# Integrating the World Wide WEB with Oracle Order Entry

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**ABSTRACT:** *This paper will describe techniques for creating a virtual storefront on the World Wide WEB, capturing Customer order information, and importing that information into Oracle Corporation's Order Entry Application.*

## Introduction

The Internet has generated a great deal of interest in the past several years as millions of users have gained access to the Internet and the skills to effectively use it. The most talked about, and unquestionably most exciting aspect of the Internet, is the World Wide WEB. One of the greatest interests in the WEB is from businesses who wish to establish an immediate world wide audience at a low cost.

Now is a particularly opportune time for businesses desiring to establish an international presence to utilize the Web for marketing **and** sales purposes. The explosion of the Internet over the last fifteen years has established a pervasive communications infrastructure. End users are beginning to gain expertise in using the Web and also *enjoy* "surfing the net" for entertainment and services. Furthermore, Web browsers with greater functionality, in conjunction with a greater number of tools tying the Web with existing databases, has enabled the creation of dynamic Web pages tailored to an individual's taste or needs.

This paper will highlight the various techniques used to integrate the WEB into Oracle Corporation's Order Entry product. This paper will not deal with the functionality of Oracle's Order Entry product or the detailed technical aspects of setting up a WEB site (these topics are covered in an unending stream of literature). Rather, the intent of this paper is to discuss how to get customer and/or order information from a WEB site and create a valid order sales order in Oracle.

## Overview

There are two primary components required for a business to use the Web as an order entry tool. First, the company must create the server side applications including the Web page, various WEB tools (JAVA,CGI), Web server applications (Oracle's WebServer, Next's WebObjects, etc.) and the Oracle's order entry interfacing applications tools. The second is setting up a customer or client computer to display the WEB

page and interact with the application. The overwhelmingly popular tool today is Netscape's Web Browser.

## Client Side Applications

The components required of the client are now readily available. Most anyone who purchases a PC today obtains easy access to the Web by on-line services or internet providers included with the PC purchase. Primarily these components include:

- Graphics capable PC
- Access to the internet -- either through a LAN, Internet Provider or an on line service
- Web browser software

## Server Side Applications

There are four primary components required for the server to integrate the Web with Oracle's Order Entry product:

- The Web Page as the order entry screen
- Some sort of Web interfacing tool such as CGI (Common Gateway Interface, WebObjects or WebServer)
- The Order Entry Interfaces
- The Order Entry Product itself

### The Web Page as an Order Entry Screen

Web pages are text-based documents with special formatting commands or tags. The formatting language for these documents is called Hyper Text Markup Language (HTML). The client's browser uses these tags to format the display of the screen. The screen can have text entry fields, radio buttons, check boxes and pick lists. These features enable the company to design the order entry screen to be easy for the novice user.

### Web Interfacing Tools

Until recently, the most common interfacing tool was CGI (Common Gateway Interface). This is a general method of interfacing with the World Wide Web servers. The CGI is not a language, but an interface. The CGI program can be written in

C, FORTRAN, Korn Shell, Perl or any number of programming languages. The Web server passes the data from the Web page screen to the CGI in the form of command line arguments.

Now, one Web year later (or about three months), there are tools that make this process much easier. Specifically, Oracle's WebServer product allows the server to directly update needed tables. This eliminates the need for CGIs and, as will be seen later, the need for SQL*Loader scripts. Also, because this product makes use of Oracle's database, it is possible to store the HTML in the database. This allows for Web pages to be associated with a particular user and thus custom tailored to a user's needs.

### The Order Entry Interfaces

The interfacing process uses Oracle's Open Interfaces as described in *Oracle Financials and Oracle Government Financials Open Interface Manual.* Which interfaces are used, and how they are populated, depends upon the type of business and customer being supported. For example, a mass marketer that that will be receiving orders from customers who may or may not be in the customer database will have needs far different from the business that will be receiving orders from field salesmen who will be inputting orders from an established client base.

## Applications Process Flow

Because the World Wide Web is especially suited for quickly establishing a global presence to a mass market, this paper will address the issue of providing a solution to the company that would be interested in interested in having typical consumers visit their home page and place orders for their products. Hypothetically, Cray Research has decided to establish a direct sales channel for its' line of computers. Because this would be an infrequent purchase made by any given customer, it is safe to assume that the customer placing the order would not be in the customer database. This requires that the customer must be imported, followed by the order for that customer.

## Previous implementations

When this integration was first implemented, it was a cumbersome process to bring the information into the Oracle database. The client had to pass the required information, an HTTP daemon listened for and serviced the request from the browser. The daemon would then pass the information to the CGI. Finally, a flat file could be created that could be imported using Oracle's SQL*Loader tool. This was a cumbersome process prone to errors. (Figure A)

## Current Implementation

Now with the advent of more sophisticated Web tools, some of these step can be eliminated. For example, the HTTP daemon is incorporated into Oracle's WebServer product. This eliminates the need to write and maintain the daemon. Also, because the tables can be populated directly, it is not necessary to use CGI to create the flat file. Also, because no flat file is required, the SQL*Loader is no longer required. (Figure B)
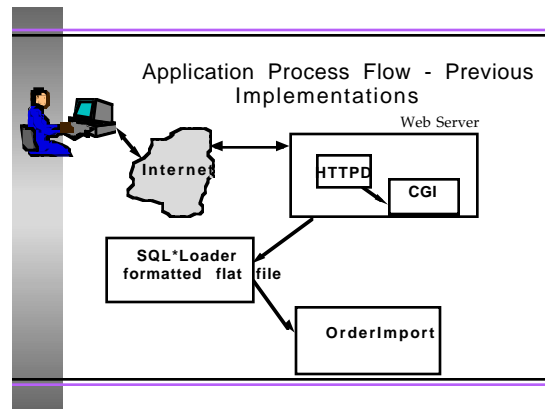


Figure A

## Applications Customer Interface

The Applications Customer Interface is used to import customer data for the purposes of creating and maintaining customer information. This interface consists of five tables which must to be populated. (Figure C)

RA_CUSTOMER_INTERFACE- This table stores customer, address and business purposes information.

RA_CUSTOMER_PROFILES_INTERFACE -This table contains customer profile information such as credit rating, account status, grace period

RA_CONTACT_PHONES_INTERFACE - This table stores customer contact information such as contact telephone numbers, addresses, etc.

RA_CUSTOMER_BANKS_INTERFACE - This table stores bank information for a customer or a specific Bill-to address. This would be used for direct debits from a customer's bank account. Because this is a consumer oriented implementation, it is not used.

RA_CUST_PAY_METHOD_INTERFACE - This table stores payment method information for a customer or for a specific Bill-to address. In this implementation, is used for importing credit card information.
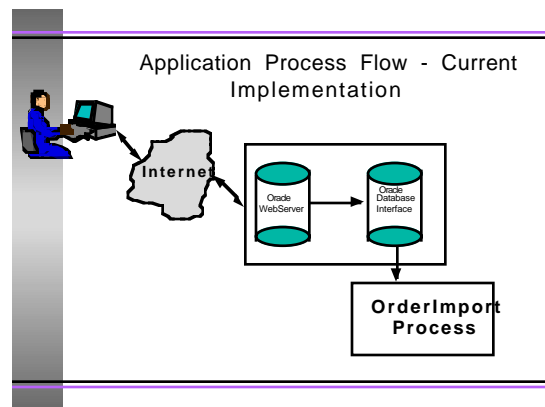


Figure B

*OrderImport*

The order import process is the actual nuts and bolts of creating an order. It imports the item, quantity and pricing information necessary to create a valid order in Oracle Order Entry.

**SO_HEADERS_INTERFACE -** This table contains typical header information such as customer name, customer number, etc.

**SO_LINES_INTERFACE** - This table contains order line information such as inventory id, order quantity, selling price, etc.

**SO_LINES_DETAILS_INTERFACE** - This table contains lot number and sub-inventory type information.

**SO_PRICE_ADJUSTMENTS_INTERFACE**- This table contains information for price adjustments and is not used in this implementation.

**SO_SALES_CREDITS_INTERFACE** - This table contains sales credit informations and is not used in this implementation.

*Web Server Process Flow*

The Web page is designed to collect the following general information :

- Customer name
- Customer address
- Customer phone number
- Ship-to address
- Credi card issuer
- Credit card number and expiration date

The page will also collect order line items such as item and quantity ordered.

Items available for order can be placed in a drop down list box that acts similar to an Oracle Forms LOV (List of Values). Because of the stateless nature of a Web page, each item in the drop down box must carry with it all information pertaining to that item such as price and part number. In other words, the user cannot effectively pick an item by name and the database queried for the price. While it is possible to do this, especially with some of the newer tools available, the time delays possibly involved given the current state of the internet, could have the effect of causing the user to abandon the order. Instead of using drop down boxes, it would be better to displayt the items in tabular form. Again, the item description and price should appear on the page ate the time the order is taken. After the user has selected the items and desired quantities, a 'Place Order' button is clicked sending the order on its' way. The WebServer tool receives the data from the Web page and places this information directly into the Oracle database tables previously described.

*Oracle Application Process Flow*

Once the tables are populated with necessary information, it is an easy matter to create a valid customer and order. A concur-

rent manager process will wake up periodically look for information in the interface tables. If any information is found, the Concurrent Manager will import the information useing the OrderImport process. Because of the need to import both customer <u>and</u> order information, it is necessary to run the import process in two phases. First, it is necessary to import the customer, otherwise, the order import will fail as a valid customer will not exist. Thes two steps can be set up in a report set to run consecutively. This approach assumes that the data being imported will meet all functional requirements for importing a new customer and order. In a real world application, ther would have to be some sort of validation done to insure that the data meets the interface tables' requirements. The use of a Web interface allows for the following simplifications:
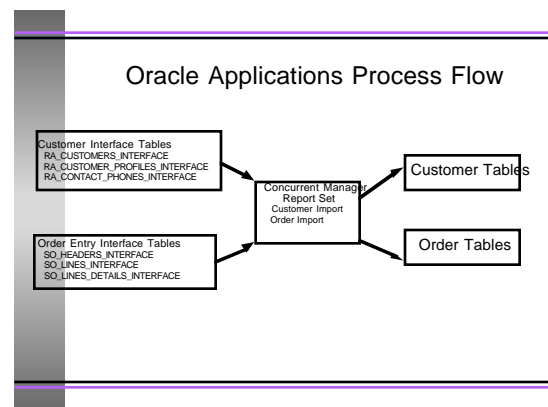


Figure C

- Customers pay with a valid credit card denominated in U.S. Dollars. This eliminated the requirement to check credit limits within the Oracle application. It also eliminates the need to use the RA_CUSTOMER_BANKS_INTERFACE table

- All orders are concidered valid booked orders.

- There is only one price list with no discounts.

## Summary

By using this method of interfaceing the Web with Oracle's Order entry Product, even the smallest businees can easily and cheaply establish a graphically rich global presence for purposes of garnering new business on a world wide scale. While there is no discussion of costs in such an implementation, such an implementation could easily reduce the number of order taking staff in a direct mail type of mass marketer. Also, there is no discussion on how to secure these transactions. However, new products are constantly being developed that will address this problem.