

**Oracle® Retail Point-of-Sale
Administrator Guide
Release 7.2.2
April 2007**

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Audience

The audience for this document is administrators and developers who install and configure the Oracle Retail Point-of-Sale application.

Goals

An administrator or developer who reads this document will be able to:

- Install Point-of-Sale
- Configure Point-of-Sale

Customer Support

<https://metalink.oracle.com>

When contacting Customer Support, please provide the following:

- The product version and program/module name.
- A functional and technical description of the problem, including business impact.
- Detailed step-by-step instructions to recreate the problem, including screen shots of each step.
- The exact error message you received.

Text Conventions

The following table shows the text conventions used in this document.

Table P-1 Text Conventions

Sample	Description
<i>Italic text</i>	This is used for emphasis. It calls attention to crucial information and important terms defined in the text, for example, <i>quantity on hand</i> is
Bold text	This is used for text (in an application window or on a keyboard) that is acted upon by the user, for example, Click Next .

Table P-1 Text Conventions

Sample	Description
Courier Text	This is used for code, including file and directory names, paths, syntax, and commands, for example, <code>/opt/jboss-3.2.1/server/default/lib</code> .
<i><Italics and angle brackets></i>	This is used for text that needs to be supplied by the user, for example, Set the parameter <code>AccessViaIniFilePath = /opt/accessvia/program/<AccessVia ini file name></code> .. If it is within a code sample, the text is in Courier font.

INSTALLATION

This chapter provides information about the installation procedures for 360Store Point-of-Sale. Oracle Retail provides an installation script for Point-of-Sale, but customer installations typically develop custom procedures which build on the existing scripts. Use procedures in this chapter to install a demonstration or initial register system and as a source of information for modifying installations.

Installation Requirements

This section defines supported products for client and server systems in the Point-of-Sale system. Other products may work with the system, but have not been tested; not all permutations of these products have been tested. Consult the release notes provided with the software for details.

Supported Software for Clients (Registers)

The following table lists software products in the required categories which have been tested for this release in at least one configuration.

Table 1-1 Supported Software for Clients

Required Item	Supported Products
Operating System	Windows Embedded for Point of Service (WEPOS) IRES V2 (SUSE Linux Enterprise Server 9)
Java Runtime Environment	Java 2 Platform, Enterprise Edition (J2EE), Version 1.4.2

Supported Software for Store Servers

Table 1-2 Supported Software for Store Servers

Required Item	Supported Products
Operating System	IRES V 2 (SUSE Linux Enterprise Server 9) Windows 2003 Server
Java Runtime Environment	Java 2 Platform, Enterprise Edition (J2EE), Version 1.4.2
Database	DB2 v.8.2 MySQL 4.1.14
Messaging	JBoss JMS 4.0.2 Websphere MQ Series 5.3 FP 11

Basic Computer Specifications

Specific hardware requirements for the machines running Point-of-Sale depend on several variables including the number of users and other applications running on the same machine. However, the following can be used as general guidelines:

Table 1-3 Hardware Minimum Recommendations

Machine	CPU	Speed	RAM	Hard Drive
Store Server	Pentium III	500 MHz	256MB	10GB
Database Server	Pentium III	500 MHz	256MB	10GB
Store Server, Database Server and Back Office on the same machine	Pentium III	500 MHz	512MB	10GB
Client (Register) minimum	Pentium II	266MHz	128 MB with hard drive 256MB without hard drive*	2GB
Client recommended	Pentium III	400 MHz	256MB	2GB

*Tested on Linux only

Peripheral Devices for Clients

JavaPOS is the industry standard for Java compatibility for retail-oriented devices. A committee of prominent retail vendors and end users maintains the standard. Some of the more common devices used with point-of-sale applications include bar code scanners, cash drawers, printers, keyboards, magnetic stripe readers (MSR), wedge keyboards, hard totals, and magnetic ink check readers (MICR). Any JavaPOS-compliant peripheral devices should work with Point-of-Sale; some may require software modifications to work properly.

Supported Hardware for Clients

The following items were tested for Point-of-Sale release 7.1. Other products may work with the system, but have not been tested; not all permutations of these products have been tested. Consult the release notes provided with the software for details. Mice are not supported for Point-of-Sale. A touch screen may be used, but a keyboard is required for some functions. Both tested configurations included touch screens.

Table 1-4 Supported Hardware for Clients

Category	Supported Items
Register	IBM SurePOS™ 741 Wincor Nixdorf BEETLE /S
PIN pads	Ingenico EN-TOUCH 1000
Pole display	IBM 25L5510 (2x20)
Scanner	Symbol LS 1004, RS232
Printer/MICR	4610 Model 4 - USB Epson TMH 6000
Cash Drawer	IBM Wincor
Keyboard	IBM A/N with MSR Wincor A/N with MSR

Supported Hardware for Store Servers

Table 1-5 Supported Hardware for Store Servers

Category	Supported Items
Hardware	Dell 2650 Dell 2850
CPU	Intel I2x2.8 GHz Intel 4x2.8 GHz

Installing with the Install Script

To establish an initial Point-of-Sale installation or to create a demonstration system, use the Point-of-Sale installation script as described in this section. Note that the installation script is not appropriate for all installations:

- Oracle Retail expects implementation teams to develop custom procedures for actual register installations, which may or may not be based on the script described here. See “Creating a Custom Installation” on page 1-13 for guidelines.
- If you intend to use a different JRE than the Sun JRE installed by the Point-of-Sale installation script (for example, if the Sun JRE is not supported by your hardware), see “Changing the JRE” on page 1-11 before performing the procedures described in this section.

Determining Server Tier

Machines and logical components of the Point-of-Sale application are defined in the following table:

Table 1-6 Server Tier Logical Components

Machine	Description
Store Server	The machine that runs the server component of Point-of-Sale. There is at least one store server for each store. This component runs as a service. This machine may also house the Back Office Server and other 360Store components such as the 360Store database and Unleashed Point-of-Sale.
Point-of-Sale Clients	The machines that execute the Point-of-Sale transactions; they are typically cash registers.
Database Server	The machine that houses the 360Store database. This machine may or may not be the same as the store server.
JMS Server	The machine that houses the JMS server software.

When you run the installation script, it asks you to specify a Server Tier Type. The available types are:

- Stand-alone/Collapsed—Choose this option to run the Point-of-Sale on one machine without client-server components. This configuration runs in one JVM. It is typically used for development and demos, but not for production systems.
- N-Tier Client—Choose this when installing the client component.
- N-Tier Store Server—Choose this when installing the store server component.

Note: Choose both N-Tier Client and N-Tier Store Server to install both components on the same machine.

- N-Tier Database Server—Choose this when installing the database server component.

Obtaining Third-Party Library Files Required by Point-of-Sale

The Point-of-Sale application uses JBoss specific files. You can download the JBoss application server to get access to the required files. To download the JBoss files:

1. Install the Point-of-Sale application.
2. Download jboss4.0.2 from <http://prdownloads.sourceforge.net/jboss/jboss-4.0.2.zip?download>.
3. Expand the zip file to a temporary directory. *<JBoss installation>* is used here as the directory name.
4. Copy the following files:

<JBoss installation>/client/jboss-client.jar to *<POS home>/360common/common/build/jboss-client.jar*

<JBoss installation>/lib/jboss-common.jar to *<POS home>/360common/common/build/jboss-common.jar*

<JBoss installation>/client/jboss-common-client.jar to *<POS home>/360common/common/build/jboss-common-client.jar*

<JBoss installation>/client/jboss-j2ee.jar to *<POS home>/360common/common/build/jboss-j2ee.jar*

<JBoss installation>/client/jbossmq-client.jar to *<POS home>/360common/common/build/jbossmq-client.jar*

<JBoss installation>/client/jbossall-client.jar to *<POS home>/360common/common/build/jbossall-client.jar*

<JBoss installation>/client/jnp-client.jar to *<POS home>/360common/common/build/jnp-client.jar*

<JBoss installation>/client/jboss-client.jar to *<POS home>/360common/db/lib/jboss-client.jar*

<JBoss installation>/lib/jboss-common.jar to *<POS home>/360common/db/lib/jboss-common.jar*

<JBoss installation>/client/jboss-common-client.jar to *<POS home>/360common/db/lib/jboss-common-client.jar*

<JBoss installation>/client/jboss-j2ee.jar to *<POS home>/360common/db/lib/jboss-j2ee.jar*

<JBoss installation>/client/jbossall-client.jar to *<POS home>/360common/db/lib/jbossall-client.jar*

<JBoss installation>/client/jbossmq-client.jar to *<POS home>/360common/db/lib/jbossmq-client.jar*

<JBoss installation>/client/jnp-client.jar to *<POS home>/360common/db/lib/jnp-client.jar*

Installing the Database

360Store products such as Point-of-Sale and Back Office use the 360Store database. One 360Store database is typically installed in each store. Data stored in the 360Store database includes employee names, logon information, transaction data, and the inventory database. The database can be located on the store server or on a separate machine acting as the database server. The database must be installed before Point-of-Sale can be installed.

To complete the installation script, you must know the database location:

- If you install Point-of-Sale on the same machine as the database, the script asks for the database directory location.
- If you install Point-of-Sale on a different machine from the database, the script asks for the hostname or IP address and RMI port number of the machine running the database.

The Point-of-Sale installation process installs scripts to build the tables and insert a minimal data set. Steps for running these scripts are included later in the process.

Installing JMS

JMS queues may be used by Point-of-Sale for distribution of Ejournal and POSlog data to other systems. The JMS API provides a standardized means for sending messages between applications and application components.

If you are installing the server component so that a new instance of JBossMQ runs on the store server, the installation script performs the installation. If you are using an existing instance of a JBossMQ queue, a JBoss queue on another machine, or another type of JMS queue, install it before running the Point-of-Sale installation scripts. You must define information about the queue manually in appropriate configuration scripts.

Additional information about JBoss is available at <http://www.jboss.org>.

Most of the work of installing JMS is performed by the installer itself, but you need to set up the class part with application server .jar files and set the location of the corporate server.

To install JMS on the server:

1. Edit the `posenv.bat` file by removing `rem` from `rem call jboss.bat`. This enables setting up the classpath for JBoss.
2. Check `jboss.bat` to make certain it points to the store server where JBoss is installed.
3. Edit the `pos/bin/comm.properties` file by adding the following lines:
 - a. `comm.jms.topicConnectionFactory.name.centraloffice=ConnectionFactory`
 - b. `comm.jms.queueConnectionFactory.name.centraloffice=ConnectionFactory`
4. Remove any other copies of the `comm.properties` file from the `pos/config` directory.
5. Check `pos/config/centraloffice.jndi.properties` to make certain the Central Office server name is set correctly.

6. Edit the `jndi/config/backoffice.jndi.properties` file by setting values for the store server host and port number in the following property:

```
java.naming.provider.url=jnp://<store_server_host_name>:<store_server_port_number>
```

Example:

```
java.naming.provider.url=jnp://eqa4:1099
```

To install JMS on the client:

1. Edit the `posenv.bat` file by removing `rem` from `rem call jboss.bat`. This enables setting up the classpath for JBoss.
2. Check `jboss.bat` to make certain it points to the store server where JBoss is installed.
3. Remove the `comm.properties` file the `pos/config` directory.

Installing JavaPOS

Install an appropriate version of JavaPOS on each register; refer to the hardware vendor's documentation for instructions.

Installing Point-of-Sale on Machines

If a previous version of Point-of-Sale is installed on a machine, uninstall it by deleting the installation directory (the default directory is `c:\360store`) or choose a different installation directory from the default.

Run the installation script one time for each machine in the Server Tier and once for each register:

- The Collapsed and Single-Tier implementations require running the script one time.
- The 2-Tier implementation requires installation on the store server and each register.
- The 3-Tier implementation requires installation on the store server, database server and each register.

The installation script performs the following steps. Not all steps apply for client, server, or database installations.

- Installs Foundation, Retail Domain and Point-of-Sale jar files.
- Installs database build scripts and start-up files.
- Installs a Java runtime environment (JRE).
- Defines Server Tier in conduit script that starts Point-of-Sale for the given machine.
- Defines hostnames or IP addresses and port numbers for the Store Server and/or database server.
- Defines device availability.
- Defines application properties for Store ID and Register Number.

The installation script asks some or all of the following questions. (Some questions do not apply to all Server Tier types.)

Table 1-7 Point-of-Sale Install Script Information

Item	Default	Description
Installation Location	c:\360store	The directory into which Point-of-Sale files are to be copied. This install location should be the same for all 360Store products, since they share resources. Files specific to Point-of-Sale are copied to a /pos subdirectory of the directory specified here.
Server Tier Type	<none>	Choose from Stand-alone, N-Tier Client, N-Tier Store Server or N-Tier Data Server.
Store Server Details	port # - 1300	The hostname or IP address and port number of the Store Server, when not the current machine.
Store ID	04241	The store ID.
Database Type	MySQL	Choose the type of database.
Database on Store Server?	Yes	Define whether the database is located on the Store Server or on a separate, dedicated database server.
Database Location	c:\Program Files\ <databasename>	The directory location where the database is installed, when the database is on the current machine.
Database Hostname	<none>	The hostname or IP address of the database server, when not the current machine.
Database Configuration	JDBC Driver, URL, Jar	Database hostname.
360Store Database Port Number	1200	The port number of the port open on the database server.
Server Journal Options	<none>	Choose the appropriate server journal options.
POSlog Options	Do not export	Choose the export options for the POSlog and/ or define a JMS queue hostname or IP address.
Log Options	Verbose	Choose Verbose to get all log messages and Standard to log fewer messages.
Register Number	129	The register number for a client install.
Install Set/Devices	No platform or devices	For a client install on a register, specify the platform. For a client install with devices, specify which devices are installed.
Client Journal Options	Local file	Specify the E-journal options.
Tender Authorization Options	Simulated	Indicate if the Tender Authorizer is simulated or ISD. Demo installations should use the Simulated option.

Table 1-7 Point-of-Sale Install Script Information

Item	Default	Description
Tender Authorization Details	Host name - www.isdwhq.com Host port - 15713 Merchant number - 0001	For the ISD Tender Authorizer, provide details.
User Interface Option	Swing	Choose from Swing (a standard swing interface) or Image (custom images for buttons and other graphics are provided).

Populating the Database

The 360Store database needs to be built with tables, fields, and initialized data. If a database is not shared with 360Store Back Office and is being built from scratch, run one of the following scripts to build the tables and insert a minimal data set:

- For Windows, run `C:\360store\pos\bin\dbbuild.bat`.
- For Linux, run `/pos/bin/dbbuild.sh`.

Integrated Environment Steps

For information about integrating the Point-of-Sale environment, see *Oracle Retail Back Office Administrator Guide*.

Updating Device Configuration

1. Update the `360common/360Tools/automatedTesting/Tools/jpos/res/jpos.xml` file to reflect the devices being used on the machine.

```
<JposEntries>
  <JposEntry logicalName="defaultScanner">
    <creation factoryClass="com.extendyourstore.jpos.CrsJposServiceInstanceFactory"
      serviceClass="com.extendyourstore.jpos.Scanner.POSsim"/>
    <vendor name="360Commerce" url="http://www.360Commerce.com"/>
    <jpos category="Scanner" version="1.5"/>
    <product description="POSsim Scanner" name="360 Commerce EYS Scanner"
      url="http://www.360Commerce.com"/>
    <prop name="host" value="localhost"/>
    <prop name="debug" value="true"/>
  </JposEntry>
  . . .
</JposEntries>
```

2. After the install script is run, update `360common/360Tools/automatedTesting/Tools/jpos/res/jpos.properties` to point to the JavaPOS location.

Results of a Point-of-Sale Installation

The default root directory for 360Store applications on Windows is `c:\360Store`. The default root directory for 360Store applications on Linux is `/opt/360store`. In either operating system, the subdirectories listed in the following table are created:

Table 1-8 360Store Subdirectories

Name	Contents
360common	Files shared by multiple 360Store applications including Foundation or 360Platform, Domain, and 3rd party jar files
databases	Resources for various database types
jre	Contains the Java runtime environment
pos	Point-of-Sale files
backoffice	Back Office files (if the 360Store Back Office product is installed)
unleashed	Unleashed files (if the 360Store Unleashed product is installed)

Important subdirectories of the `\pos` directory on Windows and Linux include:

Table 1-9 360Store\pos Subdirectories

Name	Contents
bin	Startup batch files and shell scripts
lib	Point-of-Sale application and resource jar files
lib\locales	Text bundles for localization
3rdparty	Third party source files used by Point-of-Sale only
config	XML configuration files, <code>.properties</code> files, and <code>.dat</code> files
logs	Log files (additional log files are in the bin directory)
UninstallerData	Files for uninstalling Point-of-Sale

Running Point-of-Sale

You run the Point-of-Sale system by executing batch files or shell scripts, found in your installation's `bin` directory, to launch various components.

Note: For each command, a Windows batch file (such as `dbstart.bat`) and equivalent Linux shell script (`dbstart.sh`) exist; the procedure shows only the Windows version.

1. Start the 360Store database, if needed:

`dbstart.bat`

Regardless of where the database is located, start the service before starting the Point-of-Sale application. If the database was recently built, the database server may already be running. If it is not running, you can start the database using the software supplied with it, or with the `dbstart.bat` command.

2. If you are *not* running a collapsed implementation, start the store server:

```
StoreServerConduit.bat
```

When the message `TierManager Started` appears, the server has started. The server component does not have a user interface. Collapsed implementations do not need to launch a separate store server.

3. Start the registers.

For each of the Point-of-Sale registers, execute the conduit script that starts the Point-of-Sale client component. For collapsed implementations, the command is:

```
CollapsedConduitFF.bat
```

For 2-Tier or 3-Tier implementations, the command is:

```
ClientConduit.bat
```

4. Verify the installation on each register by logging on to Point-of-Sale with the default username (pos) and password (pos).

If the login is successful and the status bar indicates the database is online, the installation is complete.

Changing the JRE

By default, the Point-of-Sale installation script installs the Sun Java Runtime Environment (JRE). You may want or need to use a different JRE if:

- You are using the WebSphere Application Server, which requires the IBM JRE.
- You are using hardware with a chipset that requires the IBM JRE, such as a Wincor Nixdorf register.

Although this section assumes that you are changing from the Sun JRE to the IBM JRE, you can use these instructions to change to any JRE.

Installing the Alternative JRE

Install the JRE that you want to use instead of the default Sun JRE.

Complete the following steps if required:

- If you are using the IBM JRE on Windows, you must get the JRE by downloading IBM's Web Services development kit (wsdk). The kit is located at <http://www-106.ibm.com/developerworks/webservices/wsdk/>. The wsdk 5.1 download contains the Java Development Kit (JDK) 1.4.2, which contains the JRE. Install the wsdk, then install the JDK.
- If you are using WebSphere MQ, install the MQ Series client jars. Download them from <http://www-3.ibm.com/software/integration/support/supportpacs/individual/ma88.html> and then copy the installed jars to the `lib` directory of your JRE installation (for example, `c:\wsdk_v51\appserver\lib\`).

Installing Point-of-Sale

Install Point-of-Sale as described in “Installing with the Install Script” on page 1-4, then return to this section.

Replacing Security Files in the Alternative JRE

Use the security and policy files from the Point-of-Sale installation with your alternative JRE. Copy the `java.security` and `java.policy` files from the `<install directory>\jre\lib\security` directory to the corresponding directory in your alternative JRE, such as `c:\wsdk_v51\appserver\java\jre\lib\security`.

Configuring Point-of-Sale for the IBM JRE

Edit the `posenv.bat` file to reflect the new JRE location:

1. Change the `JRE_HOME` variable to point to the new IBM JRE. For example,
`SET JRE_HOME=C:\wsdk_v51\appserver\java\jre`
2. If you are using WebSphere MQ, add the `wsdk` jars to the `CLASSPATH` environment variable just before the file writes out to the log file. See the following example.

```
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\lib\com.ibm.mq.jar
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\lib\com.ibm.mq.pcf.jar
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\lib\com.ibm.mqjms.jar
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\lib\naming.jar
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\lib\jndi.jar
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\lib\namingclient.jar
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\lib\namingserver.jar
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\lib\messaging.jar
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\lib\messagingClient.jar
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\lib\ecutils.jar
set CLASSPATH=%CLASSPATH%;c:\wsdk_v51\appserver\properties
```

Note: This example assumes that you copied the MQ Client jars over to your IBM JRE.

Creating a Custom Installation

A custom installation of Point-of-Sale can use one of several approaches:

- Install Point-of-Sale using the install script on a reference machine, and copy the resulting installation to other machines.
 - With this method, you can change the configuration settings of the installation as described in Chapter 2, “Configuration,” until the installation works as desired, then propagate those configurations to other machines.
 - You can copy just the installation directory to a new machine, or if the hardware is sufficiently similar, you can copy the entire hard drive image to an machine. Copying the entire hard drive retains the JavaPOS installation as well as any other customizations.
 - You must change the `WorkstationID` value for the target machines to a unique number. This value can be found in `<installdirectory>\pos\config\application.properties`.
- Create a custom installation script which allows for various hardware options but specifies the software choices your company has chosen.

Note: By default, installation of a register requires certain IBM Install Set parameters to have specific values:

- Hard Total must be Off.
- Ingenico must be On.

CONFIGURATION

This chapter covers options for configuring Point-of-Sale normally carried out by an administrator before the system goes into general use. It covers the following topics:

- “Modifying Parameters”
- “Defining Security with Roles”
- “Reason Codes”
- “Configuring Transaction ID Lengths”
- “Configuring RMI Time-outs”
- “Configuring Third-party Tender Authorization”
- “System Settings”
- “Adding or Changing Language Bundles”
- “Configuring Logging “

Modifying Parameters

Point-of-Sale includes many configurable parameters; these parameters are used to control flow, set minimums and maximums for data, and to allow flexibility without recompiling code. Most parameters can be modified through the Point-of-Sale user interface. This section describes those parameters, which are stored in XML files.

Note: The Point-of-Sale system can also be configured through system settings and reason codes. System settings are values, set in the database, that control application behavior in a manner similar to parameters. For more information, see “System Settings” on page 2-16. Reason codes enable administrators to configure lists of options that are offered to the application’s users; see “Reason Codes” on page 2-10.

The XML parameters are stored in a set of related parameter XML files, and editing those files is another way to change parameters. Parameters not visible in the Point-of-Sale interface can be modified in the XML files. For parameters that establish company policies, you can create files for corporate and store-level defaults; see “Parameter File Hierarchy” on page 2-3.

Each parameter belongs to one and only one group, and there is a security role for each group, so parameter access can be restricted to particular groups if desired. See “Defining Security with Roles” on page 2-6.

Your choice of how to change a parameter matters: if you change a parameter with the Point-of-Sale interface, the value of that parameter is not loaded on other registers. You can address this by copying parameter XML files from one register to another, or by making parameter changes in Back Office or Central Office and then distributing the parameters to registers.

Understanding Parameter XML Tags

Parameters XML files store parameters in <GROUP> tags that contain <PARAMETER> tags; the <PARAMETER> tags contain properties that describe the parameter. The following example shows the parameter that determines the maximum traveler’s check value that the system accepts:

```
<GROUP name="Tender" hidden="N">
  ...other parameters omitted here...
  <PARAMETER name="MaximumTravelersCheckAmount"
    type="CURRENCY"
    final="N"
    hidden="N">
    <VALIDATOR class="FloatRangeValidator"
      package="com.extendyourstore.foundation.manager.parameter">
      <PROPERTY propName="minimum" propvalue="0.00" />
      <PROPERTY propName="maximum" propvalue="99999.99" />
    </VALIDATOR>
    <VALUE value="1000.00"/>
  </PARAMETER>
  ...other parameters omitted...
</GROUP>
```

This example shows some standard properties:

Table 2-1 Standard Parameter Properties

Property	Description
type	The type of parameter value.
final	Can be Y or N; if Y, it reverses the normal file precedence for the parameter. See the next section, “Parameter File Hierarchy,” for more information.
hidden	If Y, the parameter does not appear in the Point-of-Sale interface.
validator	A structure that defines valid values for the parameter. In the example, the tags define a range of floating-point currency values, from 0.00 to 99999.99.
value	The actual value of the parameter specified in this file. Whether this value becomes the actual value or not depends on the values set in other files, as described in the next section, “Parameter File Hierarchy.”

Parameter File Hierarchy

The Point-of-Sale application gets its parameter values from an interrelated set of XML files. These files can each contain values for the same parameters; a set of precedence rules determines which parameters actually take effect.

Note: The `application.xml` file contains all of the parameters and thus represents the default value set. The other files contain subsets of parameters.

The following table shows the parameter XML files in the order in which they are consulted by the Point-of-Sale application. Normally, the last value wins; if a parameter is specified in each of the files, the value in `workstation.xml` is used.

Table 2-2 Parameter XML Files, In Precedence Order

Parameter File	Location	Notes
<code>application.xml</code>	<code>c:\360store\pos\config</code>	Contains default values for all parameters
<code>corporate.xml</code>	<code>c:\360store\pos\config\corporate</code>	Stores values distributed by Central Office
<code>store.xml</code>	<code>c:\360store\pos\config\store</code>	Stores values distributed by Back Office
<code>workstation.xml</code>	<code>c:\360store\pos\config\register</code>	Contains values set through the Point-of-Sale interface

The `final` property, when set to Y in a parameter definition, reverses the precedence order for that parameter, so that `store.xml` parameters with `final=Y` beat `workstation.xml` parameters, and `corporate.xml` parameters beat `store.xml`—but only for the parameters that specify `final=Y`.

The following table shows two examples of competing parameter files, along with the actual value that Point-of-Sale ends up using.

Table 2-3 Sample Parameter Values and Results

Parameter File	Maximum Travelers Check Amount Value	Final property	Parameter File	Maximum Travelers Check Amount Value	Final property
corporate.xml	100	final="N"	corporate.xml	100	final="Y"
store.xml	75	final="N"	store.xml	150	final="N"
workstation.xml	50	final="N"	workstation.xml	200	final="N"
Value used by Point-of-Sale	50		Value used by Point-of-Sale	100	

Modifying Parameters in Parameter XML Files

You can modify the parameters in an XML file by directly editing the file with a text editor. Oracle Retail applications also write values to these files; changes you make in the Point-of-Sale interface are written to `workstation.xml`, for example. You may want to use other Oracle Retail applications to change and distribute parameters.

Note: Changes to parameters imported from Back Office automatically reset the hidden parameter property values for those parameter in `workstation.xml`. You need to manually edit the parameters before hidden parameters can be displayed in Point-of-Sale.

The Back Office and Central Office applications provide interfaces for changing parameters and distributing those parameters to the registers. Parameters passed down by Back Office are stored in the `store.xml` file, while parameters passed down by Central Office are stored in the `corporate.xml` file.

If you want to define a parameter that does not yet exist in a particular file, you can copy the parameter tag from `application.xml` and paste it into the desired location. For example, to set a company-wide value for a maximum traveler's check amount, copy the default parameter tag named `MaximumTravelersCheckAmount`, and paste it into the `corporate.xml` file.

Note: When you copy parameters to new files, make sure to enclose the parameters in the correct group tag.

Modifying Parameters Through Point-of-Sale

You can use the menus and options of Point-of-Sale to change parameter values. When you use this interface, changes take place immediately, but they apply only to the register on which you change them.

You can apply parameters to multiple registers by creating parameter sets in Back Office or Central Office and then distributing the parameter sets. When you are setting up your system, you can also set values in Point-of-Sale until you get a single register set up the way you want it and then copy the `workstation.xml` file to other registers; `workstation.xml` records the changes made through the Point-of-Sale interface.

Within Point-of-Sale, there is no indication of the source of the value of a parameter. The value you see displayed on screen could come from a variety of XML files. See “Parameter File Hierarchy” on page 2-3 for more information.

To use the Point-of-Sale application to change a parameter:

1. From the Main Options screen, choose **F4/Administration**.
2. When prompted, enter your username and password.
3. From the Admin. Options screen, choose **F4/Security**.
4. From the Security Options screen, choose **F4/Parameters**.

The Parameter Groups screen appears.

5. Choose a parameter group, then choose **Enter/Next**. If you have permission to edit that group, the Parameter List screen appears.

Figure 2-1 Parameter Groups and Parameter List Screens



Choose a parameter to edit and choose **Next**. The Edit Parameter Screen appears.

6. Depending on the parameter chosen, change the necessary information, then choose **Enter/Next**.
7. To return to the Security Options screen, choose **Esc/Undo**.

Defining Security with Roles

In Point-of-Sale, you specify users' access to the application by assigning a role to each user. Each role contains a list of the security access points of the application, specifying which access points that role is allowed to use. You can create as many roles as you need.

Roles are typically named for job titles; by creating a manager role and a clerk role, for example, you define two classes of employees with different access to the Point-of-Sale functions. All clerks, however, would have the same access rights.

The procedures in this section describe how to modify existing roles or add new ones. For a list of security access points, see "Secured Features" on page 2-9. To find out how to add an employee login to the system and assign roles to the employee, see "Employee" on page 3-2.

Note: The security model used by Point-of-Sale is different from the model used by J2EE applications like Central Office or Back Office.

Modifying a Role

To modify a role:

1. From the Main Options screen, choose **F4/Administration**, **F4/Security**, **F3/Roles**, and **F2/Find**.
2. Select a role name from the list and choose **Enter/Next**.
The Edit Role screen appears with the selected role displayed.
3. Choose **Enter/Next** to display the Set Access screen for the selected role.
4. To edit the role, scroll through the list of functions. While a function is selected, choose **F2/Yes/No** to toggle the access for that function.

Figure 2-2 Set Access Screen



5. When you are finished, choose **F3/Done** to save the settings.

Adding a Role

To add a role:

1. From the Main Options screen, choose **F4/Administration**, **F4/Security**, **F3/Roles**, and **F3/Add**.
The Add Role screen appears.
2. From the Main Options screen, choose **F4/Administration**, **F4/Security**, **F3/Roles**, and **F3/Add**.
The Add Role screen appears.

Figure 2-3 Add Role Screen



3. Enter the new role name and choose **Enter/Next**.
4. The Set Access screen appears. Initially, access for all functions is set to No.

Figure 2-4 Set Access Screen



5. Select the function(s) that need to be enabled/disabled for the role and choose **F2/Yes/No** to toggle to between Yes and No.
6. Continue selecting all functions that need to be changed. When finished, choose **F3/Done** to save the settings.
7. Choose **Esc/Undo** or F12/Cancel to return to the Security Options screen.

Secured Features

The following table lists all of the functions within Point-of-Sale for which security access points exist. When a user attempts to use a function protected by one of these security access points, the system checks whether the user's role allows that function.

Table 2-4 Point-of-Sale Security Access Points

- | | | | |
|--|--------------------------------------|-------------------------------|-------------------------|
| • Accept Invalid DL Format | • E-Mail | • Override Declined Check | • Role - Add/Find |
| • Administration | • Employee - Add/Find | • Override Declined Credit | • Schedule Jobs |
| • Approve Soft Decline of a Check | • Employee Clock In/Out | • Override Restocking Fee | • Service Alert |
| • Back Office | • End of Day | • Override Tender Limits | • Start of Day |
| • Bank Deposit | • Inventory | • Parameters Add/Modify | • Store Level Parameter |
| • Call Referral Accept for check, credit, or gift card | • Item Maintenance | • Preferred Customer Discount | • Store Operations |
| • Cancel Special Order | • Item/Transaction Discounts | • POS | • Till Pay-in |
| • Cancel Transaction | • Item/Transaction Gift Registry | • Price Change | • Till Pay-out |
| • Close Register | • Item/Transaction Sales Associate | • Price Override | • Till Pickup/Loan |
| • Close Till | • Item/Transaction Tax Modifications | • Price Promotion | • Till Reconcile |
| • Corporate Level Parameter Access | • Job Queue | • Queue Management | • Transfer |
| • Customer – Add/Find | • Kit Maintenance | • Reason Codes Add/Modify | • Void |
| • Customer Delete | • Layaway Delete | • Receiving | • Web Store |
| • Daily Operations | • Modify Layaway Fees | • Register Level Parameter | |
| • Department Level Parameter | • Modify Markdowns | • Register Reports | |
| • Discount Rule | • No Sale | • Reprint Receipt | |
| • Discount Rule End | • Open Register | • Reset Hard Totals | |
| • Electronic Journal | • Open Till | • Return | |
| | • Orders | | |

Reason Codes

Reason codes are items offered to the end user as choices in lists, for example, the set of possible reasons for a price override. These choices normally vary for each corporation, and they must be configured to suit your local requirements and policies. The system comes with a predetermined set of reason code groups; within each group, you can add, remove, and modify the list of codes, all from within the Point-of-Sale interface.

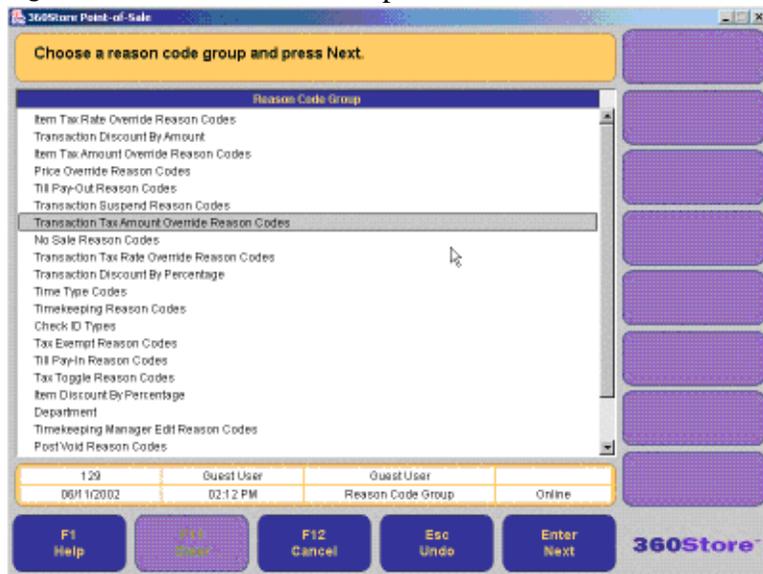
For a complete list of available reason code groups, contact Oracle Retail for a copy of *Reason Codes Functional Requirements*.

Modifying Reason Codes

To modify reason codes:

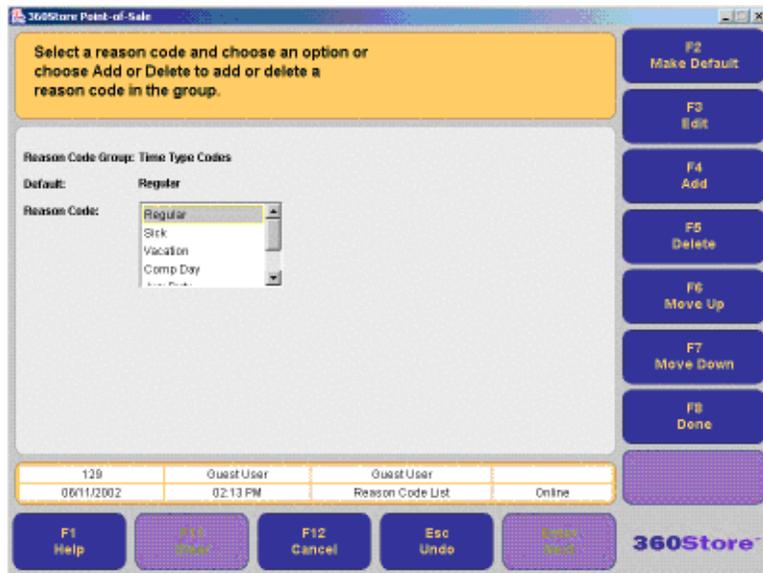
1. From the Main Options screen, choose F4/Administration, F4/Security, and F5/Reason Codes.
2. From the Reason Code Store screen, choose the local store number and press Enter/Next. The Reason Code Group screen appears.

Figure 2-5 Reason Code Group Screen



3. From the Reason Code Groups screen, select the group you want to view or edit. The Reason Code List screen appears.

Figure 2-6 Reason Code List Screen



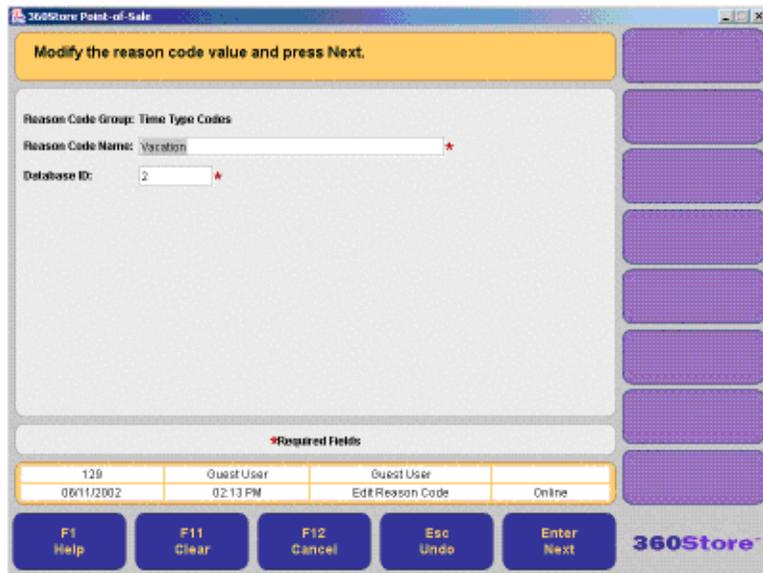
4. Select one of the following:

- To delete a code, select it, then choose **F5/Delete**.
- To change the position of a code in the list, select it, then choose **F6/Move Up** or **F7/Move Down**.
- To add a code, choose **F4/Add**. The Add Reason Code screen appears. Enter a name and database ID, then choose **Enter/Next**.
- To change the name or database ID of a code, select the code in the list and choose **F3/Edit**. The system displays the Edit Reason Code screen. Edit the values shown, then choose **Enter/Next**.

5. Press **F2/Make Default** to save your changes and make the selected settings the new default.

6. Choose **Enter/Next**. The changes are saved, and the system displays the Reason Code Group screen.

Figure 2-7 Edit Reason Code Screen



Configuring Transaction ID Lengths

You can change the lengths of some of the most common data values associated with transactions. These changes affect every aspect of the software and should not be undertaken lightly. Changes should only be performed before Point-of-Sale is installed. Changes to these settings can require substantial testing to establish that no problems result from the change.

Understanding Transaction IDs

A *transaction ID* is a composite key made from the store number, register number, and sequence number. When combined, these attributes create a unique number for each transaction. Transaction IDs can also include an eight-digit date to ensure that they are unique—for example, if you restart your sequence numbers on a daily basis, the date value prevents transaction ID repetition.

Key points about the transaction ID and related properties:

- You can change the length of the store, register, and sequence numbers which contribute to the Transaction ID. You cannot directly configure the length of the transaction ID itself.
- System-generated unique Layaway numbers, Special Order numbers, and Web Order numbers are not affected by changes to the transaction ID rules.
- A maximum of 20 digits of transaction ID can be printed on receipts using the Point-of-Sale current barcode format.
- If the value of a store, register, or sequence number has fewer than the specified number of digits, Point-of-Sale uses leading zeroes to pad the number to the required number of digits; a four-digit sequence number whose value is 22 shows up within the transaction ID as 0022.

- Dates can be used in transaction IDs to help ensure unique IDs. If they are used, they are expressed as an 8-digit number; this is set by the `TransactionIDBarcodeDateFormat` property in the `domain.properties` file. The only valid values for this property are no value and `yyyyMMdd`. The date format does not vary from one locale to another.
- You can set the transaction sequence start number in the database.
- When you enter a transaction ID manually, the trailing date is optional.

Changing Transaction ID Lengths

To change ID lengths, edit the values in the Transaction ID section of the `\360store\domain\config\domain.properties` file in your source code control system. See “Understanding Transaction IDs” on page 2-12 for more information on what these properties mean.

```
# Transaction ID
TransactionIDStoreIDLength=5
TransactionIDWorkstationIDLength=3
TransactionIDSequenceNumberLength=4
#TransactionIDBarcodeDateFormat=yyyyMMdd
TransactionIDBarcodeDateFormat=
TransactionIDSequenceNumberSkipZero=false
TransactionIDSequenceNumberMaximum=9999
```

Configuring RMI Time-outs

You can configure remote method invocation (RMI) time-outs at two levels:

- The JVM level (Linux installs only)
- The level of managers and technicians

If you are performing a Linux installation, configure the JVM as described in “Setting the RMI Time-out for the JVM Under Linux,” below. If you determine that RMI connections are timing out, you can use one of the other procedures in this section, “Setting the RMI Time-out for All Manager and Technician Calls” on page 2-14 or “Setting the RMI Time-out for a Specific Technician” on page 2-14.

Setting the RMI Time-out for the JVM Under Linux

Oracle Retail has found it useful to change the RMI time-out for the JVM under Linux. To do this, change the command that launches the JVM, adding the JVM flag -

`Dsun.rmi.transport.connectionTimeout=<x>` where `<x>` represents the time-out period in milliseconds.

This tells the JVM to time out socket connections used by RMI after `x` milliseconds of inactivity. Linux quickly notifies the JVM when a socket connection cannot be established. Linux is slow, however, to notify the JVM when an open socket connection has been broken (around 15 minutes). By setting the connection time-out low, you can cause the sockets to disconnect quickly after each RMI call, thereby requiring a connect for each subsequent RMI call.

Setting the RMI Time-out for All Manager and Technician Calls

You can change the RMI time-out values for connections and reads in the `\360store\pos\bin\comm.properties` file. The value for the following properties apply to all manager and technician calls, unless overridden by a communication scheme for a specific call.

- `comm.connectTimeout` - Specifies how long to wait for a socket connection to succeed. The value is in milliseconds.
- `comm.readTimeout` - Specifies how long to wait before a read times out. The value is in milliseconds. This property causes the read to time out even if the socket is alive and well and transmitting data.

Setting the RMI Time-out for a Specific Technician

To set the time-out for a specific technician:

1. Edit the `\360store\pos\bin\comm.properties` file and the conduit script as follows:
 - a. Add a new communication scheme to the `\360store\pos\bin\comm.properties` file. The following lines provide an example:

```
comm.rmi_longread.readTimeout=120000
comm.rmi_longread.connectTimeout=1000
```

These lines establish a new communication scheme called `rmi_longread` with a read time-out of 120 seconds and a connect time-out of one second (since the values are in milliseconds).

- b. Add the following property to the appropriate technician definition in the conduit script:

```
<PROPERTY propName="commScheme" propvalue="rmi_longread"/>
```

This sets the communication time-outs for all managers that connect to this technician. A manager who is sending a valet to this technician times out if the valet fails to complete within 120 seconds. It only attempts to connect to the technician for 1 second before giving up.

Configuring Third-party Tender Authorization

Initially, the Point-of-Sale system simulates tender authorization. You can connect Point-of-Sale to a third-party tender authorization service to verify tenders. Setting up this connection requires two configuration steps:

- “Enabling the Financial Network Technician”
- “Setting the Merchant Number”

Enabling the Financial Network Technician

In your conduit script, locate a technician tag with the name “FinancialNetworkTechnician” and replace it with the tag shown in the following code sample.

```
<TECHNICIAN name="FinancialNetworkTechnician"
    class="ISDTechnician"
    package="com.extendyourstore.domain.manager.tenderauth.isd"
    export="Y">
  <PROPERTY
    propname="hostName"
    propvalue="<enter a URL here>"
  />
  <PROPERTY
    propname="hostPort"
    propvalue="<enter a port number here>"
    proptype="INTEGER"
  />
  <PROPERTY
    propname="reversalFile"
    propvalue="testRev.ser"
  />
  <PROPERTY
    propname="logFile"
    propvalue="isd.log"
  />
</TECHNICIAN>
```

Setting the Merchant Number

Set the Merchant Number parameter to the appropriate value for the authorization service you are using. Merchant Number is an XML parameter in the Tender Authorization group. See “Modifying Parameters” on page 2-1.

System Settings

System settings are values set in the 360Store database. Changes to these settings must be made in the database by a database administrator or an application developer.

System settings can have significant effects on the Point-of-Sale system; do not make changes unless you are confident that you understand the effects. For a description of all available system settings, refer to the *Parameter Names and Values Addendum*.

Adding or Changing Language Bundles

Point-of-Sale supports additional languages when the appropriate strings are provided, bundled in a .jar file. The procedures in this section describe how to create new bundles and make them available to the application.

Naming Convention for Language Bundles

Use the following syntax to name language bundles:

<lowercase two-letter language abbreviation>_<uppercase two-letter country abbreviation>

The following table shows some sample uses of the convention.

Table 2-5 Sample Bundle Names

Language	Bundle Directory	.jar file
Puerto Rican Spanish	es_PR	es_PR.jar
United States English	en_US	en_US.jar

Creating a New Language Bundle

To create a new language bundle:

1. Create a new source code directory in `\360store\pos\locales` for the language bundle, starting with a copy of the `en_US` directory.
2. Replace the English text in the properties files and help files in your new directory with translated text.
3. Generate a `.jar` file using the naming convention described in the preceding section.

Configuring the System to Use a New Language Bundle

To add a new language and change the default language:

1. Store the new `.jar` file in `\360store\pos\lib\locales`.
2. Change the locale parameter to match the new locale in the `ClientConduit.xml`, `StoreServerConduit.xml`, and `CollapsedConduitFF.xml` files. These files are located in `\360store\pos\config\conduit`.

```
<?xml version='1.0' ?>
```

```
<!DOCTYPE DISPATCHER SYSTEM "classpath://com/extendyourstore/foundation/tour/dtd/dispatch.dtd">
```

```
<DISPATCHER name="STANDALONE">
```

```
    <LOCALE language="es" country="PR"/>
```

```
    <APPLICATION name="APPLICATION"
```

3. Edit the `\360store\pos\config\application.properties` file.

- a. If you want the new locale to be the default locale, replace the value of the `default_locale` property with your new locale name.
- b. Add your new locale name to the list in the `supported_locales` property.

```
default_locale=es_PR
```

```
supported_locales=en_US,es_PR,fr_CA
```

4. If the standard installation script is not used, then include the new `.jar` in the classpath ahead of `pos360.jar`.

Configuring Logging

Point-of-Sale logging uses the Log4J tool. Configure Log4J by editing `\360store\pos\config\log4j.xml`. See the Apache documentation for Log4J at <http://logging.apache.org/log4j> for more information; a how-to can be found at <http://wiki.apache.org/logging-log4j/Log4jXmlFormat>.

TROUBLESHOOTING

This chapter describes Point-of-Sale functions used by administrators to maintain and troubleshoot the system. It includes the following sections:

- “Viewing the Electronic Journal”
- “Resetting Totals”
- “Managing the Transaction Queue”

Viewing the Electronic Journal

Use the electronic journal to view register transactions. Registers produce clean receipts which do not include corrections made during a transaction. The electronic journal provides the ability to view every action performed by a cashier during the transaction. This can be used to audit the transactions.

Electronic journal data can be sent to the corporate office as part of the Store Close process. The range of transactions you can view in the Point-of-Sale interface may be limited to the current day, depending on the frequency with which your company sends data out.

To view the electronic journal:

1. From the Admin Options screen, choose **F2/E.Journal**. The Find Transaction screen opens.

Figure 3-1 Find Transaction Screen

Start Transaction:		End Transaction:	
Start Date:	10/31/2002	End Date:	10/31/2002
Start Time:	00:00	End Time:	23:59
Cashier ID:			
Sales Associate ID:			

129	Guest User	Guest User	Find Transaction	Online
-----	------------	------------	------------------	--------

- To search by Transaction ID, date, time, cashier ID, or Sales Associate ID, enter the search criteria and choose **Enter/Next**.
 - To search for all transactions for the current business day, choose **Enter/Next** without entering any data in the search criteria fields.
2. If there is a single match, the transaction journal appears in the window. If there are multiple matches, the navigation buttons (Previous, Next, First, and Last) are enabled. Using these buttons, locate the desired transaction.

Figure 3-2 Journal Display Screen

10/31/2002	07:55:29 AM CST
Trans.: 0024	Store: 0404L
Reg.: 129	Till: 000
Cashier: 27	Sales: 27

ITEM: 40040004	8.99 T
Sweet Ball	
Qty: 1.00 @ 8.99	

ITEM: 41	1.99 B
Wedge plant, 3oz	
Qty: 1.00 @ 1.99	

ITEM: 40	7.99 T
ID, Classic Bisc 2	
Qty: 1.00 @ 7.99	

Total Discom	(0.00)
Sub-Total	16.97

129	Guest User	Guest User	Journal Display	Online
-----	------------	------------	-----------------	--------

3. View or print the transaction detail.
 - Choose **F2/Previous**, **F3/Next**, **F4/First**, **F5/Last** to view the journal.
 - Choose **F7/Print** to print the journal entry.
4. When you are finished, choose **F6/Done** to exit. The Admin Options screen opens.

Resetting Totals

Note: Typical register installations have hard totals turned off. If they are turned on, resetting totals clears the financial information stored in hard totals. You should use the Reset Totals button only in the case of equipment failure or data corruption. This option is typically used only by administrators, sometimes operating remotely, to return a problem register to operation. In such a circumstance, you may also need to clear the transaction queue as described in “Managing the Transaction Queue” on page 3-3.

Use the Reset Totals feature to clear the financial information stored in hard totals, which contains summary financial information that is available to the local register. The hard totals are kept for each till, register, and store. If there is no active till for the register or if the register is not open, the Reset Totals button is disabled.

To access Reset Totals:

1. From the Main Options screen, choose **F4/Administration**.
2. From the Admin Options screen, choose **F3/Reset Totals**.

The system prompts you to verify that you want to reset the hard totals.

- Choose **No** to continue with no action.
- Choose **Yes** to reset the totals. The Reset Totals screen appears; when the totals are reset, the system displays the Admin Options screen. A receipt prints with the hard totals that existed before they were cleared.

Managing the Transaction Queue

Note: You must run either `BuildFF.bat` or `BuildFF.sh` prior to offline queue management.

The transaction queue holds transactions until they are sent to the server. If the register is offline, all transactions are queued until the register is back online and the transactions can be sent to the server. Use the Queue Options screen to manage the queue when the server has returned to online status.

Note: Any transactions that are deleted before they are sent to the server are lost and cannot be recalled. When you are operating offline, you may want to avoid deleting transactions.

Deleting an Entry

To delete the first entry in the queue:

1. From the Main Options screen, choose **F4/Administration**. From the Admin Options screen, choose **F5/Queue**.

The Queue Options screen appears.

2. Choose **F2/Delete Entry**.
3. The Delete Confirmation screen appears.
 - Choose **Yes** to delete the first entry in the queue. A confirmation message appears. Choose **Enter** to continue.
 - Choose **No** to return to the Queue Options screen.

Clearing the Queue

Note: During development, you may need to delete the queue and/or reset totals (as described in “Resetting Totals” on page 3-3) to clear corrupt data. During production, deleting a queue generally requires manual entry of deleted transactions.

To clear all transactions in the queue:

1. From the Main Options screen, choose **F4/Administration**. From the Admin Options screen, choose **F5/Queue**.

The Queue Options screen appears.

2. Choose **F3/Clear Queue** from the Queue Options screen.

Figure 3-3 Del Queue Conf Screen



3. The system prompts you to verify that you want to delete all transactions in the queue.

- If you select **Yes**, all transactions in the queue are deleted and a confirmation message appears. Choose **Enter/Next** to continue.
- If you select **No**, the system displays the Queue Options screen.

