

Oracle® Mobile Supply Chain Applications

Implementation Guide

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Preface

Intended Audience

Welcome to Release 11i of the *Oracle Mobile Supply Chain Applications Implementation Guide*.

See Related Documents on page viii for more Oracle Applications product information.

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Structure

- 1 Overview
- 2 MWA Server

- 3 Responsibility and Menu Setup**
- 4 Labeling Setup**
- 5 Using Efficient Barcoding Techniques**
- 6 Implementation Tips**

Related Documents

Oracle Mobile Supply Chain Applications User's Guide

This book explains how to use the mobile supply chain applications, inventory, quality, and work in process

Do Not Use Database Tools to Modify Oracle Applications Data

Oracle **STRONGLY RECOMMENDS** that you never use SQL*Plus, Oracle Data Browser, database triggers, or any other tool to modify Oracle Applications data unless otherwise instructed.

Oracle provides powerful tools you can use to create, store, change, retrieve, and maintain information in an Oracle database. But if you use Oracle tools such as SQL*Plus to modify Oracle Applications data, you risk destroying the integrity of your data and you lose the ability to audit changes to your data.

Because Oracle Applications tables are interrelated, any change you make using an Oracle Applications form can update many tables at once. But when you modify Oracle Applications data using anything other than Oracle Applications, you may change a row in one table without making corresponding changes in related tables. If your tables get out of synchronization with each other, you risk retrieving erroneous information and you risk unpredictable results throughout Oracle Applications.

When you use Oracle Applications to modify your data, Oracle Applications automatically checks that your changes are valid. Oracle Applications also keeps track of who changes information. If you enter information into database tables using database tools, you may store invalid information. You also lose the ability to track who has changed your information because SQL*Plus and other database tools do not keep a record of changes.

This chapter covers the following topics:

- Overview
- Introduction to Mobile Supply Chain Applications
- Applications Integration

Overview

This document is intended to be a guide for installing and implementing Oracle Mobile Supply Chain Applications. Wherever possible, default configurations are assumed, and advanced setup information is not included.

This document references other documents that contain more detailed setup and implementation instructions.

Introduction to Mobile Supply Chain Applications

Mobile Supply Chain Applications allows you to perform common warehouse and shop floor transactions from any location in the manufacturing facility through the use of handheld devices. These include PDAs, handheld Radio Frequency (RF) units and truck mounted RF units, wearable computing and ring scanner systems.

Mobile Supply Chain Applications enables real-time interfaces to Oracle Applications through user interfaces. You can access the system from anywhere RF network coverage exists. This enables you to complete transactions inside or outside the manufacturing facility.

You can enter transactions and perform queries in real-time at the point of use. Transaction validation happens immediately, and invalid data is captured and resolved. This real-time inventory information improves the quality of supply chain collaboration, allows the customers to have more accurate guarantee of accuracy, and optimizes scheduling of resources and activities in manufacturing and warehousing. This current, accurate information enables exceptions to be worked quicker and results in higher effectivity.

Mobile devices increase productivity through reduced data entry, decreased interruption of warehouse activities, and process automation which increases throughput and decreases cycle-times. Cycle counting can be more efficient when using real-time information. This in turn will increase customer satisfaction through higher fill rates and guaranteed deliveries.

You can use messages to improve exception response time. You can direct Active Alerts and Intelligent Messages to the appropriate users to alert them of supply chain exceptions. Also, you can use Shortage Messages to expedite delivery of needed material. Mobile Supply Chain Applications checks receiving to determine if the material is received anywhere in the organization and sends an alert to the appropriate user.

Mobile supply chain applications uses standard Oracle APIs to support the transactions and inquiries. This allows validation to occur using the same techniques as standard Oracle windows and open interfaces. You create and modify menus the same way as in Oracle Applications. You can also use security functions for the mobile supply chain applications.

Applications Integration

Mobile supply chain applications integrates with several Oracle Applications. The following are available features that can be used:

Mobile Manufacturing

Oracle Mobile Manufacturing provides Oracle Work in Process transactions using mobile devices. You can execute shop floor transactions and business functions including:

- Moving assemblies
- Completing assemblies
- Scrapping and rejecting items and assemblies
- Issuing, returning, and scrapping material
- Work order-less completions and returns
- Flow completion, return, and scrap transactions
- Charging resources

You can also view transaction information including job and line status, material and move transactions, component requirements, job instructions, and resource and component shortages.

Mobile Quality

Oracle Mobile Quality provides Oracle Quality transactions using mobile devices. You can query any quality collection plan, enter data directly into it, and view specifications. You have the ability to do the following tasks and business functions:

- Collect quality data
- View specifications
- Work in Process transactions
- WIP Workorderless completions
- Flow Manufacturing completions

Mobile Materials Management

Oracle Mobile Materials Management provides Oracle Inventory, Oracle Purchasing receipts, and Oracle Shipping Execution transactions using mobile devices. You have the ability to do the following material functions:

- Receiving
- Inventory transactions and inquiries
- Kanban transactions and inquiries
- Cycle Counting and Physical Inventory
- Pick Confirm
- Ship Confirm
- Intra-organization replenishment

Related Topics

Overview of Mobile Supply Chain Applications: *Oracle Mobile Supply Chain Applications User's Guide*

Overview of Inventory Transactions: *Oracle Inventory User's Guide*

Overview of Work in Process: *Oracle Work in Process User's Guide*

Oracle Inventory Open Interfaces and APIs: *Oracle Manufacturing APIs and Open Interfaces Manual*

MWA Server

This chapter covers the following topics:

- Introduction
- Overview of the Mobile Supply Chain Application Server
- MWA Server Setup
- Verify Environment
- Configure MWA Dispatcher
- Running MWA Server
- Starting/Shutting down the MWA Servers and Dispatcher
- Alternating MWA Servers and Dispatcher
- Accessing MWA Server

Introduction

This chapter provides basic information on configuring and operating the MWA Server and Dispatcher. For more information see the following Oracle*Metalink* notes:

- Mobile Applications Technology Stack: 163931.1
- MWA Dispatcher port number usage: 170939.1
- MWA Dispatcher usage and example: 198543.1

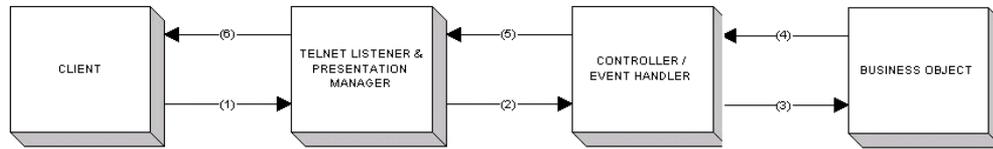
Overview of the Mobile Supply Chain Application Server

The Oracle Mobile Supply Chain Applications Server is a java based mobile server that supports the Telnet Protocol. The Telnet Server module has two sub-modules:

- Telnet Protocol Handler- Functions as the communication module between the client and the rest of the Telnet.
- Presentation Manager- Implements the telnet protocol that actually renders the user interface on the connected telnet client.

The following illustration depicts how a mobile application request is handled:

Mobile Application Request Sequence



- The client connects to Telnet Listener over a specified port—protocol negotiation occurs on the first communication. The Telnet Listener gathers input and waits for an event.
- When an event occurs, the presentation manager generates an event and passes it to the controller.
- The controller handles this event and modifies the appropriate business objects.
- The business object returns an updated session back to the controller.
- The controller informs the presentation manager of the updated session.
- The presentation manager examines the user session, renders the current page, and returns it to the client.

MWA Server Setup

The following paragraphs contain information on how to setup the MWA server.

MWA Configuration File: Configure mwa.cfg

The following procedure lists the steps necessary to configure the mwa.cfg file.

1. Locate the mwa.cfg file in the \$MWA_TOP/secure directory.
2. Copy the file Mwa_template.cfg to the file mwa.cfg
3. Edit the mwa.cfg file and configure following parameters
 1. Set mwa.DbcFolder=full directory of folder containing the .dbc file ending with “/”.
 2. Set mwa.DbcFile=dbc file name
 3. Set mwa.logdir=full directory of log file
 4. Set mwa.TelnetPortNumber=default port#
 5. Setmwa.DropConnectionTimeout= no. of minutes
 6. Set mwa.StaleSessionTimeout= no. of minutes
 7. Set mwa.LogLevel=error or trace

Key Mappings: Configure default_key.ini

The following procedure lists the steps necessary to configure the default_key.ini file.

1. Locate the default_key.ini file in the \$MWA_TOP/secure directory.
2. Use the default_key.ini file if you do not need to make any changes.

3. If you need to make customizations, create a new file e.g. intermec2415_key.ini
 1. Associate Server-Defined actions to Device keys:
<Action> =<Key>=<Description> eg. MWA_CLEAR_FIELD=CONTROLK=Clear
 2. Specify a device

Device IP: Configure Device IP.ini

The following procedure lists the steps necessary to configure the deviceIP.ini file.

1. Locate the deviceIP.ini file in the \$MWA_TOP/secure directory.
2. Copy the deviceIP_template.ini file to the deviceIP.ini file. This file associates a device with a key mapping file.
3. Map the device name and IP address as follows:
 1. Mapping by device name: Intermec 2415=intermec2415_key.ini
 2. Mapping by IP address: 130.35.112.*=intermec2415.ini

Verify Environment

To ensure you installed your environment properly, verify the following information:

- Verify the telnet port and the next consecutive port is not in use i.e. 2323 and 2324.
- The environment was set by sourcing the APPLSYS.env file.
- \$MWA_TOP is set correctly.
- The DbcFolder and DbcFile in the mwa.cfg file is set to the location and file name of your Oracle Application .dbc file.
- The log directory exists.
- The \$CLASSPATH includes appsborg.zip and apps.zip.

Note: If APPS.zip is larger than 64k, apply patch 2729622. Follow the instructions in the readme file to apply the patch. After you apply the patch successfully, update the \$CLASSPATH in replacing <full location of JAVA_TOP>/apps.zip by <full location of JAVA_TOP>.

Configure MWA Dispatcher

Use the following procedures to configure and manage the dispatcher to perform load balancing among multiple MWA servers.

Setup Dispatcher parameters in mwa.cfg

The following procedure lists the steps required to setup dispatch parameters in the mwa.cfg file.

1. Specify the port number and machine for running the dispatcher where
mwa.Dispatcher=hostname:port#

Note: The dispatcher uses three consecutive ports for internal control.

2. Specify the dispatcher worker thread count where
`mwa.DispatcherWorkerThreadCount=15`
3. Specify the dispatcher clients per worker where
`mwa.DispatcherClientsPerWorker=10`

Running MWA Server

The following paragraphs describe how to run the MWA server.

Starting the MWA Telnet Server

To start the MWA telnet server complete the following procedure (at a UNIX/LINUX prompt):

1. Source the APPLSYS.env
2. Enter the following text:

```
cd $MWA_TOP/bin
```
3. Enter the following text:

```
mwactl.sh start [port number]
```

Shutting Down the MWA Telnet Server

To shutdown the MWA telnet server complete the following procedure (at a UNIX/LINUX prompt):

1. Enter the following text:

```
cd $MWA_TOP/bin
```
2. Enter the following text where xxx is application user id with system administrator responsibility and yyy is the application user password.

```
mwactl.sh-login xxx/yyy stop [port number]
```

Additional Information

You can use the following information while running the MWA server.

- For NT servers, use `mwactl.cmd` script to start/stop MWA servers
- Use appropriate OS commands to ensure the MWA server continues running after the current connection closes (usually `nohup`, and/or `&`)
- You can use the following command to find currently running MWA servers: `ps-ef | grep mwa`

Restrictions

Starting/Shutting down the MWA Servers and Dispatcher

You can use the MWA Dispatcher to balance user load across many MWA Servers. Users connect to a single dispatcher port. The Dispatcher then re-directs each connection to one of the available servers associated with that dispatcher.

Starting the MWA Servers and Dispatcher

To start two MWA servers and the MWA Dispatcher complete the following procedure (at a UNIX/LINUX prompt):

1. Source the APPLYSYS.env.

```
cd $MWA_TOP/bin
```
2. Enter the following text:

```
cd $MWA_TOP/bin
```
3. Enter the following text to start the server:

```
mwactl.sh start 2310 (or any port number)
```
4. Enter the following text to start the server:

```
mwactl.sh start 2320 (or any other port number) .
```
5. Enter the following text to start the dispatcher:

```
mwactl.sh start_dispatcher
```

You connect to the Dispatcher port 2300. The dispatcher distributes mobile users between the two MWA servers. You can select control-X to view the MWA server port#, host name and other connection information.

Shutting Down the MWA Servers and Dispatcher

To shutdown the MWA servers and the MWA Dispatcher complete the following procedure (at a UNIX/LINUX prompt):

Source the APPLYSYS.env.

1. Enter the following text:

```
cd $MWA_TOP/bin
```
2. Enter the following text where xxx is application user id with system administrator responsibility, yyy is the application user password, and 2310 is the port number of the first server.

```
mwactl.sh-login xxx/yyy stop 2310
```

3. Enter the following text where xxx is application user id with system administrator responsibility, yyy is the application user password, and 2320 is the port number of the second server.
4. `mwactl.sh-login xxx/yyy stop 2320`
5. Enter the following text:

```
mwactl.sh stop_dispatcher.
```

Note: The MWA server terminates only when all mobile users are disconnected. New users cannot sign-on when the server is stopped. If you want to terminate the server while users are connected, you can use the `stop_force` command in place of the `stop` command to stop the server immediately.

Alternating MWA Servers and Dispatcher

Stop and Start the MWA server at least once day to flush the memory. You can establish a rotation of multiple MWA servers managed in conjunction with the dispatcher to avoid impacting daily operations. For Example: You can use one Dispatcher to manage to sets of MWA Servers (MWA Servers Set A and MWA Servers Set B respectively). You can set the rotation as follows:

MWA Servers	Day 1	Day 2	Day 3
MWA Servers Set A	12:00am start	12:05 am stop	12:00am start
MWA Servers Set B	12:05 am stop	12:00am start	12:05 am stop

You can adjust the times and numbers of servers to match you shift schedule and volume of users. See: Oracle *Metalink* note 198543.1 for more information.

Accessing MWA Server

You can use a telnet client to access the Oracle Applications Mobile User Interface. Connect to the machine where the MWA server is running on the port number where the server has been started or on the port number of the dispatcher.

For example, if the MWA server was started on `mwa.oracle.com` on port 2323, then you use a telnet client access to the Oracle Applications UI to connect to `mwa.oracle.com` on port 2323. To access the UI from a mobile device, you configure the telnet client on the device to access the IP of the machine on the appropriate port. To access the UI from a desktop computer, you can use a compatible telnet client to connect to the appropriate machine and port number.

Note: The default telnet client that ships with Windows 2000 and later is not compatible with character mode User interfaces using the telnet protocol, which includes the Oracle Applications Mobile UI. Refer to the Microsoft Knowledge Base Article #253918 (<http://support.microsoft.com/default.aspx?scid=kb;en-us;Q253918>) for more information. As per the instructions on this support note, to use a

GUI based telnet client on a Windows 2000 machine, it is necessary to copy the telnet client that shipped with Windows NT or obtain a third party telnet client software.

After you complete the change recommended in the knowledge base article, you can access the mobile UI. Launch the following executable from a command prompt where server.mwa.com represents the machine, and 2323 represents the port number: `telnet32.exe ap100.mwa.com 2323`.

Responsibility and Menu Setup

This chapter covers the following topics:

- Responsibility and Menu Setup
- Responsibilities

Responsibility and Menu Setup

You set up Responsibilities and Menus for Mobile Supply Chain Applications the same way as you set them for other Oracle Applications. There are four seeded mobile UI menus applicable to Mobile Supply Chain Applications. You can use these menu entries as seeded and assign them to individual users or you can modify them to include or exclude specific transactions for specific users.

Responsibilities

The following responsibilities are seeded by default and are available for immediate use:

- **Materials Management**-This responsibility contains all the mobile transactions for processing material within Oracle Inventory. It provides transactions such as miscellaneous receipt, transact move order, and ship confirm.
- **Mobile Quality User** -This responsibility contains the mobile user interfaces for Oracle Quality transactions. It supports transactions for entering and viewing quality collection plans.
- **Manufacturing Mobile Apps** -This responsibility contains the mobile user interface for Oracle Manufacturing (WIP) transactions. It provides transactions such as component issues, assembly completions and job inquiries.
- **Materials & Mfg**-This is the super user responsibility for Oracle Mobile Supply Chain Applications. It contains all the transactions from both the Materials Management and Manufacturing Mobile Apps responsibilities. It is essentially the superset of menu options for Receiving, Inventory, Manufacturing, Picking, and Shipping.
- **MWA Administrator**- This responsibility contains two menu entries that can be used on the mobile device for Administrator purposes:
 - **Telnet Session Monitor** allows you to monitor the session of another mobile user. This is useful for training and demonstration purposes. This functionality is often called mirroring. Both users must be on the same MWA server. For example if the dispatcher is being used, both users must have been routed to the same actual MWA server.

- Send Message allows you to send a brief text message to another mobile user. The recipient receives the message when he/she presses the next key on the mobile device. This does not disrupt the ability to process transactions. For this functionality to work, both users must be on the same MWA server.

Related Topics

Defining a Responsibility: *Oracle Applications System Administrator's Guide*

Windows and Navigator Paths *Oracle Mobile Supply Chain Applications User's Guide*

Labeling Setup

This chapter covers the following topics:

- Overview
- Definitions
- Setting Warehouse Management Profile Options
- Setting Up Printers
- Assigning Printers
- Label Formats
- Assigning Label Types to Business Flows
- Setup Example

Overview

It is assumed that the customer is using a certified 3rd party Label Printing software package and using the asynchronous integration method. The steps for configuring the 3rd party software are not discussed here.

You can print labels automatically as part of a specified business flow, such as PO Receipt, or Ship Confirm, or you can manually requesting a label to be printed for certain material.

When a print request is generated, Oracle Mobile Supply Chain Applications gathers the necessary information to construct the XML file for the 3rd party printing software. There are two ways to determine the label type: manual, and automatic. You determine the label type when you generate a manual print request. The business Flow/label type generates the label type if the label generates automatically. Each Label Type has one default label format the system uses to print labels of that type. The printer is determined according to the current printer assignments.

Once all the necessary information is collected, Oracle Mobile Supply Chain Applications generates the XML instruction and deposits the XML file into the specified directory for the 3rd party label printing software to retrieve and execute.

Related Topics

Label Printing Integration Kit: *Oracle Warehouse Management Implementation Guide*.

Definitions

- **Label Type:** A broad category of labels that specifies the superset of available data elements that may be included on a single label.
- **Label Format:** A single instance of a label type that specifies the subset of available fields contained on a particular label.
- **Business Flow:** An identifiable business process that occurs as part of material handling within Oracle Warehouse Management.

Setting Warehouse Management Profile Options

The following profile options need to be set within Oracle Applications:

- **WMS: Label Print Mode:** This profile option determines the label print mode for the integration. Set this profile to asynchronous.
- **WMS: Label output directory:** This profile option determines the directory for the XML files. This is the directory from which the third party software picks up and processes the files. Both the Oracle database and the third party software must have read / write privileges to this directory. For the directory to be accessible to the Oracle database, it must be listed in the UTL_FILE_DIR parameter within init.ora.
- **WMS: Label file prefix:** This profile option determines the prefix for the XML files that will be written to the output directory. Label print file names are generated according to the following format: PPPNNN.xml where PPP is the prefix specified in this profile and NNN is a sequential integer generated for each new label print request.

Setting Up Printers

Printers for label printing are setup in the same way they are normally setup within Oracle Applications with the exception that Oracle Mobile Supply Chain Applications does not need printer drivers. This is because the third Party software processes the actual print request. You use the system administrator responsibility to create printers. First, you must create a printer type, then create individual printers.

Setting Up Printer Types

The following procedure lists the steps necessary to create printer types.

Note: Before you set up printer types and printers, log in to Oracle Applications, and select the System Administrator Responsibility.

1. Navigate to Install > Printer > Types to open the Printer Types window.
2. Enter Label in the type field.
3. Enter a description in the description field.
4. Save your work.

Setting Up Printers

The following procedure lists the steps necessary to set up printers.

Note: Before you set up printer types and printers, log in to Oracle Applications, and select the System Administrator Responsibility.

1. Navigate to Install > Install > Register to open the Printers window.
2. Enter the label printer name in the Printer field.
3. Select Label from the types field list of values.
4. Enter a description in the description field.
5. Save your work.

Note: The name that you give the printer in this setup must correspond to the name of the printer as recognized by the 3rd Party printing software.

Assigning Printers

Printers are assigned to Label Types on the Site, Application, Responsibility, Department, Subinventory, User, or Equipment Type levels. When a particular label request has been made, Oracle Mobile Supply Chain Applications will look for printer assignments for the Label Type being printed and use the printer assigned to the Label Type at the most specific level.

Assigning Printer Label Types

Complete the following procedure to assign a printer to a label type:

Note: Before you assign printers, log in to Oracle Applications, and select the Inventory Responsibility.

1. Navigate to Setup -> Label Printing -> Assign Printers

The tree view on the left shows the list of documents to which printers can be assigned. The Label Types that Oracle Mobile Supply Chain Applications supports should appear in this list. The label types are: Material, Serial, Location, Shipping, and Shipping Contents. If a Label Type does not appear in the tree view, right-click on the documents node and select new from the context-sensitive menu.

2. Select the appropriate Label Type from the List of Values.

This adds the label type to the tree view.

Note: In a new installation of Mobile Supply Chain Applications, you must add all of the label types. To add a label type right-click on the Documents node, and select new from the context sensitive menu. Then select the label type you wish to add from the List of Values that appears.

3. Select a Label Type from the tree view.
4. Select a printer to associate with the label type from the list of values.
5. Select a level from the list of values.
6. Select a Value from the list of values.

7. Enter a Comment if desired.
8. Select the Enabled check box to enable the printer.
9. Select the Default check box to set this as the default for the label type.
10. Save your work.

Label Formats

You need to define label formats within Oracle Mobile Supply Chain Applications after you use the third party label design software to define the label formats. The label format designed in the third party software usually contains variable fields that need to be populated with data from Oracle Mobile Supply Chain Applications. You must define a label format within Oracle Applications that specifies the data elements to include in that format as well as the variables to use in referring to those elements.

Defining Label Formats

The following procedure lists the steps necessary to define label formats.

Note: Before you can define label formats, log in to Oracle Applications, and select the Inventory Responsibility.

1. Navigate to Setup -> Label Printing -> Label Formats
2. Select a Label Type from the list of values.
3. Enter a label name in the Names field.
This should be the name the third party printing software uses.
4. Enter a label format description if necessary.
5. Enter a disable date.
6. Select the Default Format checkbox to use this format as the default format for the label type.

Note: Mobile Supply Chain Applications only allows one label format per label type. The default label format is always used.

7. Save your work.

Defining Label Field Variables

The following procedure lists the steps necessary to define label field variables.

1. Select the Label Fields and Variables button from the Define Label Formats window.
2. Select a Field Name from the list of values.
The contents that appear in the list of values are the values that can be included on a label format of the specified Label Type.
3. Enter a Field Variable Name.

The Field Variable Name must match the variable used within the third Party printing software. The Field Variable Name is used as the identifier on the generated XML file.

Related Topics

Defining Label Formats: *Oracle Warehouse Management User's Guide*

Assigning Label Types to Business Flows

You can assign label types to business flows so when a transaction processes a label print request generates. You can assign label types to business flows Label Types at all levels. To assign label types to business flows complete the following procedure.

Note: Before you can assign label types to business flows, log in to Oracle Applications and select the Inventory responsibility.

To assign label types to business flows:

1. Navigate to Setup > Label Printing > Assign Label Types.
2. Select the appropriate Business Flow from the list of values.

Note: In a new installation of Oracle Mobile Supply Chain Applications you must add all of the business flows. Follow the same procedure used to add label types to add business flows to the tree structure.
3. In the Level field, select the level at which you want to control printing for this label type. Valid values are Site, Application, Responsibility, and User.
4. In the Value field, select the value for the level that you selected in the previous step.

The Value field is disabled if you select Site level. If you select Application, the list of values displays a list of valid applications, if you select User, the list of values displays a list of valid users, if you select Responsibility, the list values displays a list of valid responsibilities.
5. Verify the Enabled check box is selected. This indicates this label type can be used to generate the label associated with the business flow. If you deselect the check box, the label cannot be generated for the business flow.
6. Enter additional information in the Comments field if necessary.
7. Save your work.

Setup Example

Consider the following setup as an example:

A Printer is created called Label Printer One with Printer Type of Label.

Label Printer One is assigned to the Label Type of Material at the Responsibility Level for materials Mgmt responsibility.

A Label Format called Material Format is created. This format contains the Item and Quantity fields, referenced by the variables ITEM and QTY, respectively.

The Material Label Type is assigned to the business Flow of receipt as the user level, for user RCV10.

According to this setup, when the RCV10 user logs in and performs a Receipt of material (such as a Purchase Order Receipt), an XML file with instructions to print a Material

Label of format Material Format to printer label Printer One will be generated and deposited in the specified directory.

Material Label

Material Label		M1
Item: AS54888 	Qty: 64 	
Lot: 34-9923 	UOM: Ea 	
Mobile Supply Chain Applications		

Related Topics

Windows and Navigator Paths *Oracle Mobile Supply Chain Applications User's Guide*

Using Efficient Barcoding Techniques

This chapter covers the following topics:

- Overview
- Data Field Identifier Setup
- Hardware Setup
- Barcode Concatenation
- Concatenating fields using delimiter profile
- Concatenating Fields Using ASCII Control Characters

Overview

Data Field Identifiers (DFI) identify the type of data embedded within a barcode. A DFI consists of one to three characters pre-appended to the data that is encoded in the barcode. For instance, a DFI for Part Number might be P+. If the encoded part number AS54888, then the barcode would encode the value P+AS54888 to indicate that the barcode is for Part Number AS54888.

Oracle Mobile Applications provides DFI support for recognition of barcodes that contain DFIs as well as out-of-order scanning. Oracle Mobile Supply Chain Applications recognizes a DFI included in a barcode and validates that DFI with the field in which the value is being scanned. Oracle Mobile Supply Chain Applications also supports Out-of-Order scanning through DFIs. If a field is scanned containing a DFI that corresponds to a field other than the field that the cursor is currently on, the value of that barcode will be entered into the appropriate field.

Related Topics

Data Field Identifiers: *Oracle Warehouse Management Implementation Guide*

Oracle DFI Functionality: *Oracle Warehouse Management Implementation Guide*

Field Recognition: *Oracle Warehouse Management Implementation Guide*

Data Field Identifier Setup

The MWA Server and Oracle Applications ship with default values for DFI support. If no changes are necessary, no additional setup steps are required. In addition, some device manufacturers ship their products pre-configured for Oracle Mobile Applications, which eliminates the need for the first setup step. The steps are briefly discussed below.

Hardware Setup

The first step in configuring DFI support is to configure the mobile device such to pre-append the Data Stream Indicator to every scan. The Data Stream Indicator should be ASCII 28 File Separator. All Oracle Mobile Applications certified devices support this type of configuration. You can configure most scanners by scanning configuration barcodes, navigating to a configuration menu through the device keypad, or by using a remote configuration tool. Refer to the mobile device user's guide for configuration information.

Mobile Server Setup

The mobile server uses the ASCII 28 Data Stream Indicator to recognize DFIs. If you use the existing device configuration setting files (default_key.ini) no additional setup is necessary. If you need to change the Data Stream Indicator, see Setup for DI Support: *Oracle Mobile Supply Chain Applications User's Guide*.

Oracle Applications Setup

Oracle Mobile Supply Chain Applications is pre-seeded with DFI information according to the ANSI Data Application Identifiers Standard (document ANSI MH10.8.2-1995). If you use data identifiers that differ from the ANSI standard, or some fields do not recognize the DFIs properly, see, Setup for DI Support: *Oracle Mobile Supply Chain Management User's Guide*.

Related Topics

Data Field Identifiers: *Oracle Warehouse Management Implementation Guide*

Oracle DFI Functionality: *Oracle Warehouse Management Implementation Guide*

Field Recognition: *Oracle Warehouse Management Implementation Guide*

Using Barcode Identifiers: *Oracle Mobile Supply Chain Management User's Guide*

Barcode Concatenation

You can design barcodes to include two data fields in a single scan. There are two different ways to accomplish this within Oracle Mobile Supply Chain Applications.

Concatenating fields using delimiter profile

Oracle Mobile Supply Chain Applications provides the ability to support a delimiter character for combinations of data fields frequently concatenated into a single barcode. There are three Oracle Warehouse Management profile options used to specify the delimiter character:

- WMS: Item/Revision Delimiter: This profile specifies the delimiter character that is used to combine the item number and revision into a single barcode. If this profile is set to (-), then AS54888-A is interpreted as Item AS54888, Revision A.
- WMS: PO Number/Line Delimiter: This profile specifies the delimiter character that is used to combine a Purchase Order Number and PO Line Number into a single barcode. If this profile is set to (:) then 12736:01 is interpreted as Purchase Order 12736, PO Line Number 01.

- **WMS: Subinventory/Locator Delimiter:** This profile specifies the delimiter character that is used to combine the subinventory and locator into a single barcode. If this profile is set to (-) then EACH-E1.1.1 is interpreted as subinventory EACH, locator E1.1.1.

These profiles can be set to the same value or different values depending on the configuration of the warehouse labels. If these are the only fields to be concatenated, then this method is the preferred method of barcode concatenation.

Related Topics

Warehouse Management Profile Options: *Oracle Warehouse Management User's Guide*

Concatenating Fields Using ASCII Control Characters

You can separate the values in a barcode to concatenate any two or more barcodes into a single barcode. To do this use the ASCII characters for Carriage Return Line Feed. They are ASCII characters 15 and 12.

After embedding the characters into a barcode, the mobile server interprets a single scan as two different scans: the first value, a carriage return, and the second value. For instance, to concatenate the subinventory EACH and locator E1.1.1 using this method, the barcode should read EACH{ASCII 15}{ASCII 12}E1.1.1, where the ASCII characters in the brackets are replaced by the respective ASCII characters. Most full ASCII barcode symbologies, such as Code 128 and Code 39 Extended, provide the capability to embed such ASCII characters in the barcode.

Use this method of barcode concatenation only if it is necessary to concatenate fields other than the ones listed above, which support configurable delimiters.

Note: Barcode concatenation does not work if both the values have a Data Field Identifier prefix. When using DFIs on barcodes it is necessary to scan each DFI enabled value independently.

Implementation Tips

This chapter covers the following topics:

- Implementation Team
- Software, Hardware, and Network
- Technical Environment Recommendations and Checks
- Hardware
- Strategies
- Labeling
- Applications Patching
- Process Definition and Documentation
- Testing
- CRP Testing
- Training
- User Readiness
- Data Accuracy
- Conversion and Cut Over
- Post Production Support
- Multi-Lingual Support

Implementation Team

An experienced and knowledgeable Mobile Supply Chain Applications implementation team is the most critical element for a successful implementation.

Systems Integrator Qualifications, Experience and Time Requirement

- Oracle R11i experience - Previous successful implementation of Oracle 11i Applications elements, particularly Inventory and OM/Shipping, pertaining to the user business Model.
- Mobile Supply Chain Applications Experience - Previous successful implementation of a Mobile Barcode Applications (Oracle preferred) in a like or similar business model.

- Logistician - If distribution operations are complex, the system integrator should be an experienced logistician (Warehouse Management expert) with experience implementing several warehouse management systems preferred.
- Oracle DBA's and systems specialists knowledgeable of the various server, labeling, printer, RF equipment.
- Mobile Supply Chain Applications may impact configuration choices in other applications so Mobile Supply Chain Applications resources should be completely integrated to project team

Client Qualifications, Experience and Time Requirements

- Should have experience operating warehouse, understand and regularly practice activities like:
 - Customer labeling requirements,
 - Cycle counting
 - Pick waves.
- The client resource should have sufficient time to dedicate to the project based on the complexity of the operations.
- The Client needs to provide an end user training resource for RF device users.

Related Topics

Oracle University Mobile Supply Chain Applications: http://ilearning.oracle.com/ilearn/en/learner/jsp/search_all_compact.jsp?btn=srch&keywords=MSCA

Software, Hardware, and Network

You must have a low latency, reliable network with backup options and adequate hardware for each tier and appropriate RF equipment, tested for coverage.

System Readiness Check List should include:

- Proper Licensing in Place
- Application hardware
 - Applications/database
 - Considered sizing document for WMS users
 - High Availability environment
 - Back up access available
 - Middle tier
 - MWA Mobile server loaded, with adequate 'headroom' on middle tier
 - Located in data center
 - Wireless (RF) hardware/network
 - Used Certified Manufacturer or Self Certified Devices (insert link to self certification here)

- Survey for warehouse RF coverage by RF device vendor
- Hot Keys and screen sizes setup and tested (including error messages) on all the RF devices

Software Installation

- Installing the Mobile Server for Mobile Supply Chain Applications - This should take 2 hours then you can begin using the mobile transactions on telnet.
 - Read the Metalink Documentation - Mobile Applications Server for Industrial Applications before installation
 - Use the Predefined Mobile Windows - These windows are designed to be flexible, context sensitive, have multiple paths based on user preference and are engineered to work with the certified RF devices. If you wish to create new windows follow the customization strategy white paper, available on *OracleMetalink*.

Configuration

- Inventory setups completed for the following:
 - Organizations
 - Subinventories
 - Item Master

Integration

- Integration with other Oracle application modules. What are the impacts?
- Using certified Partner application integration points
 - Wireless Devices
 - Label format and Print software

Customizations

- Any mobile window
- Report modifications
- Other customizations

Physical

- Locator labeling - always concatenate Subinventory and Locators for single scan
- Printers - Bar code label printers and regular sheet feeders
- Order barcode labels and ribbon stock

Technical Environment Recommendations and Checks

- Archive log turned on in production environment
- Enough free space in archive dump destination
- Sufficiently large online redo log files and they are duplexed
- Optimal number of rollback segments
- Control files in different disks (duplex)
- Check `utl_file_dir` and `APPLPTMP` variables are same

- Check for sql_trace / timed statistics parameter (keep it on in the test environment and off in production)p. SQL Net listeners. FNDFS listeners. Concurrent Manager status
- Apache server status
- Form server status
- Mobile Application Server and/or Dispatcher status
- A test backup strategy
- PHP login setup if SSWA is used.
- Post go-live test environments without customizations created to test patches and bug fixes prior to applying to production environment

Hardware

- MWA server and dispatcher maintenance plan.

For more information on the MWA Server, refer to the Oracle *MetaLink* Tech Forum:

<http://metalink.oracle.com/metalink/plsql/showdoc?db=NOT&id=163931.1&blackframe=0>

Strategies

- Patching and upgrade strategy
- System error correction and resolution strategy
- Data corruption resolution strategy
- Mock go-live strategy
- System security updated to allow new User access
- High Availability Strategy
- Back up Plans for RF Network Failure
- Training

Labeling

Define your labeling approach, formats and acquire the labeling software.

- Mobile Supply Chain Applications solutions require label format design and printing software. Oracle selects the right format, formulates the substitution data, and creates an XML string to pass to the labeling software, but the labeling software must be used to design the form layout and drive the printer.
- Use Certified Label Design Software - if the label design software you have is not mapped to XML, it requires additional time during implementation to map the XML. If you use certified Label design software, defining, installing, configuring and printing labels should take less than 4 hours.
- Use Templates to design label formats - Do not format labels from scratch. Use the predefined label formats on the label design software and adjust.

- Concatenate Location Labels - concatenate subinventory and location labels to reduce scanning
- Define and test your labeling process, including software, formats, and standards
- Test with the actual barcode labels and ribbon stock.
- If Custom labels are required please refer to the white paper on Customizing labels on *OracleMetalink*.

Applications Patching

Oracle releases new features and capabilities for both Mobile Supply Chain Applications and Warehouse Management with each new family pack and point release. To ensure you have the most recent and most up to date environment.

- Review latest Release Control Document to see latest enhancements.
- Be current on patch levels for all software elements - for CRP and when you go-live
- Compare the patch level to the highly recommended patch list on Metalink http://metalink.oracle.com/metalink/plsql/ml2_documents.showNOT?p_id=123456.1
- Adhere to your Patching and upgrade strategy

Process Definition and Documentation

Consider the following when you create your business process documentation:

- Clearly define and gain agreement for all to-be business processes.
- Define the business process inbound and outbound flows using Oracle Mobile Supply Chain Applications.
- Known functional gaps and proposed solutions.
- All areas that require further investigation post production and the time-line for addressing these areas
- Pre-production metrics such as business volumes, transaction mixes, critical process timings in order to benchmark against post production metrics
- Change management process
- Warehouse bar-coding strategy
- Software contingency plans
- Hardware contingency plans
- Post-implementation benchmark analysis plan
- Post-implementation process/system tuning plan

See Also

Explaining Change Management: *Oracle Warehouse Management User's Guide*

Using Barcode Identifiers with Oracle Mobile Applications: *Oracle Warehouse Management Implementation Guide*

Testing

Perform comprehensive testing of all processes and integrations for accuracy, usability, throughput, exceptions, and user acceptance as follows:

- Develop a testing strategy - When you use RF devices, you are taking transactions out of batch mode and into real time. You must develop a test strategy to test the processes.
- Start first day of testing on Mobile windows using Telnet - Use telnet to familiarize yourself with mobile windows on the desktop until you have RF devices on site.

CRP Testing

CRP Testing is Complete when the following process elements have been tested to the customer's particular business flows.

- Complete Process flow testing with actual RF devices
- End to end testing
 - Receiving
 - Delivery
 - Replenishment
 - Picking
 - Label generation
 - Ship
- Exception handling processes
- Load and stress testing with high volumes and multiple users

Training

Consider the following information when you decide on mobile supply chain applications training:

- Compile training for the implementation team - Base training decisions on roles and background.
- Create job training for end users - This should include a mixture of class room and on the floor training.
- Run simulated, role-specific training for all users, performed close to go live
- End User training manuals, cheat sheets (process & system info)

User Readiness

Verify the following before launching your production environment:

- Customized security Log-On created/entered
- Security information/devices issued

Related Topics

Oracle University Mobile Supply Chain Applications: http://ilearning.oracle.com/ilearn/en/learner/jsp/search_all_compact.jsp?btn=srch&keywords=MSCA

Data Accuracy

Data accuracy can be a major impact on production success and a major cause of chaos in the post-production period. The following activities and setups should be completed prior to production:

- Data conversion completed and verified for accuracy
- Physical Inventory completed
- Setup of user ID's, Employees.

Related Topics

Entering a New Person: *Oracle Resource Management System User's Guide*

Physical Inventory: *Oracle Inventory User's Guide*

Conversion and Cut Over

Thoroughly test all data conversion and cut-over processes prior to production. Instigate mandatory end user floor training mandatory prior to production. On the floor training should be the last activity immediately prior to production.

- Make a Physical Inventory the first step of production - An accurate inventory count is essential to a successful Mobile Supply Chain Applications implementation. After completing the physical inventory, immediately begin your cycle counting program.

Related Topics

Physical Inventory: *Oracle Inventory User's Guide*

Cycle Counting: *Oracle Inventory User's Guide*

ABC Analysis: *Oracle Inventory User's Guide*

Post Production Support

Planning user post production support to handle process adjustments, questions and unplanned problems should be planned and documented.

- User help desk setup to answer pre and post go-live questions.
- Go-live triage team technical and functional staffing to help with user questions, process changes and equipment problems.
- Contact numbers for Oracle and System Integrator implementation partner support available.
- Notification sent to customers on labeling and documentation changes.

Multi-Lingual Support

To display responsibilities, prompts and messages in different languages, set the ICX Language profile option to the appropriate language. For example, to display American English, the profile option as follows, ICX: Language: American English. For more information see Oracle *Metalink* note 167557.1.

Note: I-directional languages such as Arabic are not supported.

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