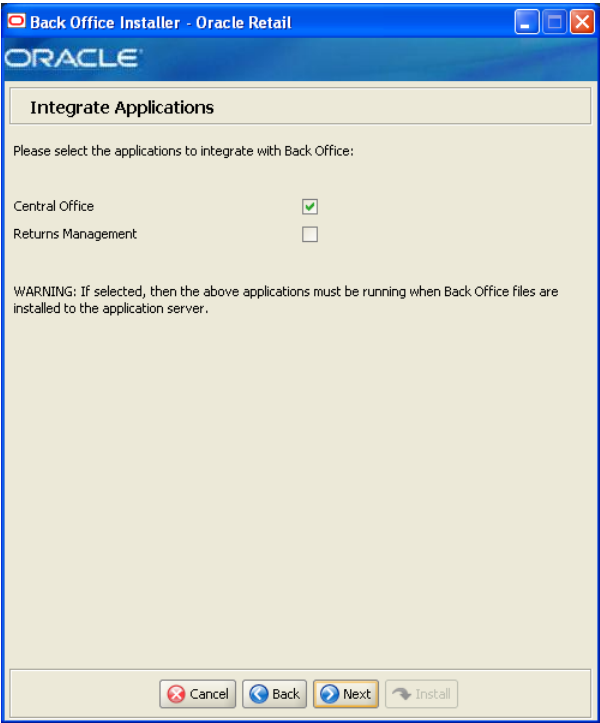
Figure A-7 Enter Default Locale



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

Details	Content
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-8 Integrate Applications



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

Details	Content
Field Title	Please select the applications to integrate with Back Office
Field Description	Select the applications to integrate with Back Office. - Central Office - Returns Management Note: The selected applications must be running when Back Office is installed to the application server.
Example	Central Office

Figure A–9 Database Owner

Back Office Installer - Oracle Retail

ORACLE

Database Owner

Provide the details for the Back Office schema user that will create the schema objects.

Schema Username

Schema password

Confirm password

Cancel Back Next Install

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

Details	Content
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 3.
	Note: This user creates the database objects used by Back Office.

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

Details	Content
Field Title	Confirm Password
Field Description	Reentered Schema Password used to confirm the password.
	Note: The passwords in the Schema Password and Confirm Password fields must match.

Figure A–10 Data Source User

Back Office Installer - Oracle Retail

ORACLE

Data Source User

Provide the details for the Back Office schema user

JDBC URL

Data Source Username

Data Source Password

Confirm password

Cancel Back Next Install

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

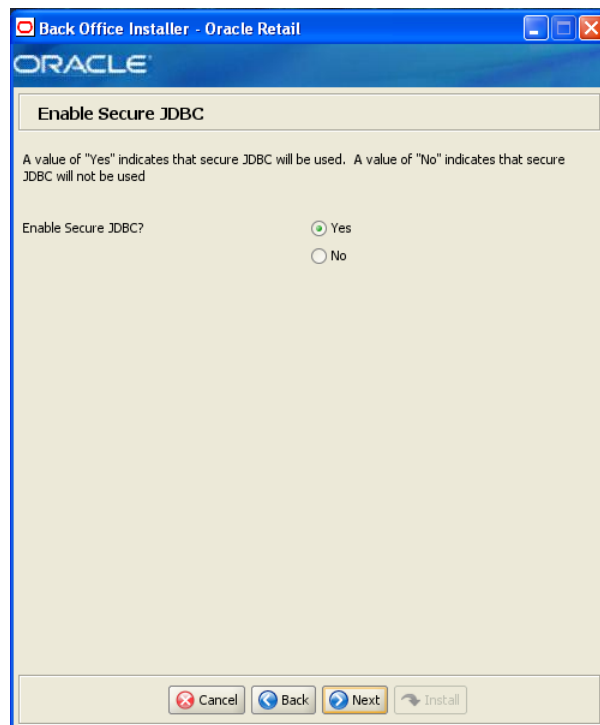
Details	Content
Field Title	JDBC URL
Field Description	URL used by the Back Office application to access the database schema. See Appendix D for the expected syntax.
Example	j d b c : d b 2 : / / m y h o s t : 5 0 0 0 1 / m y d b

Details	Content
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 3 .
	Note: This schema user is used by Back Office to access the database.

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

Details	Content
Field Title	Confirm Password
Field Description	Reentered Data Source Password used to confirm the password. Note: The passwords in the Data Source Password and Confirm Password fields must match.

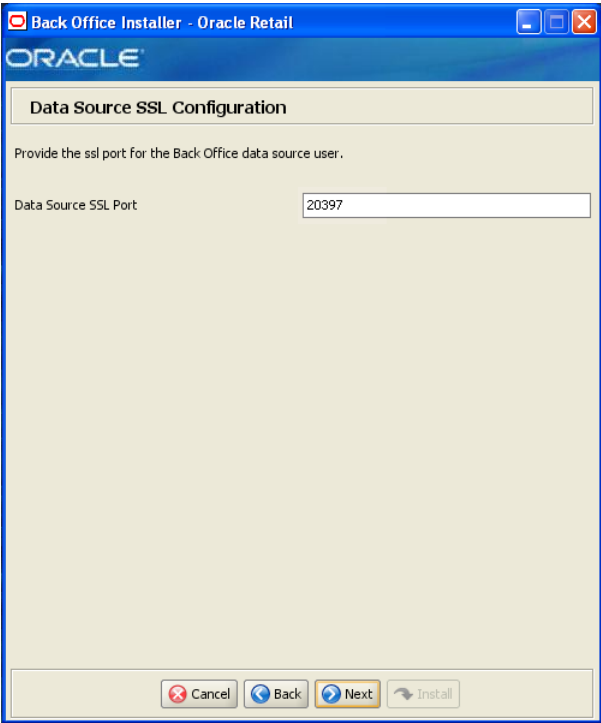
Figure A–11 Enable Secure JDBC



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

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

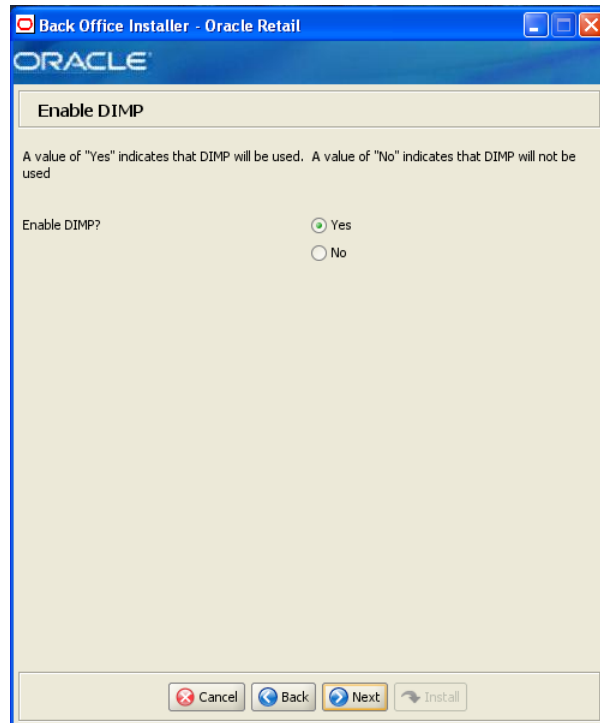
Figure A-12 Data Source SSL Configuration



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.

Details	Content
Field Title	Data Source SSL Port
Field Description	SSL port used to access the database.
Example	20397

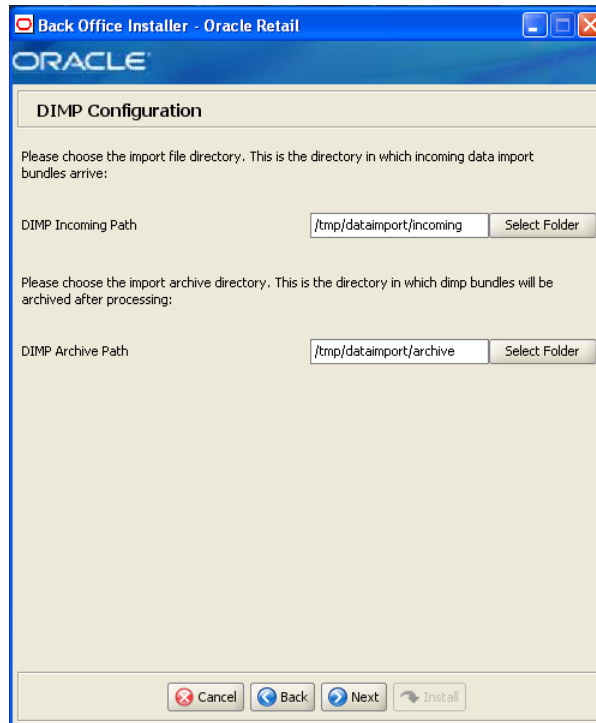
Figure A-13 Enable DIMP



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

Details	Content
Field Title	Enable DIMP?
Field Description	Select whether DIMP will be used. For information on DIMP, see "Enable Data Import" in Chapter 3 .
Example	Yes

Figure A-14 DIMP Configuration



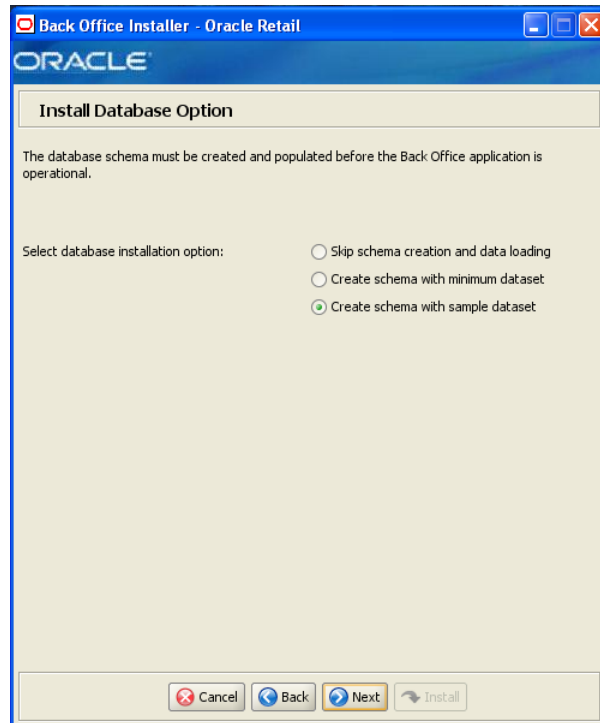
This screen is only displayed if **Yes** is selected on the Enable DIMP screen.

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

Details	Content
Field Title	DIMP Incoming Path
Field Description	Directory where the incoming data import bundles arrive.
Example	/tmp/dataimport/incoming

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

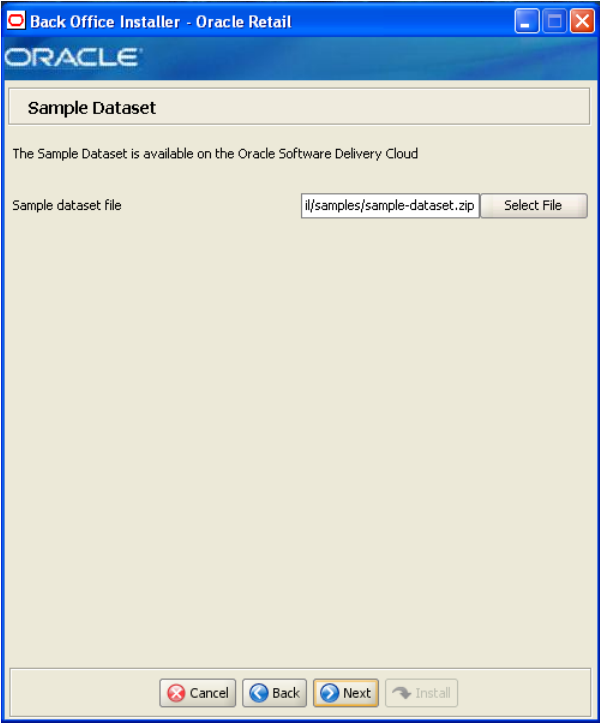
Figure A-15 Database Install Options



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

Details	Content
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 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 "Database Install Options" in Chapter 3.
Example	Create schema with sample dataset

Figure A-16 Sample Dataset



This screen is only displayed when **Create schema with sample dataset** is selected on the Install Database Option screen.

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

Details	Content
Field Title	Sample dataset file
Field Description	Enter the path to the sample dataset to be loaded into the database schema. You can obtain the <code>sample-dataset-13.4.1.zip</code> file from the Oracle Software Delivery Cloud at the following Web site: https://edelivery.oracle.com/ For more information on the sample dataset, see "Database Install Options" in Chapter 3.
Example	<code>/oracle/retail/samples/sample-dataset.zip</code>

Figure A-17 Back Office Administrator User

Back Office Installer - Oracle Retail

ORACLE

Back Office Administrator User

Enter the username and password for the Back Office administrator account.

The password must satisfy the following criteria:

- Contain at least one alphabetic character
- Contain at least one numeric character
- At least seven characters in length

Back Office Administrator Username: pos

Back Office Administrator Password:

Confirm password:

Cancel Back Next Install

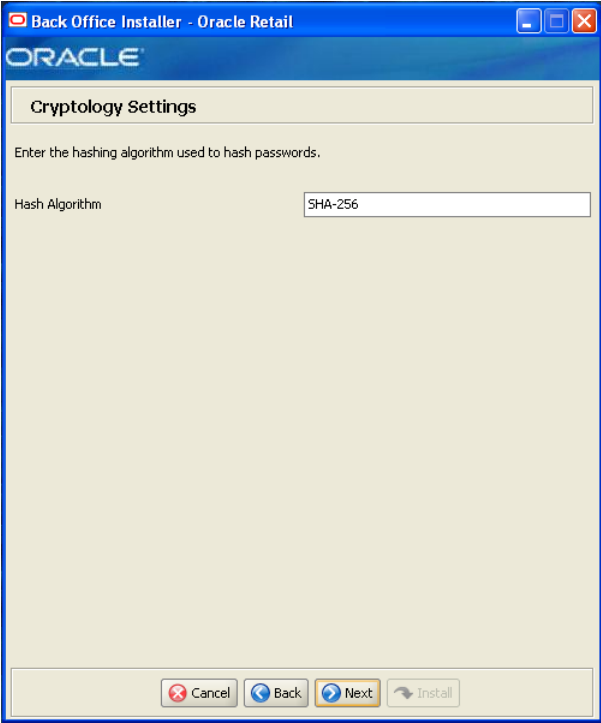
The fields on this screen are described in the following tables.

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

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

Details	Content
Field Title	Confirm Password
Field Description	Reentered Back Office Administrator Password used to confirm the password.
	Note: The passwords in the Back Office Administrator Password and Confirm Password fields must match.

Figure A-18 Cryptology Settings



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

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

Figure A-19 Enter Store ID

Back Office Installer - Oracle Retail

ORACLE

Enter Store ID

Please enter the 5 digit store id. Pad with leading zeros if necessary.

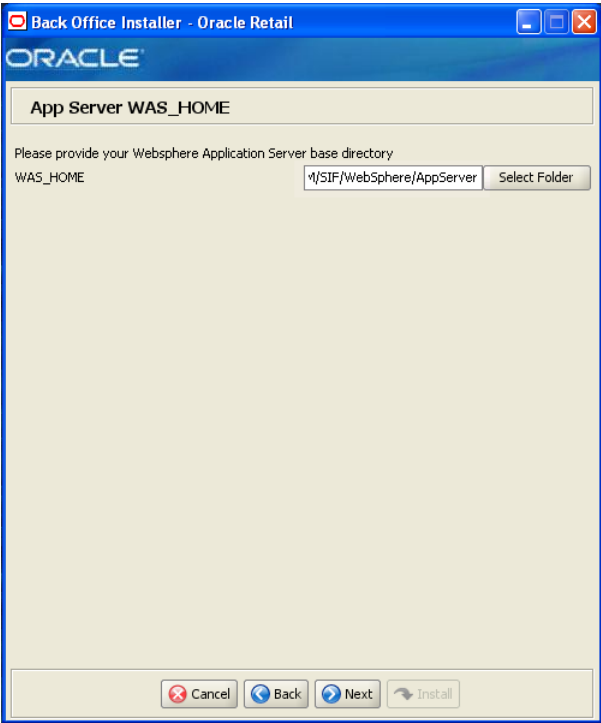
Store ID

Cancel Back Next Install

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

Details	Content
Field Title	Store ID
Field Description	ID for this store. Note: The store ID must be five digits. It can be padded with leading zeroes if necessary. The store ID can only contain the numeric characters 0 through 9.
Example	04241

Figure A-20 App Server WAS_HOME



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

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

Figure A-21 Mail Session Details

Back Office Installer - Oracle Retail

ORACLE

Mail Session Details

Please provide mail server details for the Back Office application

SMTP host: mail.example.com

From Address: admin@example.com

Buttons: Cancel, Back, Next, Install

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

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

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

Figure A-22 Application Server Details

Back Office Installer - Oracle Retail

ORACLE

Application Server Details

Server Name: server1

Node Name:

Cell Name:

IIOP Port: 2809

Server Profile:

Timezone: America/Chicago

Cancel Back Next Install

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

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

Details	Content
Field Title	Node Name
Field Description	Name of the IBM WebSphere node.

Details	Content
Field Title	Cell Name
Field Description	Name of the IBM WebSphere cell.

Details	Content
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

Details	Content
Field Title	Server Profile
Field Description	Name of the IBM WebSphere profile.

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

Figure A-23 JMS Server Details

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

Details	Content
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.

Details	Content
Field Title	JMS Port
Field Description	Port number used by the JMS server.

Details	Content
Example	1414

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

Details	Content
Field Title	JMS Password
Field Description	Password for the JMS server.

Details	Content
Field Title	Confirm Password
Field Description	Reentered JMS Password used to confirm the password. Note: The passwords in the JMS Password and Confirm Password fields must match.

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

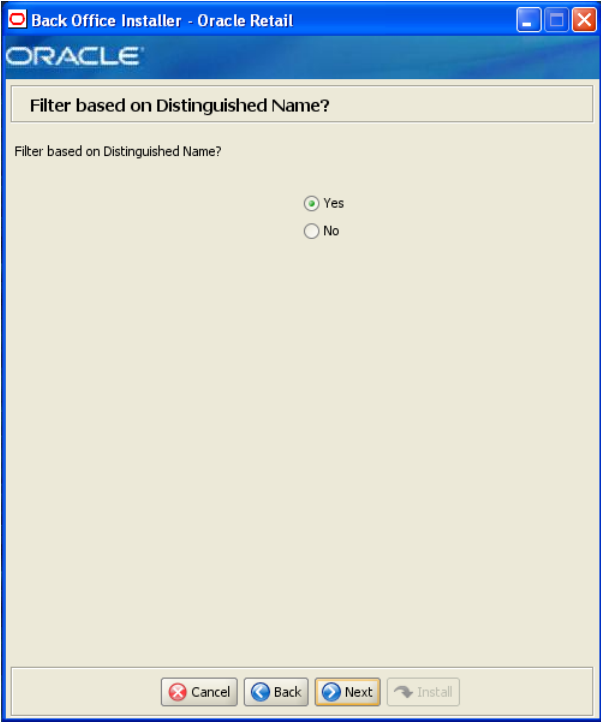
Figure A–24 *Select JMS SSL Level*



The field on this screen is described in the following table. For more information, see ["Set up the JMS SSL Key Store"](#) in [Chapter 3](#).

Details	Content
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–25. ■ To use export strength, select Export Strength(RC4_MDS_EXPORT). The next screen displayed is Figure A–25. ■ To not use ssl support, select No SSL Support. The next screen displayed is Figure A–27.
Example	US Strength(TRIPLE_DES_SHA_US)

Figure A–25 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.

Details	Content
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-26 Distinguished Name Filter

Back Office Installer - Oracle Retail

ORACLE

Distinguished Name Filter

Distinguished Name Filter?

Filter Value

CN=bo.server.example.com

Cancel Back Next Install

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.

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

Figure A-27 Central Office JMS Server Details

Back Office Installer - Oracle Retail

ORACLE

Central Office JMS Server Details

CO JMS Host Name

CO JMS Port 1415

CO JMS Username

CO JMS Password

Confirm password

CO JMS Queue Manager co.queue.manager

Cancel Back Next Install

This screen is only displayed if **Central Office** is selected on the Integrate Applications screen.

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

Details	Content
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.

Details	Content
Field Title	CO JMS Server Port
Field Description	Port number used by the Central Office JMS server.
Example	1415

Details	Content
Field Title	CO JMS Server 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 <code>mqm</code> group.

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

Details	Content
Field Title	Confirm Password
Field Description	Reentered CO JMS Password used to confirm the password. Note: The passwords in the CO JMS Password and Confirm Password fields must match.

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

Figure A-28 Returns Management JMS Server Details

The screenshot shows a window titled "Back Office Installer - Oracle Retail". Inside the window, there is a section titled "Returns Management JMS Server Details". This section contains three input fields: "RM JMS Host Name" (empty), "RM JMS Port" (containing the value "1416"), and "RM JMS Queue Manager" (containing the value "rm.queue.manager"). At the bottom of the window, there are four buttons: "Cancel", "Back", "Next", and "Install".

This screen is only displayed if **Returns Management** is selected on the Integrate Applications screen.

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

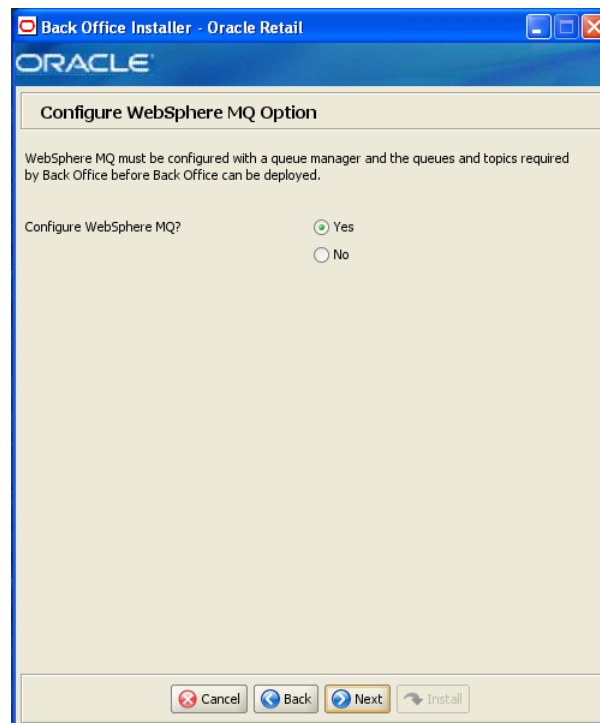
Details	Content
Field Title	RM JMS Host Name

Details	Content
Field Description	Name of the Returns Management 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.

Details	Content
Field Title	RM JMS Port
Field Description	Port number used by the Returns Management JMS server.
Example	1416

Details	Content
Field Title	RM JMS Queue Manager
Field Description	Name of the Returns Management JMS queue manager.
Example	rm.queue.manager

Figure A–29 *Configure WebSphere MQ Option*

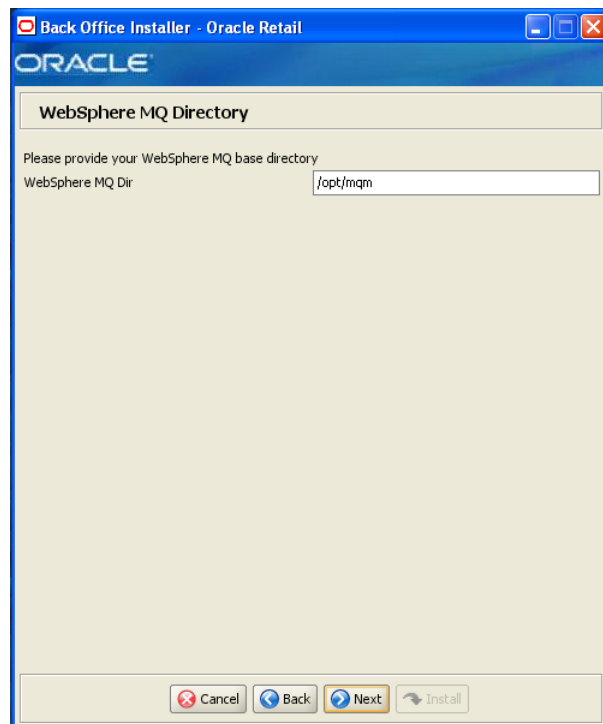


The field on this screen is described in the following table.

Details	Content
Field Title	Configure WebSphere MQ?

Details	Content
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 3 for the manual steps you need to perform after the installer completes.
Example	Yes

Figure A–30 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.

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

Figure A–31 JMS SSL Keystore Passwords

Back Office Installer - Oracle Retail

ORACLE

JMS SSL Keystore Details

Keystore Details

Corporate CA Certificate File

MQ Keystore Password

Confirm Password

MQ Source Keystore

Password for MQ Source Keystore

Confirm Password

WebSphere Keystore Password

Confirm Password

WebSphere Source Keystore

Password for WebSphere Source Keystore

Confirm Password

Note: The MQ source keystore must be in a directory accessible by the MQ user and the MQ user must have read permissions for the file.

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.

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

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

Details	Content
Field Title	Confirm Password
Field Description	Reentered MQ Keystore Password used to confirm the password. Note: The passwords in the MQ Keystore Password and Confirm Password fields must match.

Details	Content
Field Title	MQ Source Keystore

Details	Content
Field Description	Location of the source Key Store for WebSphere MQ.
Example	/tmp/mq-keystore.jks

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

Details	Content
Field Title	Confirm Password
Field Description	Reentered MQ Source Keystore Password used to confirm the password. Note: The passwords in the MQ Source Keystore Password and Confirm Password fields must match.

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

Details	Content
Field Title	Confirm Password
Field Description	Reentered WebSphere Keystore Password used to confirm the password. Note: The passwords in the WebSphere Keystore Password and Confirm Password fields must match.

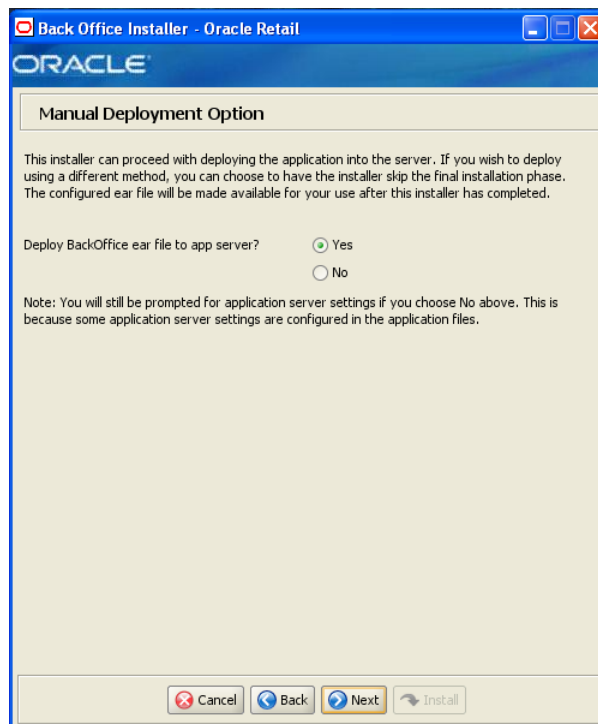
Details	Content
Field Title	WebSphere Source Keystore
Field Description	Location of the source Key Store for WebSphere.
Example	/tmp/was-keystore.jks

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

Details	Content
Field Title	Confirm Password

Details	Content
Field Description	Reentered WebSphere Source Keystore Password used to confirm the password. Note: The passwords in the WebSphere Source Keystore Password and Confirm Password fields must match.

Figure A–32 *Manual Deployment Option*



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

Details	Content
Field Title	Deploy BackOffice ear file 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–33 Application Deployment Details

Back Office Installer - Oracle Retail

ORACLE

Application Deployment Details

The default values shown below are examples

Enter the deployment name for the Back Office application. This is the name by which the application will be identified in the application server.

App Deployment Name

Enter the web context root for this application. The web URL used to access the application will be https://server:port/contextroot/index.jsp

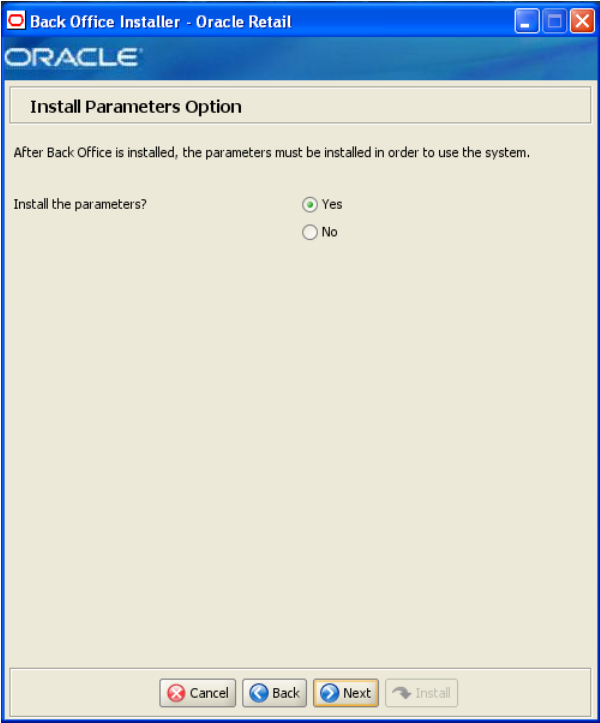
Context Root

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

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

Details	Content
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

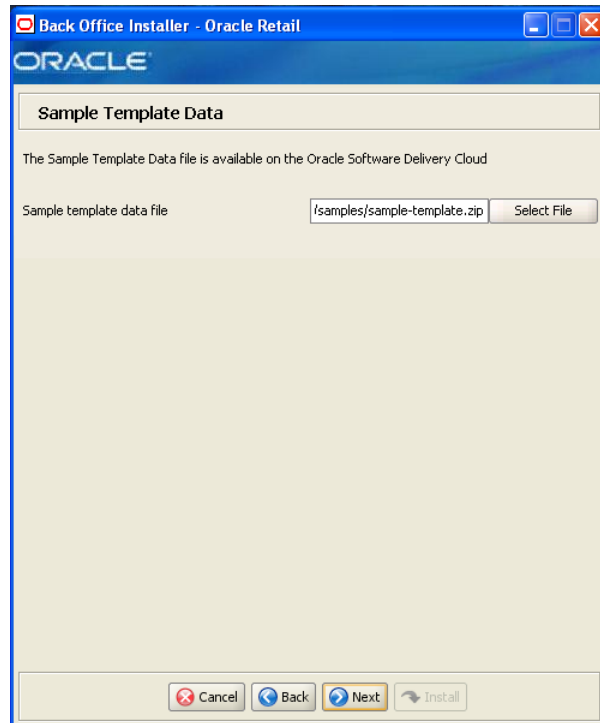
Figure A-34 Install Parameters Option



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

Details	Content
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 3 for the manual steps you need to perform after the installer completes.
Example	Yes

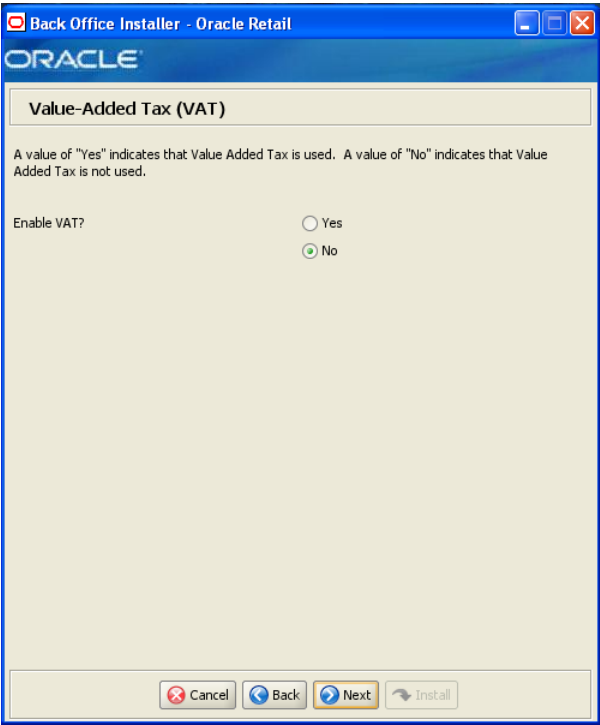
Figure A–35 Sample Template Data



This screen is only displayed if **Yes** is selected on the Load Templates Option screen. The field on this screen is described in the following table.

Details	Content
Field Title	Sample template data file
Field Description	Enter the path to the sample templates to be loaded into the database schema. You can obtain the <code>sample-template-13.4.5.zip</code> file from the Oracle Software Delivery Cloud at the following Web site: https://edelivery.oracle.com/
Example	<code>/oracle/retail/samples/sample-template.zip</code>

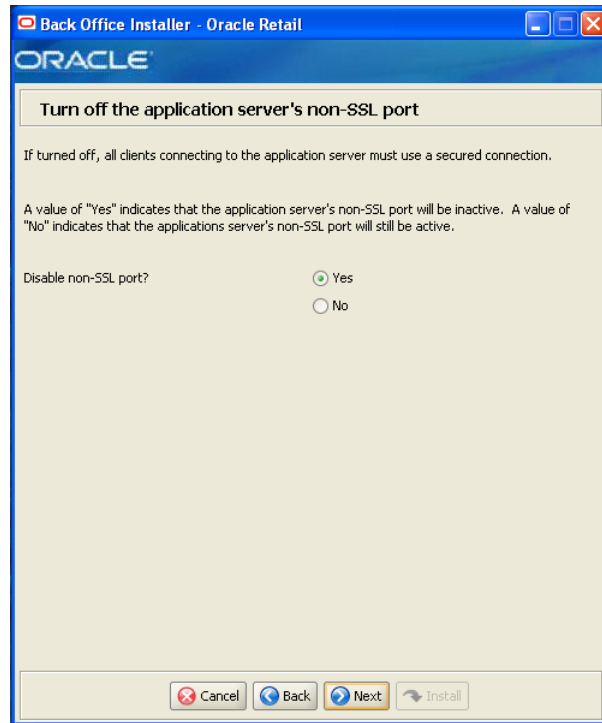
Figure A-36 Value-Added Tax (VAT)



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

Details	Content
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

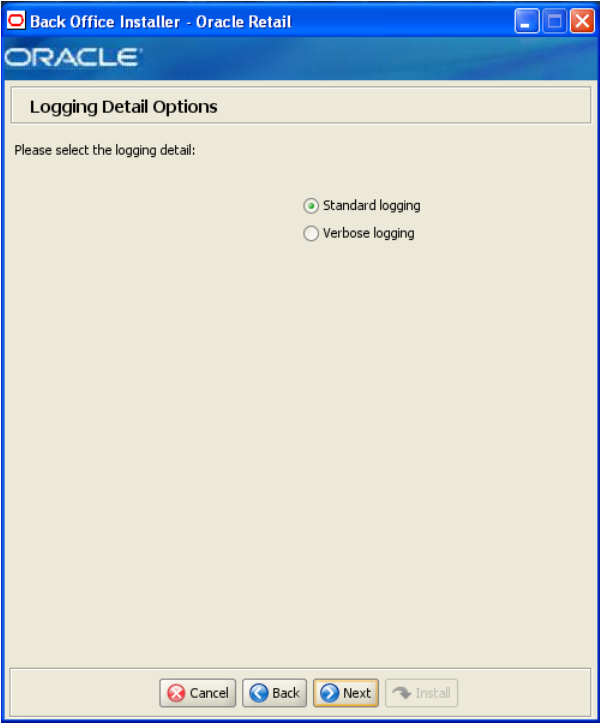
Figure A–37 Turn Off the Application Server's Non-SSL Port



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

Details	Content
Field Title	Disable non-SSL port?
Field Description	Sets whether connecting to the application server requires a secured connection. Note: It is recommended that you disable the non-SSL port in order to increase the security of your environment. ■ To disable the use of a non-SSL port, choose Yes. ■ To enable using a non-SSL port, choose No.
Example	Yes

Figure A-38 Logging Detail Options



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

Details	Content
Field Title	Please select the logging detail
Field Description	Choose the level of logging. ■ To only log some of the messages, choose Standard Logging. ■ To log all of the messages, choose Verbose Logging.
Example	Standard logging

Figure A–39 Installation Progress

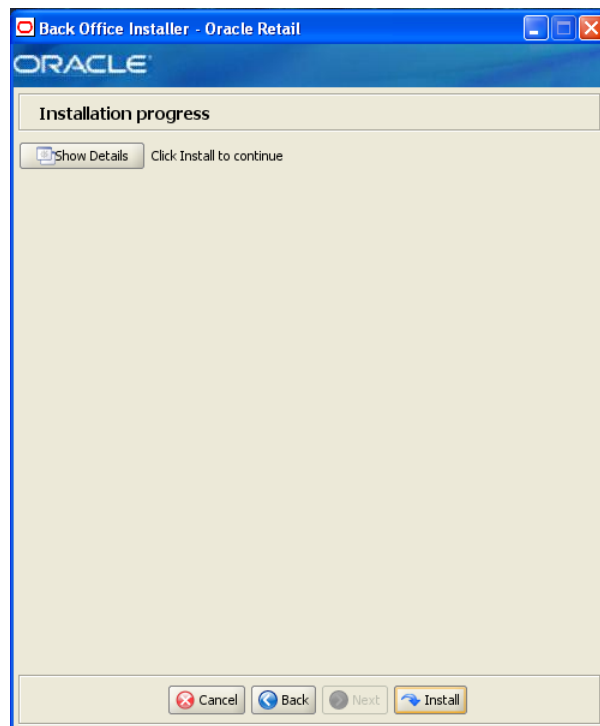
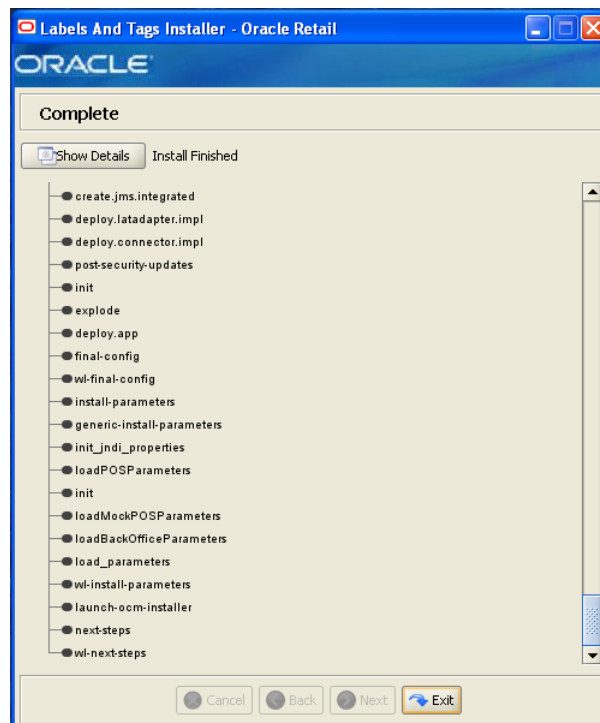


Figure A–40 Installation Complete



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 3](#).

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
```

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 3](#).

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: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`

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.

Appendix: Troubleshooting

This appendix has information that can be used to troubleshoot problems after the installation of Back Office.

Deployment Failure

If the deployment of the application fails, see the following Web site for information about setting the ulimit option:

<https://www-304.ibm.com/support/docview.wss?uid=swg21380114>

Appendix: Installation Order

This appendix 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 Invoice Matching (ReIM)
7. 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.

8. Oracle Retail Allocation
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 Analytics
33. Oracle Retail Workspace (ORW)