

# Oracle® Retail Reference Architecture

*Release 13.3*

*POS Suite Physical Architecture  
Model*



---

---

**Note:** The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

---

---

# Contents

- Introduction .....1**
- Intended Audience for this Document .....1**
- Product Name Abbreviations .....1**
- POS Suite .....1**
  - POS Suite Physical Architecture .....2
  - Overview .....2
  - Components.....3
  - Performance Impacts .....4

# Introduction

This document serves as a plain-English narrative to the context model, Stores\_Context.vsd. The context model perspectives, as well as the intent of each context model are discussed in this document. The context models' elements are also cited, with focus on what each system in the context model is responsible for in the perspective discussed.

The content of this document is structured to cite the perspective belonging to the domain, the context model associated with the perspective, and then details on the elements within the context model drawing.

## Intended Audience for this Document

This document is written for retailers, implementation partners, developers, business analysts, systems analysts, and other RGBU stakeholders who can leverage a level-set architecture, which addresses the significant components of the Oracle Retail systems and how they are integrated, composed, and deployed.

## Product Name Abbreviations

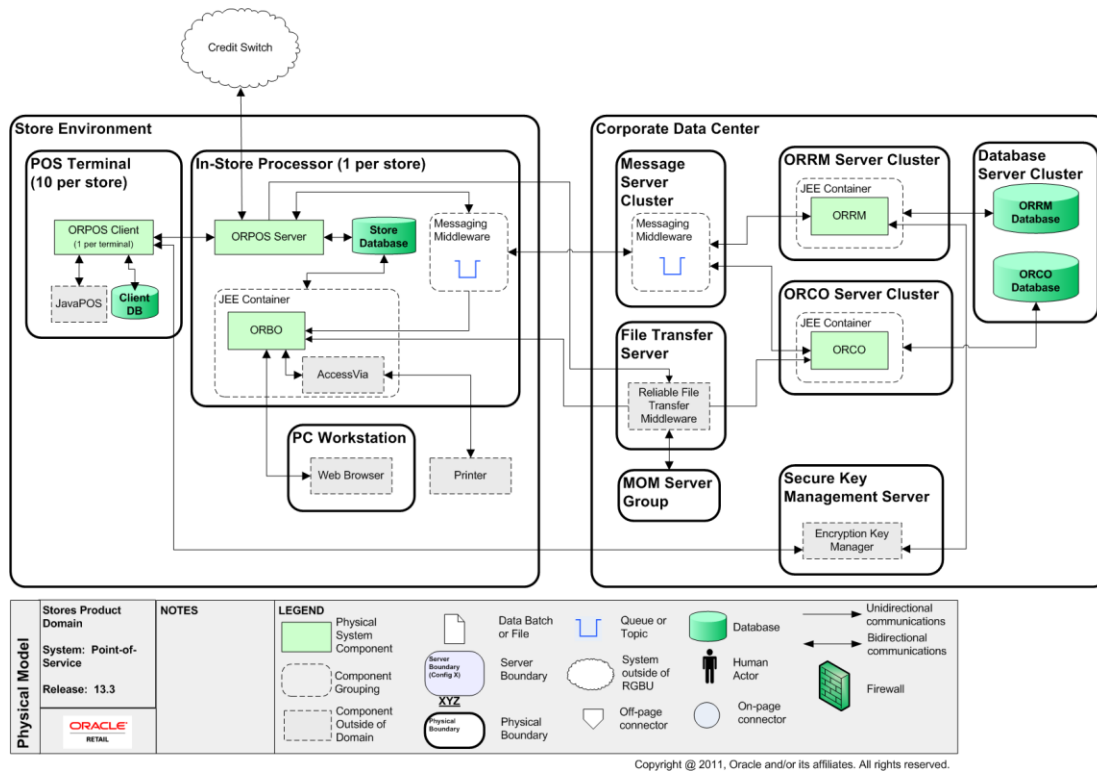
The following table lists the full names of the different abbreviated product names used throughout this document.

Abbreviation	Full Product Name
ORPOS	Oracle Retail Point-of-Service
ORBO	Oracle Retail Back Office
ORCO	Oracle Retail Central Office
ORRM	Oracle Retail Returns Management
MOM	Oracle Retail Merchandising Operations Management

## POS Suite

The POS Suite consists of a set of applications that provide retailers with a means to manage their in-store operations. It provides the capabilities to conduct daily store activities with centralized access to transaction information and management of the returns process.

# POS Suite Physical Architecture



## Overview

The general deployment of the POS Suite is distributed across the individual stores with applications deployed on central corporate servers as well. Each store has a set of registers running the ORPOS Client application. This client communicates with the ORPOS Server application running on the In-Store Processor (ISP). Additionally, the ISP has an application server instance hosting the ORBO application. These two server applications share a single database instance, also deployed on the ISP.

In the corporate data center, the POS Suite has two applications: ORCO and ORRM. ORCO provides corporate-level operations such as Store Systems user administration, parameter maintenance, and a central transaction repository for all the stores. ORRM is a centralized system designed to monitor and control the return of retail merchandise. Each application is hosted in a clustered application server instance with access to a dedicated database instance.

## Components

### ORPOS Client

The ORPOS client application runs on dedicated register hardware. It integrates with the various retail peripherals attached to that hardware (cash drawer, thermal printer, scanner, and so on) using the industry-standard JavaPOS API. Each client hosts an embedded Client DB for holding read-only data that is necessary to perform retail transactions when the client loses connectivity to the server. Under normal conditions, the ORPOS Client uses the ORPOS Server for all data access and storage. To secure application access and sensitive data, the ORPOS Client uses a centralized Encryption Key Manager.

### ORPOS Server

The ORPOS Server provides database access to the ORPOS Client as well as access to the Credit Switch for payment authorization. The server is also the integration point for various data feeds into and out of the store. It uses Java Messaging to send transaction information to ORCO as well as file generation to feed other interested parties. It is a headless application that runs in a dedicated Java runtime environment on the ISP. The database instance used by the ORPOS Server is shared with ORBO and is used as a communication mechanism between the two applications.

### ORBO

The ORBO application is hosted in an application server J2EE container running on the ISP. It is accessible using a web browser through a JSP front end. Typically, the application is not exposed outside the store's network. ORBO uses a third-party library provided by AccessVia to print labels and tags. Similar to the ORPOS Server, ORBO provides an integration point for data feeds into the store. That data is shared with ORPOS through the shared database instance. It uses Java Messaging to receive parameter updates for itself and ORPOS.

### ORCO

The ORCO application is hosted in an application server J2EE container in the corporate data center. This container can be clustered to support horizontal scaling. ORCO uses a dedicated database instance to store application metadata, as well as all of the retail transaction information collected from all of the stores. This database instance can be clustered as well. ORCO uses Java Messaging to distribute parameter updates to the stores and to receive the store's retail transaction data. It can also accept data feeds from the MOM application suite.

### ORRM

The ORRM application is hosted in an application server J2EE container in the corporate data center. This container can be clustered to support horizontal scaling. ORRM uses a dedicated database instance to store application metadata, as well as all of the retail return Key Performance Indicators (KPIs) collected from all of the stores. This database instance can be clustered as well. It uses Java Messaging to accept batch results of return requests. To secure application access, ORRM uses a centralized Encryption Key Manager.

## Performance Impacts

### Bandwidth and Latency

The typical POS Suite network deployment consists of a LAN (10Mb/s or higher) in the store connecting the registers with the store server. If the store is running a wireless network, it is generally 802.11g (54Mb/s). In the Corporate Data Center, the centralized applications generally run on a high speed LAN (100Mb/s or higher over fiber). The WAN connection from stores to corporate is generally running at 128Kb/s (T1). This WAN tends to lose connectivity, so the in-store applications are designed with fault tolerance with retry logic for the data uploads.

The retail transaction uploads from ORPOS to ORCO are in near real-time. They are sent to ORCO over Java Messaging in batches of configurable size and frequency. These transactions are retrieved, along with any associated customers, in real-time from ORCO using RMI over IIOP. When using ORRM in conjunction with ORPOS, the return transactions are evaluated in real-time using a web service exposed by ORRM.

### Scaling / Load Balancing

POS Suite supports a number of options for scaling for load.

In the store, the ORPOS Server has been designed to support up to 200 concurrent registers at once. If more scalability is needed, the application running on In-Store Processor can be distributed to additional machines running in the back office. It is even possible to have multiple ORPOS Servers in the store, either supporting subsets of the register or configured to have one server supporting register transactions while another server handles all outbound traffic.

In the Corporate Data Center, ORCO and ORRM support deployment in a clustered application server. Likewise, their databases can be deployed in a clustered database server.

### Alternate Deployment

The ORPOS Server and Client support a collapsed deployment model where the Server software is deployed on register hardware along with the Client software. In this case, this super register becomes the server for all other registers in the store. Generally, this type of deployment would not include ORBO and the super register would host the store database in addition to the ORPOS Server. This model is not recommended for large deployment, as register hardware generally does not have the resources necessary to support a large number of clients.

On the other end of the spectrum, large store deployments can have multiple servers in the store. For data scalability, the database server can be deployed on a separate machine. In cases where the ORPOS Server resource needs are high, the ORPOS Server and ORBO can be deployed on separate hardware. Also, the single In-Store Processor model can be replicated completely to provide for hot failover.



Oracle Corporation  
World Headquarters  
500 Oracle Parkway  
Redwood Shores, CA 94065  
U.S.A.

Worldwide Inquiries:  
Phone: +1.650.506.7000  
Fax: +1.650.506.7200  
[oracle.com](http://oracle.com)

Copyright © 2011, Oracle. All rights reserved.

This document is provided for information purposes only and the contents hereof are subject to change without notice.

This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission. Oracle, JD Edwards, PeopleSoft, and Siebel are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.