



Implementing or Upgrading Your ORACLE® System? Don't Forget Your Labels

How to Meet the Challenges of Oracle Barcode Label
Production in Your Global Enterprise

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LOFTWARE

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Introduction

Many companies have major investments in Oracle-based Applications, including the Oracle Warehouse Management System ('Oracle WMS'), the Oracle Mobile Supply Chain Application ('Oracle MCSA'), PeopleSoft Enterprise Supply Chain Management, JD Edwards EnterpriseOne, Oracle Supply Chain Management ('Oracle SCM'), and other third-party software packages.

Despite the large corporate outlays in computer systems and software as well as for networks of industrial-strength label printers, many businesses have overlooked linking these two disparate corporate assets together into one single integrated solution – the 'Last Mile' connectivity gap.

The purpose of this paper is to detail the advantages of using Loftware to manage Oracle barcode and RFID smart label production in today's global enterprises.

Why Are Labels A Challenge?

Labels are externally-driven documents.

Depending upon a company's industry and/or the countries in which they do business, unit labels, package labels, container labels and/or shipment labels must conform to label template standards that are mandated by external 'customers' including government regulatory agencies, international standards bodies, industry trade groups, strategic business partners, and third party logistics & shipping companies. The required creation of new labels and changes to existing labels is often at the direction of these external organizations.

Failure to conform to label standards can incur substantial business risk. These risks run from creating dissatisfied customers to fines imposed by government regulatory agencies to outright rejection of products with non-compliant labels. Fast, accurate and continuous label production from business-critical Oracle-based applications contributes to reduced operating costs and lower corporate risk.

When label printing goes down or is slow, manufacturing and shipping bottlenecks and backups are created. When label information is incomplete or erroneous, inaccurate shipments are created and products are routed to the wrong locations. Labels printed at the wrong printer waste time and money. And when labels are printed by unauthorized parties, this can lead to fraud, potential legal problems, and the entry of counterfeit products into a legitimate supply chain.

The Loftware Connector® for Oracle®

The Loftware Connector for Oracle was developed to extend Oracle's functionality through the use of advanced filtering rules (business logic) and bi-directional print status capabilities.

The Loftware Connector for Oracle serves as a high-speed 'connectivity bridge' between Oracle-Based Applications and the Loftware Print Server. Its high speed queuing system supports label printing on a 'large to massive' scale (100's to 1000's of printers) to meet the needs of even the largest global enterprise. A single Loftware Connector for Oracle can support multiple Loftware Print Servers allowing it to be deployed in IT ar-

chitectures requiring load dividing (to optimize high volume labeling) and failover (to maintain 'non-stop' label production).

The Loftware Connector for Oracle, working with the Loftware Print Server (or multiple Loftware Print Servers) sends the right label with the right data to the right printer at the right time, anywhere in the world.

FILTERS ELIMINATE MOST OF THE PROGRAMMING REQUIRED TO CREATE LABEL PRINTING JOBS

The basic function of a filter is to find and add missing data to a request coming from an Oracle-Based Application generated label print request. Filters allow Loftware customers to get their Oracle labeling up and running in a less time; concentrate marking system business logic in one place; remain flexible to changing business requirements; and maintain business logic via configuration and not with programming.

Filters in the Loftware Connector for Oracle can automatically determine which label or labels to print based upon the data that is provided in the label print request originating from the Oracle-based Application. Loftware Connector for Oracle filters can be configured to enable the printing of multiple label formats and/or use multiple printer types from a single Oracle label print request. Other examples of filtering supported by the Loftware Connector for Oracle include changing the quantity of labels needed based on the label type, customer ID, etc.; changing the tray used in the printer to select a particular label stock color; and selecting the printer based on the label type.

Loftware Connector for Oracle filters can also extend the data passed in the Oracle-based Application label print request by performing data lookups. This data lookup is used to simplify completion of the original label print request when the Oracle-based Application has not provided all of data that is required for a label.

THE ORACLE LABELING CHALLENGE: CONVERTING ORACLE XML INTO NATIVE PRINTER LANGUAGE

Oracle Corporation has chosen Open Standard Extensible Markup Language (XML) as the data format for print commands emanating from Oracle-based Applications. No Oracle-based Application generates specialized Printer Control Language (PCL) as output. Therefore, printing barcode labels or RFID smart labels from Oracle-based Applications requires converting Oracle XML data streams into something recognizable by the target printer.

The Loftware Connector for Oracle converts Oracle-generated XML Label Print transactions into a format that the Loftware Print Server will then translate into the specific native printer language (PCL) of the target printer.

The biggest challenge in integrating Oracle-based Applications with thermal printers is that almost every barcode printer producer has their own proprietary native printer language. It is even possible to find printer manufacturers creating different native printer languages within their own printer lines, depending on the capability of individual printers. The Loftware Print Server features native printer language support for over five hundred barcode and RFID smart label printers to enable companies to realize the optimal performance benefits they invested in when a make and model of a label printer was selected.

The Loftware Print Server®

The Loftware Print Server handles all label print job creation and management functions. This removes the label print processing burden from business-critical applications and frees up those previously committed computing resources to support end-user activities. The result can be a noticeable improvement in system performance (e.g., faster transaction response time).

The Loftware Print Server merges the variable label content data received from the Loftware Connector for Oracle into a predefined label format and converts the result into native printer language that it sends to the target printer via a high-speed queue. The upfront programming effort to convert Oracle generated XML Print transactions into something recognizable by the target label printer and to pre-load label formats for the label printers is thereby eliminated.

Oracle Label Printing with Loftware

Label print requests can be triggered via a PL/SQL Call or a Database Trigger or a Stored Procedure (that includes XML Print Request data) from any Oracle-based Application. In addition, they can also be triggered via any defined Business Flow or Transaction (such as 'Receipt', 'Ship Confirm', 'Pick Load', etc.) from Oracle WMS and Oracle MSCA. From a single label print request, you can print multiple label formats, use multiple printer types, and automatically determine which label or labels to print depending upon the data that was requested.

The Oracle-based Application passes the label print request to the Loftware Connector for Oracle which modifies or supplements it according to preset parameters (i.e., 'filtering'); decides what labels to print; and routes the 'filtered' print request to a specified target Loftware Print Server.

The Loftware Print Server merges the 'filtered' print request including the variable label data into a predefined label template; converts it into device-specific native printer language; and sends it to the target printer via a high-speed queue. The Loftware Print Server also sends the originating Oracle-based Application a print response ('job status update') via the Loftware Connector for Oracle indicating that the print request was sent to the target printers.

GETTING ALL OF THE REQUIRED DATA ON THE LABEL, ALL THE TIME

A very powerful feature of the Loftware Connector for Oracle is its ability to be configured to dynamically retrieve label content data that is not included in the label print request. The Loftware Connector for Oracle will retrieve the missing label content data from the originating Oracle-based Application database and/or from any other application or database (whether or not it is an Oracle-based system).

ORACLE WMS AND ORACLE MSCA – THE 'NO CODING REQUIRED' SOLUTION

The Loftware Connector for Oracle installs directly into the Oracle Database (in its own schema) as an application (stored procedure) through Oracle's 'Synchronous Mode' application program interface (API) to provide

a 'no coding required' label printing solution. Each time a label printing event is triggered, the XML request containing the appropriate data is handed off to the Loftware Connector for Oracle via this API.

This integration is seamless, with no programming effort required. The Loftware Connector for Oracle sets up all labels with associated data elements and target devices. It also automatically updates the Oracle WMS label printing interface for printing.

OTHER ORACLE-BASED APPLICATIONS – MENU DRIVEN SETUP AND CONFIGURATION

There are numerous Oracle-based Applications that have the need to generate barcode and/or RFID smart labels including the Oracle E-Business Suite, PeopleSoft Enterprise Supply Chain Management, JD Edwards EnterpriseOne, and Oracle Supply Chain Management, among others. The Loftware Connector for Oracle will work with any Oracle-Based Application that can generate a PL/SQL Call.

The Loftware Connector for Oracle can be readily configured via a setup routine that creates all the required database objects to operate and administer it in the PL/SQL environment. The Loftware Connector Console, a separate browser-based application, is a menu-driven interface to all of the Loftware Connector for Oracle settings to simplify administrative functions.

Loftware Enables You to Meet the Oracle Barcode Label Production Challenges

Loftware increases business productivity through faster delivery of label printing jobs from business-critical Oracle-based Applications. Our proven code base delivers industrial strength reliability that minimizes operating risk through the avoidance of Oracle label printing slowdowns and the rapid restoration of label printing downtime.

Loftware preserves business capital by removing the label print job creation and management workload from Oracle-based Applications thereby freeing up system resources to support users. By converting Oracle XML label print requests into native printer language, label printers attain their best possible designed performance. Loftware's native printer language support for hundreds of makes and models of label printers allows a company to continue to utilize their existing label printers. It also gives them the future flexibility to acquire and deploy the best new label printers for a desired task with the assurance that they will be supported.

Loftware readily scales to meet ever-increasing label production demands thereby providing future protection for a company's investment in Loftware technology. Its architectural flexibility supports both centralized and distributed label printing.