XML Direct for Oracle

Quick Setup Guide

Thermal Series Printers

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1 *Introduction*

About This Manual

This manual explains the use of the XML language with the Printronix® SL5000r/T5000r and SL4M/T4M XML Direct printers. Use this manual with your *SL5000r/T5000r or SL4M/T4M User's Manual* for complete printer-protocol operation.

XML Direct

Printronix XML Direct enabled printers come equipped with an internal XML Forms Module. This interface software has been certified for use with Oracle WMS and MSCA applications. This solution allows users to quickly leverage RFID technology by connecting tagged objects with the business view of an ERP system.

Here is a high level overview of how XML Direct works in 4 easy steps:

- The user creates the PGL formatted label template. Use XML Direct label design software provided by Printronix or follow the examples in chapter 2.
- The template is downloaded to the printer's permanent memory.
- The host application sends XML formatted run time data to the printer.
- The run time data is merged with the stored template, the RFID tag is encoded and the label is printed.

Details of each of these steps are as follows:

1. Create the label format. This may be done by any of the following methods:

   (a) Use the XML Direct label design software provided by Printronix.

   (b) Use commercially available XML enabled label design software.

   (c) Follow the programming example in chapter 2 of this manual to create an XML enabled PGL template. Chapter 2 also provides directions to sample template files.

2. Download the format to the printer. This may be done via the following methods:

   (a) Use the Format Download Utility supplied with XML Direct label design utility. (see Chapter 4, Download Template Utility)

   (b) Send the XML enabled template to the printer directly from the operating system the same way you would any other file. For example, from a DOS command line prompt on a parallel interface you could type "copy/b <filename> lpt1:".

3. Host application sends XML formatted run time data to the printer. See chapter 2 for an overview of configuring Oracle to send XML.

4. Merging run time data with the stored template - this step is performed automatically by the XML Forms Module that is resident on the printer. If the above steps are followed, the Printronix XML enabled printer will encode and print RFID smart labels directly from your SAP system.

2 *Oracle Solution*

This section discusses the full implementation of the XML printing solution for Oracle, including an Oracle specific overview, along with instructions for installation and configuration on the Oracle system.

Introduction

Oracle Warehouse Management (WMS), Oracle Mobile Supply Chain Applications (MSCA), and Oracle Inventory are applications in Oracle's Logistics products. The Oracle WMS and MSCA applications have integrated label-printing capabilities using XML. Oracle has created 10 XML label formats that correspond to common transaction created by WMS and MSCA. When printing a label, the Oracle application determines the correct label printer and label format to use based on the data included in the request and rule configuration. Using the format definition, the label data are extracted and combined into a standardized XML document that is sent to the label printer.

When Oracle receives a label print request, it searches for a printer assignment in the following sequence: User, Subinventory, Responsibility, Application and Site level. If no printers are assigned to Label Types, no labels can be printed.

The 10 label types available with Oracle WMS and MSCA are defined below:

LABEL TYPE	DESCRIPTION
LPN	License plate information
LPN Content	LPN plus content information
LPN Summary	Nested contents summarized
Material	Item, quantity, lot, etc.
Serial	Material information plus serial number
Location	Subinventory & locator information
Shipping	Customer & address information
Shipping Content	Shipping plus material info
WIP Contents	LPN plus discrete job information
Flow Contents	LPN plus flow schedule

Oracle supports three modes of label printing integration: Asynchronous mode, Synchronous PL/SQL mode, and Synchronous TCP/IP mode. Of these three printing integration mode, the Synchronous TCP/IP mode is the easiest and most powerful method. In this mode, print requests are sent directly to

printers over a TCP/IP connection opened by Oracle. This mode does not require any 3rd party software to be loaded in the Oracle database.

In addition to the information provided in this chapter, selected Oracle documentation has been provided for your reference in the Manuals sub folder:

Seeded Label Formats - Oracle WMS & MSCA

Labeling in WMS & MSCA

Oracle® Warehouse Management Implementation Guide

Installation

To use the Synchronous TCP/IP mode, the printer must be setup within Oracle. Printers are setup in the same way they are normally setup within Oracle except you do not need printer drivers for the label printers. Setting up printers within Oracle requires the following steps:

1. Create a Label Type (performed only once)
2. Define label print mode (performed only once)
3. Register a printer in Oracle
4. Define printer IP Address
5. Assign printer to Label Types
6. Define label formats

Create a Label Type

To use Oracle's XML enabled label-printing capabilities, a printer type, named Label, needs to be defined. This printer type does not have to be associated to any styles or drivers. Only one printer type, named Label, should be created. To create a Label Type, do the following:

1. Using the System Administrator Responsibility Role, navigate to **Install > Printer > Types**.
2. Create a type called **Label** and enter a description.

Define Label Print Mode

To ensure that Synchronous TCP/IP mode is used for label printing, we need to set the WMS label print mode. To specify the label print mode, do the following:

1. Using the System Administrator Responsibility Role, navigate to **Profile > System**.
2. Select the profile option named: **WMS: Label Print Mode**
3. In the **WMS: Label Print Mode** option dialog, select **Synchronous – TCP/IP**.
4. Save your settings.

Register a Printer

To use Oracle's XML enabled label-printing capabilities, a printer type, named Label, needs to be defined. This printer type does not have to be associated to any styles or drivers. Only one printer type, named Label, should be created. To create a Label Type, do the following:

1. Using the System Administrator Responsibility Role, navigate to **Install > Printer > Register**.
2. In the Printer field, enter a unique name for the printer. **Note:** Oracle will use this name to reference this printer within the application.
3. In the **Printer Type** field, select **Label** by using the **Type** list box.
4. In the **Description** field, enter a description of the printer.

Define Printer IP Address

After defining a printer, the IP address and port number of the printer must be defined before Oracle can connect to the printer. To define the IP address and port number of the printer, do the following:

1. From the Warehouse Manager role, navigate to **Setup > Warehouse Configuration > Printers and Devices > Define**.
2. In the **Printer Name** field, select the printer name from the list box.
3. In the **IP Address** field, enter the IP address of the printer. Please see your network administrator if you don't know the IP address of the printer.
4. In the **Port** field, enter the port number **9100**.
5. Click the **Test** button to test the connection settings. You should receive a message stating that your connection settings are correct. If you don't receive the success message, check your entries and make sure that the database is connected to the printer.

Assigning Printers to Label Types

When a label print request is made, Oracle looks for printer assigned to the label type. Oracle will use the printer assigned to the label type at the specified level. To assign printers to label types, do the following:

1. From the Warehouse Manager role, navigate to **Setup > Warehouse Configuration > Printing > Assign Printers to Documents**.
2. From the tree view in the left panel, select the label type you which to assign to a printer (for example LPN).

   Note: If a label type is not on the document tree, right-click on the **Document** node and select **New** from the context-sensitive menu. From the **List of Values**, select the appropriate label type. This will add the new label type to the document tree. Once the new label type is added, select the label type and continue with next step.
3. In the **Printer** field, on the right panel, select a printer name to be associated with this label type from the list box.
4. In the **Level** field, on the right panel, select a level to be assigned to this label type from the list box.

5. In the **Value** field, on the right panel, enter a value for that level.
6. In the **Additional Information** fields, on the right panel, enter any additional information if desired.

Note: Once a printer or label type has been assigned, it cannot be deleted from this form. You can only disable the item.

Defining Label Formats

Label formats must be defined so that Oracle can properly populate the variable fields in the label. Besides defining the variable field names, the label format also specifies the data elements to include. To define label formats, do the following:

1. From the Warehouse Manager role, navigate to **Setup > Warehouse Configuration > Printers and Devices > Define Label Formats**.
2. In the **Label Type** field, enter in the name of an existing label format and click on the **Find** button.
3. In the **Name** field, enter a label format name and make sure it matches the name given to the label format specified in UniBar.
4. In the **Description** field, enter a description for the label format.
5. After defining the format name and description, click on the **Label Fields and Variables** button to view the label content.

XML Format

In order for Oracle to send out label print request using XML, Oracle and the label printers must have an agreed upon XML format so that XML contents are understood. An XML Document Type Definition (DTD) is used to define the XML tags used in the XML file. Oracle generates XML files according to this DTD and the printer parse and print the label based on this DTD.

The following is the XML DTD Oracle uses to create the XML. It defines the elements used in the XML file. This lists the attributes and the next level elements:

```
<!ELEMENT labels (label)*>
<!ATTLIST labels _FORMAT CDATA #IMPLIED>
<!ATTLIST labels _JOBNAME CDATA #IMPLIED>
<!ATTLIST labels _QUANTITY CDATA #IMPLIED>
<!ATTLIST labels _DUPLICATES CDATA #IMPLIED>
<!ATTLIST labels _PAGES CDATA #IMPLIED>
<!ATTLIST labels _PRINTERNUMBER CDATA #IMPLIED>
<!ATTLIST labels _PRINTERNAME CDATA #IMPLIED>
<!ELEMENT label (variable)*>
<!ATTLIST label _FORMAT CDATA #IMPLIED>
<!ATTLIST label _JOBNAME CDATA #IMPLIED>
<!ATTLIST label _QUANTITY CDATA #IMPLIED>
<!ATTLIST label _DUPLICATES CDATA #IMPLIED>
<!ATTLIST label _PAGES CDATA #IMPLIED>
<!ATTLIST label _PRINTERNUMBER CDATA #IMPLIED>
<!ATTLIST label _PRINTERNAME CDATA #IMPLIED>
```

```
<!ELEMENT variable (#PCDATA)>
<!ATTLIST variable name CDATA #IMPLIED>
```

Sample XML

The following is an example of XML file that is generated according to the above DTD. The content of the XML files lies between **<labels>** and **</labels>** tags. The content of each label is defined between the **<label>** and **</label>** tags. The printer name and label format are defined in the **<labels>** tag. Unless new values are given the **<label>** tags, the attributes (such as printer name, label format, and quantity) defined in the **<labels>** tags will be used.

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<!DOCTYPE labels SYSTEM "label.dtd">
<labels _FORMAT ="Seeded Label Default for Material" _QUANTITY="1"
_PRINTERNAME="P1" _JOBNAME="J1">
<label>
<variable name= "Item">4&apos;6&quot; pipe &lt;steel&gt; &amp; end
caps</variable>
<variable name= "Quantity">3</variable>
<variable name= "lot_number">L1000</variable>
<variable name= "Uom">DZ</variable>
<variable name= "Organization">W1</variable>
</label>
<label>
<variable name= "Item">Non-standard pipe</variable>
<variable name= "Quantity">2</variable>
<variable name= "lot_number"></variable>
<variable name= "Uom">Ea</variable>
<variable name= "Organization">W1</variable>
</label>
</labels>
```

3 *Troubleshooting*

In order to aid in the initial setup, configuration, and troubleshooting several pre-tested files have been provided. On the Printronix XML Direct Software Starter Kit CD, browse to the ORACLE/files folder. The PGL and XML folders contain sample template file to assist in verifying XML printing capability. The intent is for the user to download the desired PGL template file to the printer and then send the corresponding file from the XML folder. Successful printing/encoding using these files in stand-alone mode should assist in the integration of XML generated from ORACLE.

Label printing is a complex operation and may be subject to problems. There may be problems in installing or configuring Oracle or the printer supplied software. Network and hardware problem may also affect label creation. The following outline common problems and potential solutions.

1. No XML Data is Generated

Potential Cause: No label type assigned to a business flow. If no label type were assigned to a business flow you would receive an error message in the log file.

Potential Cause: No default format for label type. If no default label format were assigned to a label type you would receive an error message in the log file:

Solution: Ensure that a default label format exists in the Define Label Formats window.

2. No Label Is Printed

Potential Cause: No printer assigned to business flow or printer does not have default or enabled checked. If no printer were assigned to a business flow, you would receive an error message in the log file.

Solution: Ensure that the label type that you are trying to print has a valid printer assigned to it. Ensure that the “Enabled” and “Default” flags are both checked.

Potential Cause: Printer name in Oracle does not match the printer name defined in the label software

Solution: Ensure that the printer being used has the same name (identifier) as the label software.

Potential Cause: XML variable names used in Oracle does not match those used by the label software.

Solution: Ensure that the variable names for the label format are defined with the same variable names used by the label software.

3. Label Missing Data

Potential Cause: Information not available to print.

Solution: Verify the appropriate information is available. For example, if an item is not serial controlled, the serial label is not available.

Potential Cause: Field not included in XML

Solution If a variable field, on the label, is not replaced by any data, check the Define Label Format setup window and verify all the variables on the label were added to the label format and the variable names match. If a variable is printed on the label but not listed in the label format, the XML content does not have information for that variable.

Potential Cause: Variable names defined in Oracle does not match the variable names defined in the label software

Solution The variable names included in the Oracle XML message must match, character for character and in the same case, the variable names defined on the label format.

4. Synchronous Mode - TCP/IP Socket is not Opened

Potential Cause: Incorrect IP address or port number

Solution: Verify the printer's IP address and port number entered on the Define Printer IP setup form. Refer to printer user documentation for details on how to check the IP address and port. Use the Test button on the Define Printer IP setup form to verify that the IP address and port are correct.

Potential Cause: Incorrect print mode

Solution: Verify that the print mode is set to Synchronous - TCP/IP for the user.

- WMS: Label Print Mode = Synchronous - TCP/IP
- WMS: Label file prefix" not relevant
- WMS: Label output directory not relevant

Potential Cause: Network topology or firewall prevents messages from getting from database to print server

Solution: The printer may not be accessible from the database, which is the place from which the TCP/IP socket is actually being opened. Make sure that the firewall settings to allow messages to the specific port or with the specific label content to pass through.

4 Printing with XML Direct

Using *BarCode 2000 XML Direct*

This section details the installation of *BarCode 2000 XML Direct* software and describes how to use it to create XML-enabled label formats.

Unibar's *BARCODE 2000 XML DIRECT* is a complete bar code label printing system for multiplatforms, including Windows, Linux, and Unix. *BARCODE 2000 XML DIRECT* includes a Label Designer (LDS), Download Template Utility (DTU), Label Data Definition (LDD) editor, and a Label Formatter (print module). They provide the base functions that most users need to print on demand or batch labels.

The Label Designer is for creating the label templates. The Format Downloading Utility is for downloading the label template to your XML-enabled printer. The Label Data Definition editor is an easy way to setup and define variables used in a label template. The Label Formatter provides data mapping and printing services.

Installation

On a Windows system, you can simply run the setup program.

On a unix or linux system, the delivery file will usually end in ".*tar.Z*". You can use the following commands to uncompress and un-tar the file:

uncompress <file>.tar.Z

tar xvf <file>.tar

If the file ends in ".*tar.gz*", use the command "*gunzip <file>.tar.gz*" in place of *uncompress*.

The extract command (*tar xvf*) will extract the contents of the file into the present directory or a subdirectory of it. This directory is called the install directory, or the base directory. *BARCODE 2000 XML DIRECT* uses the base directory for storing label templates, image files, configuration files, programs, etc.

If you perform a typical install, you will have no need to think about the base directory. If you perform an atypical install and you see a message like

"Error - can't open <base directory>/BC2000.cfg."

then you may need to set up an environmental string pointing to the base directory, so that Barcode 2000 components can find it. If you think you need to do this, please refer to the Unibar Base Directory section.

License Key File

BARCODE 2000 XML DIRECT reads a license key file to determine the features it should enable. The file is named “unibar.key”. The program looks for the key file in the directory that is specified for the Unibar base directory.

A Brief Overview

Unibar’s *BARCODE 2000 XML DIRECT* is a complete bar code label printing system for multi-platforms, including Windows, Linux, and Unix. *BARCODE 2000 XML DIRECT* includes a Label Designer (LDS), Format Downloading Utility (FDU), Label Data Definition (LDD) editor, and a Label Formatter (print module). They provide the base functions that most users need to print on-demand or batch labels.

The Label Designer is for creating the label templates. The Format Downloading Utility is for downloading the label template to your XML-enabled printer. The Label Data Definition editor is an easy way to setup and define variables used in a label template. The Label Formatter provides data mapping and printing services.

Quick Start

Quick Start assumes you have successfully installed *BARCODE 2000 XML DIRECT*. If you follow these instructions, you should have a label designed and printed in a few minutes.

- Start *BARCODE 2000 XML DIRECT*. Click on Design Label Format and select File, New Label.
- In the Label Properties Dialog Box, type FirstLabel (or some other name) and click or tab through the LDD Name entry (this will create a new LDD with the name FirstLabel). LDDs are very important but you can learn about them later.
- The default printer type is a SL5204r. If you want a different type, go to the Printer Designation portion of the Label Properties Dialog and select printer model.
- Click on a Insert Object Barcode from dropdown or Tool Bar.
- Click label canvas where you want barcode to appear. You have a barcode.
- Add a couple text/data fields and a line and box. To modify field, just double click to bring up field properties box and change attributes. Add a graphic if you like.
- To print the label, go to Print Destination if your printer port is lpt1, lpt2, com1, or for Linux/Unix is the default printer, (lp) you are ready to print your label! Note: If you have a networked printer or some other port address, you will need to go to the Configuration (Create Printer Destination on Main Menu.)
- Select Print and your label should print!

Moving on:

To add complicated fields such as concatenations or counters and to print production labels from your application you will need to learn Label Data Dictionary and Label Formatter features as well as additional Label Designer functions. Please take some time to practice designing and printing labels that are more complicated. For an example see the SampleLabel and SampleDictionary that should be included with your install.

Getting Started

To Begin

Determine which items on your label will be constant (e.g. your company's return address) and which are variable (perhaps a product #, P.O. #, or customer/vendor information). "Text" is a fixed part of the label template and is not considered data. Data and bar code fields are constant or variable (or other LDD supported versions) data defined in the dictionary. Once assigned, the field types can't be changed, the field must be deleted and a new one created.

Specify the source of the data to use. If you are selecting certain fields from a database, get a list of the fields and their maximum sizes. Also be sure that you know the format of the source file (ASCII: delimited or fixed length).

Know which printer type(s) will be used for the job. Changing the printer after the fact could cause you to have to rethink the whole label because not all printers have the same capabilities.

Know the size of the label you will be using.

Know any industry standards for that label regarding placement of certain information. (Some standard labels have been included for your reference. You also have the option of changing these to include your own information, but maintaining the same basic structure for compliance.)

Create Label Templates:

Normally this data is in a data file or is in the program that will "print" the data for the label. The data strings (records) that *BARCODE 2000 XML DIRECT* processes, which create the labels, must be ASCII fixed or delimited.

Use the Label Designer (LDS) to design your label templates.

Using the information collected as referred to above; you can now create your label templates. Although this is a separate process from printing production labels, the data source definitions are critical for printing correct labels.

For each field you add to a label, you select the attributes such as symbology, density, font, height, rotation, etc. For fields that take variable data, you define the data in the LDD.

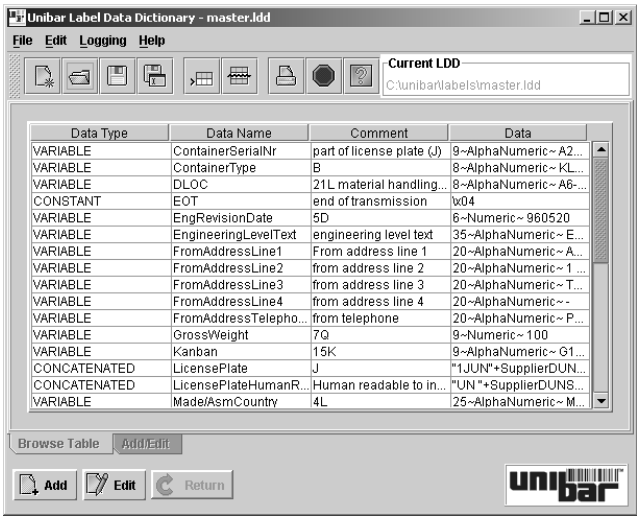
NOTE: The Label Designer has default values to test print barcodes.

Constant label text is text data, is defined in the label, and has no other source.

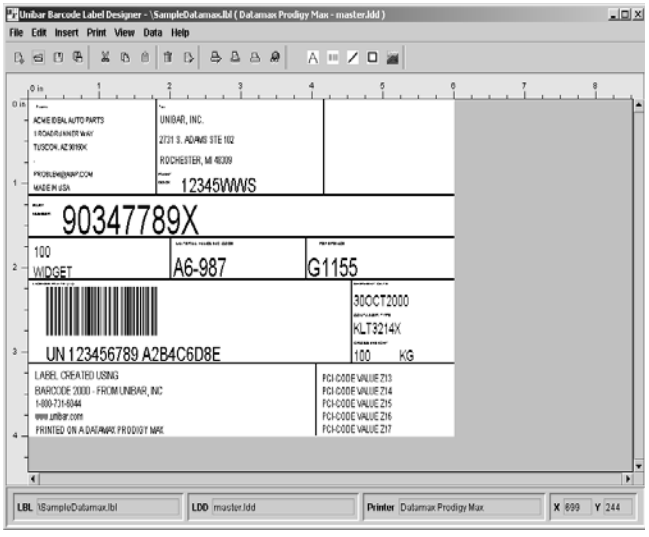
BARCODE 2000 XML DIRECT Components

This section will introduce you to each of the *BARCODE 2000 XML DIRECT* components:

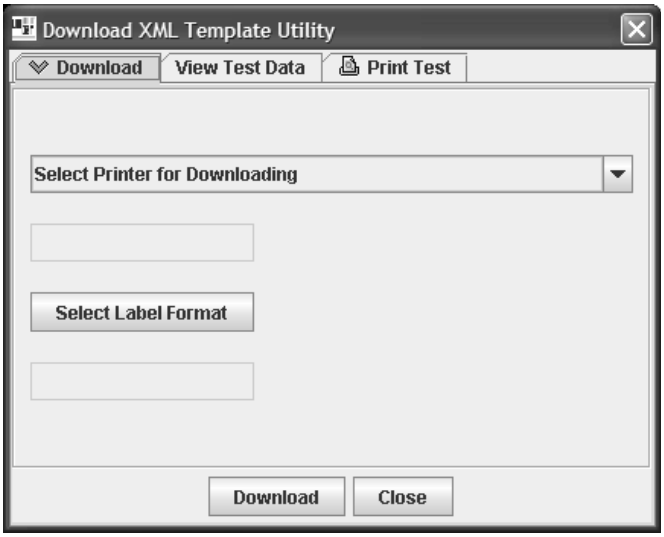
- Introduction to Label Data Dictionary (LDD)
- Introduction to Label Design System (LDS)
- Introduction to Download Template Utility (DTU)
- Introduction to Configuration Tool



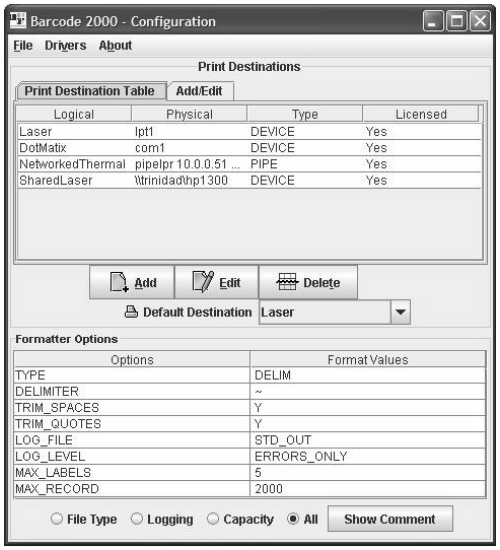
Easily define your data format using the Label Data Dictionary (LDD) component



Point, Click, Drag and Drop all the fields on the label



Download label formats to an XML enabled printer using the Download Template Utility (DTU)



Set up printer destinations easily in the Configuration Tool

Introduction to Label Data Dictionary

Purpose

The LDD stores all your data variables, concatenations and other special fields. The field type determines the operations to be performed by the Formatter when printing. In order for you to use a variable in a label template, it must be defined in the LDD you have created for the label template.

NOTE: You can create one LDD for each label template or create a global LDD that can be used with all your label templates.

Menu Bar

The menu bar is located at the top of the LDD main window. This menu bar is similar to other menu bars found in most Windows and Java applications.

LDD Menu Bar

File	To create, open and save LDD files; print contents of the LDD; quit the application
Edit	Copy and append LDD contents to another LDD file; delete a field
Logging	Display errors that may occur when loading/saving LDD files
Help	To find help regarding LDD operations; current LDD version number (About)

Toolbar

The toolbar provides quick and easy access to commonly used menu commands. The toolbar is located below the menu bar.

LDD Toolbar

New	Opens a new blank LDD file
Open	Opens an existing LDD file
Save	Saves the current LDD to a file
Save As	Saves the current LDD file to a different file name
Append	Appends selected rows into another file or a new file
Delete	Deletes the selected row from the LDD
Print	Prints the current LDD
Quit	Exit LDD
Quick Help	Displays short detailed information about the LDD application
Current LDD	Displays the full path of the current LDD

Field Types

Constant The constant field is a static field. The data in the 'Constant Value' field will be printed on the label at print time.

NOTE: Constants can also be defined in the LDD rather than using TEXT fields in the label template. This makes the constant field consistent in all label templates. It can be changed in the LDD and will immediately be reflected in all labels templates using the field.

Data Name	A unique name for the field
Constant Value	An alphanumeric value or binary
Comment	A comment about the data in the field

Variable

This field defines data that changes at print time. An example of a variable field would be the weight on a shipping label that changes for each box.

Data Name	A unique name for the field
Length	Maximum length of the field *If the data is exceeds the maximum length set, the remainder of the field will be truncated.*
Character Set	Sets the character set of the variable. **Alphanumeric** – Characters and digits **Binary** – Binary digits only **Hexadecimal** – Hexadecimal characters only **Numeric** – Digits only
Default Value	Sets a default value that is used only when test printing a label template in the LDS and when printing from the FDU.
Comment	A comment about the data in the field

Concatenated

This field is used to combine one or more fields into one single field. An example of using the concatenated fields would be adding 420 to a zip code on a label.

Data Name	A unique name for the field
Data List	A list of fields you can use to create the concatenated string
Concatenated String	Displays the concatenated string. ***Note:*** *You can directly edit the fields and constant data in this area. Using quotes around the data is assumed to be constant. Example: "12345"+MyField1+"ABCDE"+MyField2 MyField1 and MyField2 are variable fields setup in the LDD.* ***Example:*** *A part number with an identifier of 'P' added to the 'PartNumber' variable field would look like "P"+PartNumber.*
Default Value	Sets a default value that is used only when test printing a label template in the LDS and when printing from the FDU.
Comment	A comment about the data in the field

Counter

This field is used to automatically increment/decrement a value of a barcode or text field on the label template. For example, suppose an order consists of a set of three cartons, which are numbered 200, 201, and 202. To generate a set of labels, you set the starting variable to 200 and increment the value by one and print three copies of the same label. Everything on the label is the same for each label except the counter field.

Data Name	A unique name for the field
Start Values	
Variable List	Choose the field that will have the starting value for the counter.
Enter Number	Enter the starting number of the counter. The counter will start at this number each time you print the label(s).
Length	Specifies the maximum length for the counter. The full length is used, counters that do not fill the entire length are left padded with 0's.
Increment Values	
Positive/Negative	Increment or decrement the counter field
Amount	Sets the amount to increment/decrement the value specified in the Start Values section.
Comments, Etc.	
Comment	A comment about the data in the field
New Record	Increments/decrements on a new record
Copies	Increments/decrements on a copy of a record
Reset	Resets the counter field

Examples: *(each line is a record)*

Checking Copies and Reset and printing 3 copies of each record would produce the following results:

"Box 1 of 3", "Box 2 of 3", "Box 3 of 3"
"Box 1 of 3", "Box 2 of 3", "Box 3 of 3"
"Box 1 of 3", "Box 2 of 3", "Box 3 of 3"

Checking only Copies would increment/decrement on each label printed.

Checking only New Record would increment/decrement on each record

SN00123, SN00123, SN00123
SN00124, SN00124, SN00124
SN00125, SN00125, SN00125

Time

The time field defines a string that you can use in the label template. The string can be a date, time or both depending on how you format it. The Formatter, at print time, will retrieve the current system time and date and format that information into the time string you defined.

Data Name	A unique name for the field
Time Format	A list of time and date formats that can be used to build the Time String
Time String	Displays the current format of the date and time for the field
Comment	A comment about the data in the field

Alias

An alias is just another way to represent a field already defined in the LDD. This can be useful for mapping a field in a database to a field in the LDD without changing the original LDD field name.

Data Name	A unique name for the field
Select Data Field to Alias	A list of fields you can use to create an alias to map to.
Comment	A comment about the data in the field

TXDATA

This field is where you define a map of your data that will be sent to the Formatter. Since, there are many ways to format your data; Unibar has created this TXDATA field to meet most of our customers file formats. A Data Record Format (DRF) can be defined in the Label Data Dictionary. The field type is “TxData” (for Transaction Data Record Format). In the LDD program, you specify a TxData name (DR01, if you’re not too creative). This name is used in the data stream to refer to the DRF. You can add existing variable names to the TxData and specify their offset and length if you choose a fixed-length field type of input.

Following is a method that provides **ubfmt** the capability of finding your TxData without specifying it in your data file. This was originally provided for Version 3 users who do not make application changes to upgrade to Version 6.

1) LDD must be named “<*label_name*>.ldd”; TxData is named “TxData.<*label_name*>”

2) Use one TxData per label or use a master TxData, named DEFAULT_TXDATA.

3) UBFMT: if no '/DR' is provided (i.e. No TxData), use DEFAULT_TXDATA if present, else look for a TXDATA named “<*label_name*>”

Data Name	A unique name for the field
File Format	
Delimited/Fixed	Choose either use a delimited or fixed data. Delimited files have some sort of field separator (field1~field2~field3). In a fixed data file, the data is in a fixed position and never changes from record to record (field1field2field3).
Offset – (Fixed)	Sets the position of the start of the field in a fixed data file. **Example:** data=100120023003 An offset of 5 and a length of 4 would equal '2002'
Length – (Fixed)	Sets the length of the field starting from the offset. (see example in 'Offset')
Other	
Data List	A list of fields you can use to create the concatenated string of the TXDATA field
Concat String	Displays the format of the fields used in the TXDATA **Example:** Delimited Format – Field1+Field2+Field3 Fixed Format – Field1:0:5+Field2:6:7+Field3:14:5
Comment	A comment about the data in the field

File

This field is to define a graphic file that can be used on a label template. *BARCODE 2000 XML DIRECT* allows for variable graphics or constant graphics to be used on the label templates.

Data Name	A unique name for the field
Variable/Constant	Sets the type of file you are using for this field.
File Name – (Constant)	Sets the path of the file. *Use the absolute path.* **Example:** C:\mygraphics\pic.pcx or /usr/mygraphics/pic.pcx
Default – (Variable)	Sets a default value that is used only when test printing a label template in the LDS and when printing from the FDU.
Length – (Variable)	Maximum length of the field. *If the data exceeds the maximum length set, the remainder of the field will be truncated* *For this field type we recommend making the length 50 or greater, because of the variances in file names that might be used..*
Comment	A comment about the data in the field

Substring

This field is used to extract a portion of data from an existing LDD field. An example of a use of the substring would be to extract the day of the month from a known format of 'mm/dd/yyyy'. In which case, you would have a LDD field defined and the field would contain 'mm/dd/yyyy'. To extract the day of the month you would set the Starting Position to 4, Number of Characters to 2 and Horizontal Alignment to Left.

Data Name	A unique name for the field
Select Variable Name	A list of fields you can use to create the substring field
Starting Position:	The starting point of where the substring is to start
Number of Characters	The number of characters to use in the substring field from the Starting Position
Horizontal Alignment	Determines where the Starting Position is to start from. **Example:** If Horizontal Alignment is set to Right then the starting point of the substring would be the value in the Starting Position counting from the right.
Default Substring	Sets a default value that is used only when test printing a label template in the LDS and when printing from the FDU
Comment	A comment about the data in the field

Alternate

This field provides a function of replacing the primary source with the secondary source only if the primary source is empty. For example, suppose you have fields defined as RetailPrice (primary) and SalePrice (secondary). If the RetailPrice were empty (blank), then the SalePrice would used.

Data Name	A unique name for the field
Select Primary Source	A list of fields you can use for the Primary Source
Select Secondary Source	A list of fields you can use for the Secondary Source when the Primary Source is empty
Default	Sets a default value that is used only when test printing a label template in the LDS and when printing from the FDU
Comment	A comment about the data in the field

Introduction to Label Design System (LDS)

Purpose

This is where you would define the specifics of the label, such as printer model, speed, print orientation, etc. This is also the component that you define your label template by placing fields (barcodes, text, lines, variables and graphics) on the screen.

Menu Bar

The menu bar is located at the top of the LDS main window. This menu bar is similar to other menu bars found in most Windows and Java applications.

LDS Menu Bar

File	To create, open and close Label files; print a sample label; set printer printer parameters; print preview current label template; quit the appl
Edit	To cut, copy and paste label objects; Delete Label objects; Deselect L
Insert	To insert the basic Label objects; Text, Barcode, Line, Rectangle, and
Print	To print a sample label; set page parameters; set printer destination; s parameters; print preview current label template.
View	To customize the toolbar; toggle the header panel (toolbar) and the fo bar); see label properties; set label data defaults.
Data	To add variables to the Label Data Dictionary (LDD) attributed to the (Label Design Document).
Help	To see the version (About) information and to access this online help

Toolbar

LDS Toolbar

The toolbar provides quick and easy access to commonly used menu commands. There are currently four (4) toggling toolbars – File, Edit, Print, and Insert – they toggle (visibly) ‘on’ & ‘off’.

The *Create* toolbar is detachable from the main bar for easy label making and designing. This toolbar corresponds to the *Insert* menu as indicated below.

FILE The File menu and toolbar share four basic functions*: New, Open Save,* and *Save As*.

New Label	Opens a new blank label template
Open Label	Opens an existing label template
Close	Closes label in window
Save	Saves the current label template to a file
Save As	Saves the current label template to a different file name
Page Setup	Brings up the Page Setup Dialog
Print Preview	Brings up the Print Preview box
Print	Prints the current label
Exit	Exits the IDS

EDIT The Edit Menu and toolbar share three basic functions: *Cut, Copy, and Paste;* additional functions include Delete, and Deselect. **Note** both the EDIT Menu and the INSERT menu are available as a right click Menu-Items in the Designer.

EDIT FIELD	User instructions for editing an existing label object
Cut Field	Acts like every other kind of Cut operation – it is the sublime combination of copy and delete If a Paste operation does not follow a Cut, the Item is lost.
Copy Field	Acts like any other kind of Copy – if a Paste operation does not follow a Copy the item is lost by the next action involving a Cut or Copy.
Paste Field	Single action paste; must follow a cut or copy; multiple-pasting is not supported. The object pasted will be set to the last visual coordinates of the cursor, immediately prior to the call to the Paste function.
Select Field	User instructions for selecting a label object
Deselect Field	User instructions for releasing a previously selected label object
Delete Field	Deletes any label object from the template PERMANENTLY, after confirmation.

PRINT

Page Setup	Displays the page setup dialog box
Print Preview	Displays the label template and sets the rotation for the entire label template; the current template can be printed to the current Print Destination from here.
Print	Selects to which printer the current label template will be sent for printing. Sends sample label to the currently selected printer
Print mapping	Allows user to map existing label template from one printer to another

VIEW

Set Label Data View Set the visible label objects either of three ways: 1) Field Names, 2) LDD Data default values, or 3) LDD maximum lengths

Toolbars

File Toolbar Check box to click if you want it to display

Edit Toolbar Check box to click if you want it to display

Print Toolbar Check box to click if you want it to display

Insert Toolbar Check box to click if you want it to display

Properties

Label Properties Displays the label properties dialog box if the label is selected; Displays the Label Object Properties Dialog if that object is selected.

Toolbar Check box to click if you want it to display

Status Bar Check box to click if you want it to display

INSERT Inserts the chosen Label Object at the visual coordinates of the design-space immediately following the button-press of the selected object

Text Create a text or data field

Barcode Create a barcode field

Line Create a vertical or horizontal line

Rectangle Create a rectangle

Graphics Add a graphic

RFID Add an RFID tag

DATA

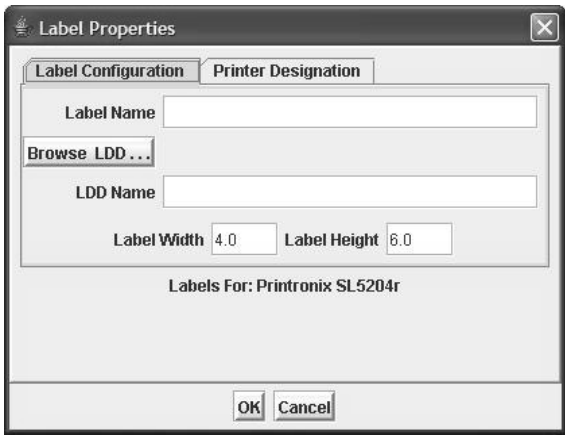
Add LDD Entry	Add a Variable to the existing Data Dictionary without opening the LDD application
New LDD	Creates a new empty Label Data Dictionary, without opening the LDD application

HELP

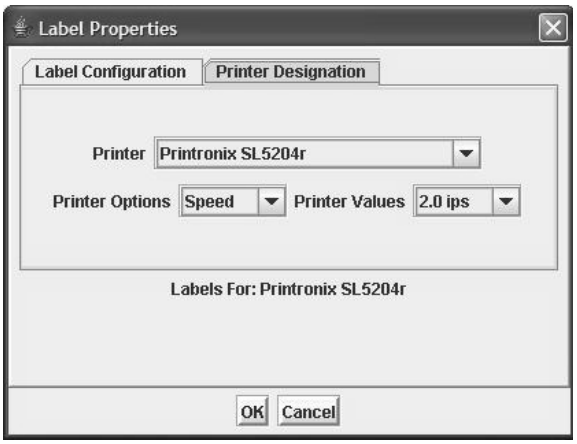
Help	Opens context based help
About	Indicates the current version of the utility and OEM contact information

Label Properties

The Label Properties window is where you set the label specifics such as the name of the label, printer model, printer speed and label dimensions.



Label Configuration Screen

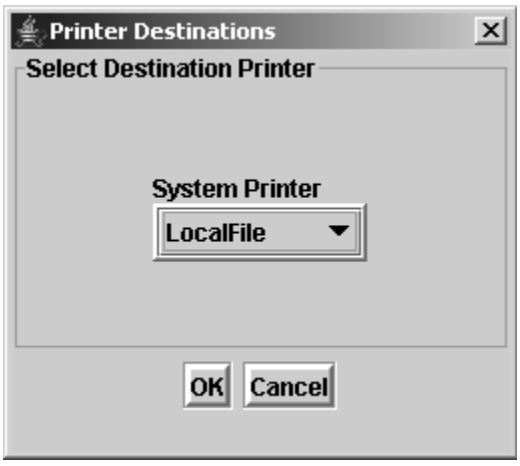


Printer Designation Screen

Label Name	Defines the filename for the label template
LDD Name	Defines the LDD file that will be used for the label template. *Use the 'Browse' button to select a current LDD file.*
Printer	Sets the printer model for the label template. *Once the printer is chosen for that label template it cannot be changed.*
Printer Options	Set certain printer options for the label template. ***Note:*** *As of the version 7.0 release, only the printer speed options can be set. As more printer options are implemented the printer options list will reflect those additions*
Printer Values	Displays and sets the value(s) corresponding to the Printer Options
Label Width	Sets the width of the label template. **Example:** 4.0 equals 4 inches
Label Height	Sets the height of the label template in inches. **Example:** 6.0 equals 6 inches

Printer Destination Dialog

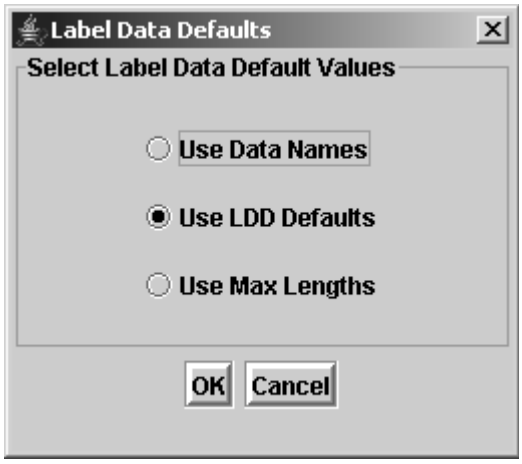
Printer Destination sets the system printer for the Print events in BarCode2000. The current label template will print to the selected destination. Destinations are set in the Printer Configuration Utility.



Default Printer Sets the default printer LDS will use when printing a test label. This field is populated from entries in the BC2000.cfg file that is setup by using the Config component.

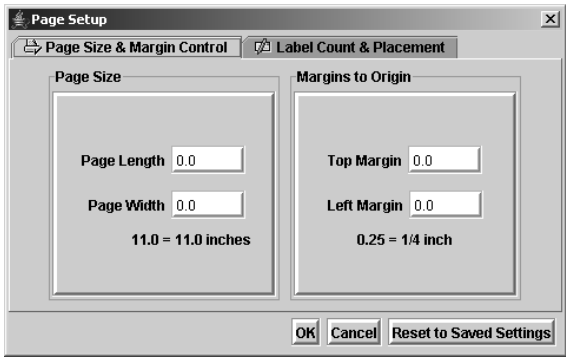
Label Data Defaults Dialog

This dialog allows the label designer to choose the form that DATA fields are displayed and printed.

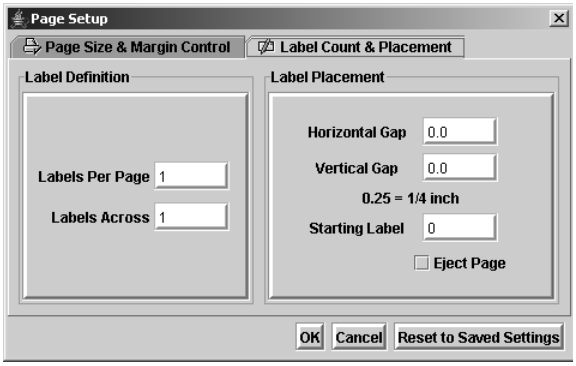


Page Setup Dialog

The settings in this area include margins, labels per page and across, LDS default printer and how LDS uses the default data in the LDD.



Page Size and Margin Control



Label Count & Placement

Use LDD Defaults/ Use Maximum Length

This determines what data is printed for the test label when printing from LDS. The 'Use LDD Defaults' setting will use the value specified in the Default box of that specific field in the LDD. The 'Use Maximum Length' setting will use characters and/or digits for the data in order to give you a better sense of the maximum length of the field when printed.

Top Margin	Sets the top margin for the label template. **Example:** 1.25 equals 1¼ inch.
Left Margin	Sets the left margin for the label template. **Example:** 1.50 equals 1½ inch.
Page Width	Sets the overall width of the page. This setting is most commonly used when printing to Avery label sheets (address labels, etc.). **Example:** 11.00 equals 11 inches.
Page Length	Sets the overall length of the page. This setting is most commonly used when printing to Avery label sheets (address labels, etc.). **Example:** 8.50 equals 8½ inches.
Labels Per Page	Sets the number of labels on the label stock. This setting is most commonly used when printing to Avery label sheets (address labels, etc.).
Labels Across	Sets the number of labels across the label stock. This setting is most commonly used when printing to Avery label sheets (address labels, etc.).
Horizontal Gap	Sets the distance, horizontally, between the individual labels on the label template. This setting is most commonly used when printing to Avery label sheets (address labels, etc.). **Example:** 0.25 equals ¼ inch.
Vertical Gap	Sets the distance, vertically, between the individual labels on the label template. This setting is most commonly used when printing to Avery label sheets (address labels, etc.). **Example:** 0.25 equals ¼ inch.
Starting Label	Sets the starting label on a page at print time. This setting is most commonly used when printing to Avery label sheets (address labels, etc.). **Example:** If set to 5, then the first 4 labels would not print. This is useful if you have left over labels on a sheet that can be used, instead of discarding the used sheet.
Eject Page	Determines whether or not to print a black page after each label (basically a Form Feed).

Field Types

Default Label objects consist of Text/Data Strings, Barcodes, Lines, Rectangles, and Graphics. All default label objects can be placed on the template via menu bar, toolbar, or right-click menu.

Text

To add a text field to the label template, Click on the  button, and then click on the label template in the vicinity where you want to add the text field.

Field Name	This is a unique identifier for this particular field. **Example:** TEXT1 or TEXT2 Every time the field is added to the label template the number after the field name increases by 1.
Font Types	Set the font for the particular field. The fonts listed are all the fonts available to the particular printer model for which you are designing. **Note:** As of this current release, BARCODE 2000 XML DIRECT only supports native fonts. **Scalable Fonts** – Represented by True Type Fonts in the designer if available – are pure scalable via Height and Width designations; typically both height and width are represented in points. **Limited Fonts** – Represented by a San Serif Family Font in the Designer. The Limited fonts are old and typically inaccurate. The printer manufacturers would prefer you use the newer Scalable Fonts; So do we at Unibar, Inc.
Point – Limited Fonts	Sets the size of the font
Height – Scalable Fonts	Sets the Height of each character in points.
Width – Scalable Fonts	Sets the Width of each character in points.
CPI – Limited Fonts (Character Per Inch)	Sets the characters per inch for the font. The larger the number the denser the font will look when printed and vise versa. **Note:** When selecting the 'Point' size the CPI that is recommended by Unibar is automatically chosen. Fonts that do not support CPI will be set to 'N/A'.

Barcode

To add a barcode field to the label template: Click on the  button, and then click on the label template in the vicinity where you want to add the barcode field.

Field Name This is a unique identifier for this particular field.
Example: BARCODE1 or BARCODE2
Every time the field is added to the label template the number after the field name increases by 1.

Name A list of fields, from the LDD, you can use for the barcode field.

Symbology Sets the type of encoding for the field.
Note: This setting is printer dependent. Symbologies that are available for the particular printer model chosen for the label template will only be shown.

Human Readable Set to Above, Below or None. This sets how the data encoded is displayed for this field. **Note:** This setting is printer dependent. Some printer models do not support human readable as an option for the barcode. In this case we recommend you place a 'Data' field containing the data encoded where you want the human readable to print.

Checksum This sets a property to either include the checksum or not to include the checksum. *The checksum is a character/digit that is included as part of the barcode by a mathematical calculation provided from the symbology specifications. It is used to perform a check to ensure the data is read correctly.*

Ratio Sets the wide-to narrow bar ratio. Range (2.0 to 3.0, in .1 increments) **Example:** Ratio set to 2.0 means the wide bars of the barcode, are twice as wide as the narrow bars.

Length Displays the maximum number of data set for the 'Name' field in the LDD.

Density This setting, conjunction 'Ratio', determines the width of the barcode. The setting is displayed in mils. The lower the number (5.0 mils) the smaller the barcode. Range (5.0 to 120.0, .5 increments). **Note:** The setting is dependent on the DPI (dots per inch) of the printer model. If you choose a density that the printer is incapable of printing, then the density will be set to the nearest printer dot.

Bold/Italics/Underline Sets a certain attribute for the field. Any combination can be turned on or off to achieve the desired effect for the text field. **Note:** Printer models that do not support one or more of the text attributes will be grayed out.

Reverse Video Sets the reverse video text attribute to either on or off. **Note:** Printer models that do not support one or more of the text attributes will be grayed out.

Rotation Sets the degree of rotation for the field.

Text/Data Sets the text field to either static data (text) or variable data (data).

String Value If the field is set to 'Text', then the string value is the static digits/characters you want to print on the label template. If set to 'Data', then use the dropdown box to select a field from the LDD to place on the label template.

X Position/Y Position Displays the current location of the Text/Data field using the lower-left corner as the starting point. The units are displayed in $1/100^{th}$ of an inch (100 equals 1 inch). After the field has been placed on the label template, use this setting to make your fine adjustments.

Vertical/Horizontal Line

To add a line to the label template: Click on the  button and then click-and-drag your cursor up and down either for a vertical line or left to right for a horizontal line.

Field Name — This is a unique identifier for this particular field.
Example: HLINE1 or VLINE2. Every time the field is added to the label template the number after the field name increases by 1.

Start X/Start Y — Displays the starting coordinates of the line field. The units are displayed in 1/100th of an inch (100 equals 1 inch). After the field has been placed on the label template, use this setting to make your fine adjustments.

End X/End Y — Displays the ending coordinates of the line field. The units are displayed in 1/100th of an inch (100 equals 1 inch). After the field has been placed on the label template, use this setting to make your fine adjustments.
Note: Horizontal lines only allow you to change the 'End X' coordinate and the Vertical lines only allow you to change the 'End Y' coordinate.

Line Width — Sets the thickness of the line. **Example:** 0.75 inches will create a line that is ¾ of an inch thick.

Height — Sets the height of the barcode. The units are displayed in 1/100th of an inch (50 equals ½ inch).

Rectangle

To add a rectangle to the label template: Click on the  button and then click-and-drag your cursor either to the approximate size of the rectangle you want to create.

Field Name — This is a unique identifier for this particular field.
Example: RECTANGLE1 or RECTANGLE2
Every time the field is added to the label template the number after the field name increases by 1.

Start X/Start Y — Displays the starting coordinates of the rectangle field. The units are displayed in 1/100th of an inch (100 equals 1 inch). After the field has been placed on the label template, use this setting to make your fine adjustments.

End X/End Y — Displays the ending coordinates of the rectangle field. The units are displayed in 1/100th of an inch (100 equals 1 inch). After the field has been placed on the label template, use this setting to make your fine adjustments.

Line Width — Sets the line thickness of the rectangle.
Example: 0.75 inches will create a rectangle that has a line thickness of ¾ of an inch.

Graphic

To add a graphic to the label template: Click on the  button, and then click on the label template where you want to add the graphic.

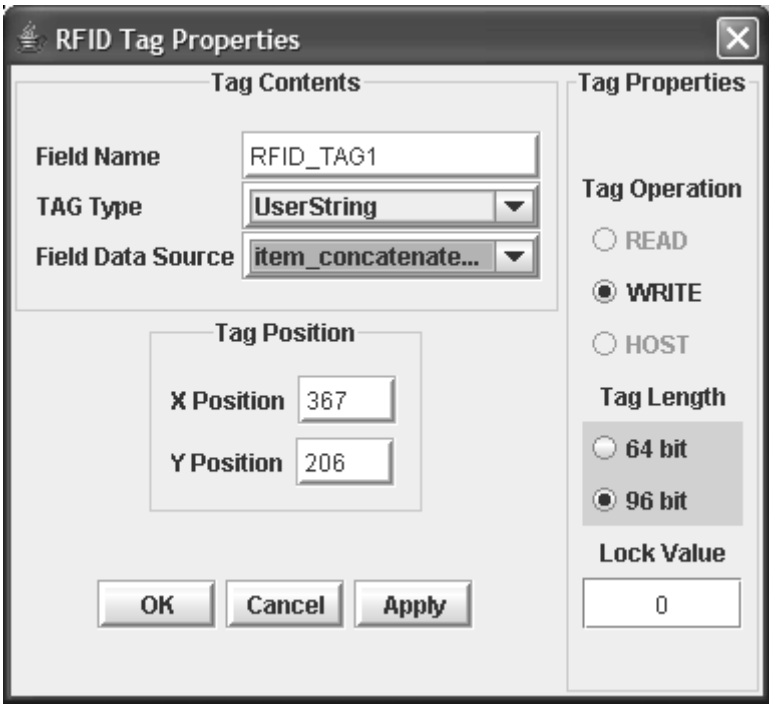
Field Name	This is a unique identifier for this particular field **Example:** GRAPHIC1 or GRAPHIC2. Every time the field is added to the label template the number after the field name increases by 1.
File Name	Sets the file to use for this field. The dropdown box will only show the fields in the LDD that have been set up as a 'FILE' field.
File Type	Displays the type of file. (PCX, JPG, etc.)
X Position/Y Position	Displays the current location of the Graphic field using the lower-left corner as the starting point. The units are displayed in 1/100th of an inch (100 equals 1 inch). After the field has been placed on the label template, use this setting to make your fine adjustments.

RFID Tag

To add an RFID tag to the label template: Click on the 

button, and then click on the label template where you want to add the RFID tag.

Field Name	This is a unique identifier for this particular field **Example:** RFID_TAG1
Tag Type	This beta release supports only a user-defined String, such as ORACLE MFC provides, which is ready to be sent to the tag without user changes
Field Data Source	This is the name (from the current Label Data Dictionary, LDD) of the STRING being passed (see above) to the tag
Tag Operation	This release supports only the WRITE operation for the 5r platform.
Tag Length	5r Platform Printers currently support 64-bit ant 96-bit RFID tags.
Lock Value	Optional parameter: Used for protecting data from becoming over written. By default the data are not protected (value=0). This is an integer, with values from 0 to 255.
Tag Position: **X Position/Y Position**	Displays the current location of the RFID Antenna field using the lower-left corner as the starting point. The units are displayed in 1/100th of an inch (100 equals 1 inch). After the field has been placed on the label template, use this setting to make your fine adjustments. For design purposes only, to help user avoid placing other objects over the actual RFID antenna on the tag.



RFID Properties Dialog

Download Template Utility

Introduction to Downloading Templates

Purpose

The Download Template Utility (DTU) is primarily for sending label formats to store on your printer. The user selects both a label format and a destination printer and directs a download of that format to the chosen printer. The stored format will accept XML – based label data for printing.

DTU Select Format

DTU Select Printer Destination

DTU Download and Close buttons

Format Selection

Select any label format for downloading by pressing the button labeled "*Select Label Format*". A file chooser dialog will open to the "labels" directory of your installation. Select the format you wish to download to your XML-enabled printer.

Printer Selection

Select any XML-enabled printer for downloading by pressing the list box labeled "*Select Printer for Downloading*". Only XML-enabled printer destinations configured using the Printer Configuration tool will appear in the list.

Download

Clicking "*Download*" requires the above two operations be complete. After the operation is complete, a dialog will appear to indicate success or failure.

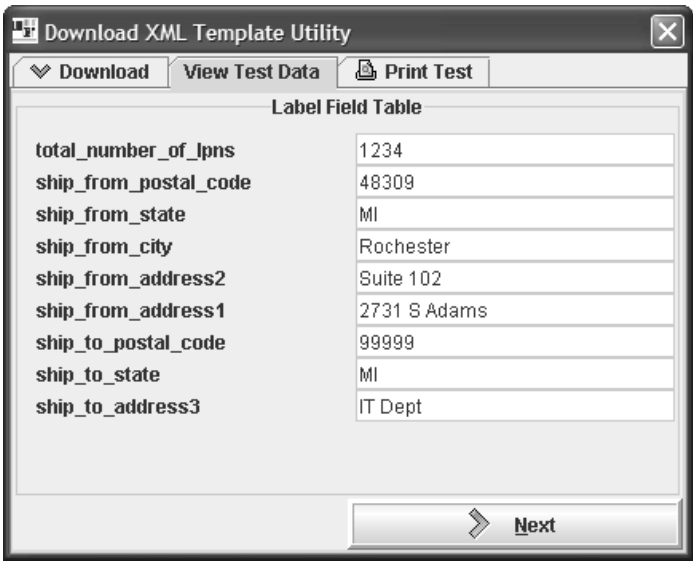
Close

The DTU is a modal dialog. Simply meaning if it is open, none of the other applications will respond. Clicking the "*Close*" button returns the focus to the menu allowing access to the other applications

The DTU's Test Printing Utility

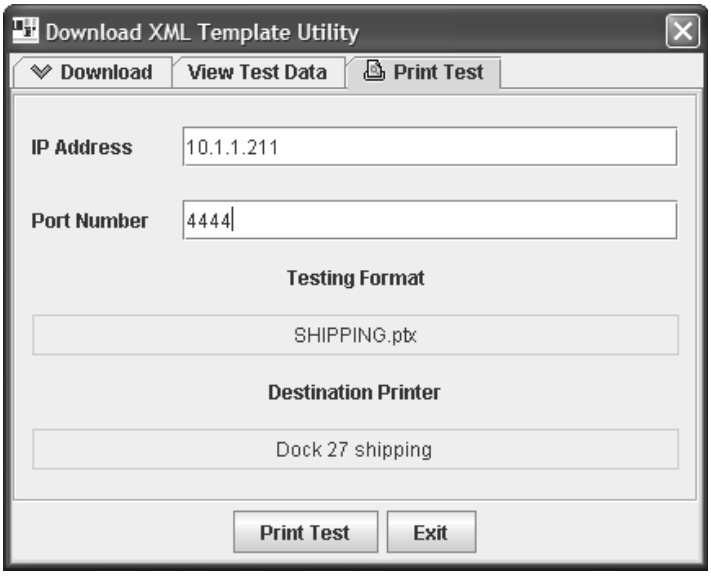
Purpose

This feature is primarily for testing label formats stored on your printer. The user has already selected both a label format and a destination printer during the previous operation. The user views default data by clicking the "*View Test Data*" tab. Next and Previous buttons are provided to cycle through all the default data fields.



The View Test Data tab

Next, the user may click over to the test print page. After selecting the IP Address and port number of the selected XML Direct printer, the user may click the "*Print Test*" button to send an xml test shot to the printer.



This screen shows pre-selected format and XML Direct printer with destination IP Address and port number indicated

Print Config

Introduction to Configuration Tool

Purpose

This operation allows you set the printers, error options, delimiter, and other options used when printing. This tool modifies the BC2000.cfg file, which is located in the Unibar base directory.

Menu Bar

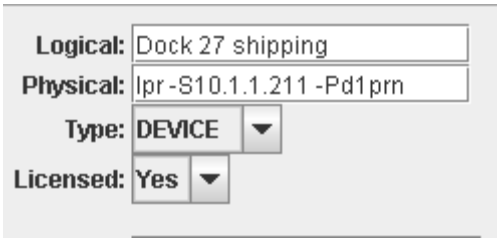
The menu bar is located at the top of the Configurations main window. This menu bar is similar to other menu bars found in most Windows and Java applications.

Configuration Menu Bar

File	Save the current settings to the BC2000.cfg file; Exit the Configuration application.
Drivers	A dialog opens which displays a list of printer drivers both available and installed.
Open Driver Selection	To add a printer driver to the 'Installed' section, double-click on the driver name. To remove the printer driver from the 'Installed' section, double-click on the driver name.
About	Displays the current Configuration version number

Print Destination Table

This section allows you to define the printers that the Formatter is going to use at print time. Each printer definition consists of a logical name, physical name, the type of output expected and licensing (See the Configuration File & Print Destination Table section for more information on the Print Destination Table).



Configuration Tool

Logical

Sets the name assigned by the user to the printer by which the user refers. It can be any useful name, such as ACCOUNTING or DOCK_10. It is a text string of up to 40 characters.
Note: The 'Logical' parameter cannot contain any command line delimiters (space, comma, equal sign, and slashes.) because it may be used on the command line.

Physical

The meaning of the 'Physical' name depends on the destination 'Type'. For DEVICE, it is the device name. For FILE, it is the file name. For PIPE destinations, 'Physical' name is the shell command line passed to the system when opening the pipe stream.
Example:

Type = FILE	Physical = /usr/MyOutput.fil
Type = DEVICE	Physical = LPT1
Type = PIPE	Physical = lp –d Myprinter

Type

Describes how the output is handled. The output from the Formatter can be handled one of three ways:
DEVICE - is used for writing directly to I/O devices such as /dev/lp0, /dev/tty1a, etc.
FILE - is used to write to files
PIPE - is used to specify a pipe command string *(commonl used in Unix systems to pipe the output to the lp print command)*.

Licensed

Sets the printer definition to 'Yes' or 'No'. If the 'Licensed' is set to 'Yes' then it will be moved to the top of list in alphabetical order.

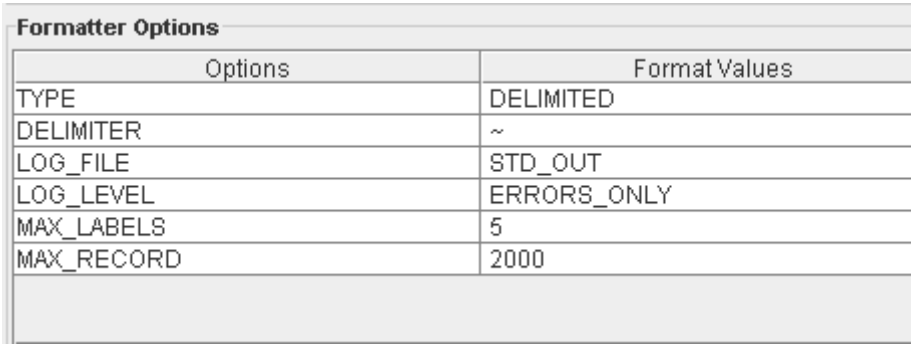
Note: You are able to have as many printer destinations as you wish, but you can only use the number of license printer destinations that you purchased. The license key determines the number of usable printer destinations. LocalFile is always an active printer destination.

Default Destination

This specifies the default printer by its 'Logical' name.

Formatter Options

This section is for setting options that are available at print time. They can be edited by double-clicking the option row which is to be changed.



Formatter Options

Options	Format Values
TYPE	DELIMITED
DELIMITER	~
LOG_FILE	STD_OUT
LOG_LEVEL	ERRORS_ONLY
MAX_LABELS	5
MAX_RECORD	2000

Formatter options, from the Configuration Tool

TYPE	Sets the classification of data that will be sent to the Formatter. There are only 2 possibilities, delimited or fixed. Delimited data has some sort of field separator (field1~field2~field3). In fixed data, the data is in a fixed position and never changes from record to record (field1field2field3).
DELIMITER	If the 'TYPE' is set to delimited, sets the delimiter used in the data. The delimiter should be a unique character/symbol. Unibar recommends using a '~' (tilde) for a delimiter. Other possible delimiters could be a tab, !, @, etc.
TRIM_SPACES	This setting is either 'Y' or 'N'. If set to 'Y', then the Formatter will remove the leading and trailing spaces that are in a field. **Example:** Data = {space}{space}001234 Print = 001234 (notice no spaces in the front of the data)
TRIM_QUOTES	This setting is either 'Y' or 'N'. If set to 'Y', then the Formatter will remove the leading and trailing quotes (") for that field. **Example:** Data = "Field 1","Field 2","Field 3" Converted to: Field 1,Field 2,Field 3
LOG_FILE	This determines how the Formatter reports errors encountered. For example if the 'LOG_FILE' is set to STD_OUT, the all errors will be reported to standard out. This setting could be a filename where errors are written to.
LOG_LEVEL	Sets the error log level when the Formatter is running. **Note:** Should be set to 'ERRORS_ONLY' unless instructed by Unibar's technical support staff.
MAX_LABELS	Sets the number of different label templates that will be loaded in a printer memory at one time. For example, if set to 5, then on the 6th distinct label type encountered during a single print job, the constant part of the labels and graphics will be deleted from the printer memory. N**ote:** If the printer does not support storing labels in the printer memory then this setting will be ignored.
MAX_RECORD	Sets the maximum length of a data record being sent to the Label Formatter. Records longer than this will have truncated data. If the truncated data needed data incomplete labels may be printed.

BARCODE 2000 XML DIRECT File Types

Included with this software is a complete list of all files shipped with this program. If you should incur certain error messages, you may wish to verify against that list to ensure that critical files have not been inadvertently deleted from your system.

The following identifies the role of each file type in the operation of this program.

Executable files (no extension)

Executable files are the heart of the program. They provide the command information to the computer. Any damage to these files may require reinstallation of the entire program.

.lbl

Files with the .lbl extension are label template files.

.ldd

Files with the .ldd extension are Data dictionary files. The LDD creates these files, where you can set the parameters and save them. There is a “Master” LDD set up in BC2000 as an example.

.cfg

Files with the extension .cfg are config files. A BC2000.cfg file is delivered with the install of your software. The BC2000.cfg file updates every time changes occur in the Configuration.

.pcx

PCX files are used for graphic information, such as logos. We have included several versions of the Unibar logo for your practice use.

printers.typ, printers.lst and printcap.dat

These critical files allow the program to identify the specific features available with your printer type.

Configuration File & Print Destination Table

You can use an editor to edit the configuration file manually. This section will explain how to setup the configuration file. The *BARCODE 2000 XML DIRECT* Configuration File, BC2000.cfg, contains configuration data for the site. It is stored in the “unibar base directory”. Normally, the Java *BARCODE 2000 XML DIRECT* Configuration Module updates it. However, if the Label Formatter is running on a system without a Java runtime the user can change the file with any text editor.

The file is delivered with examples of all possible settings, many of which are commented out. The user will often be able to make changes simply by commenting out lines or un-commenting lines. *.cfg files should always be saved in text (ASCII) format.

General Format

The pound sign ‘#’ is used as a comment delimiter. When placed on a line in BC2000.cfg, the remainder of the line is ignored.

The file is divided into sections. For example, the Printer Destination Table section, shown below describes the printer destinations configured for the site.

Each section begins with a header in square brackets. The section continues until either a new section header is encountered or the end of the file is reached.

Each section consists of a set of elements. A simple element sets one value, for example “DEFAULT=Shipping”. A complex element consists of a set of simple elements. For example, the complex element PRT_DEST consists of three simple elements, as shown below in the Printer Destination Table section.

Printer Destination Table

The output of the *BARCODE 2000 XML DIRECT* programs (Designer, Formatter …) is a print stream that can be sent to one of three types of destinations:

1. Sent directly to a device, (e.g., “/dev/lp0”)
2. Piped to a program, (e.g., “lp -d LabelPrinter”)
3. Written to a file

The user can define a number of printer destinations in BC2000.cfg. Each entry consists of a logical name, a physical name and a destination type. This provides a way to use a simple logical name to refer to a sometimes-complex physical destination (such as “lp -d LabelPrinter -m -q 3 -s “).

This also provides a way to change physical printer destinations without changing the application program. Simply update the BC2000.cfg file and the applications and operators continue to use the logical names they used before.

To print to a particular printer destination, the user specifies the logical name of that printer. If no logical printer is specified, the program uses the default as specified in the BC2000.cfg file.

The format of the Printer Destination Table section is as follows:

```
[Print Destination Table]
PRT_DEST =
{
        Logical = Shipping
        Physical = lp -d LabelPrinter
        Type = PIPE
#       Type = DEVICE
}

PRT_DEST =
{
        Logical = Printer3
        Physical = \\Network\PTX_SLPA5204r
        Type = DEVICE
#       Type = PIPE
}
PRT_DEST =
{
        Logical = Receiving
        Physical = lp -d LabelPrinter
        Type = PIPE
}
DEFAULT = Shipping
[Capacity]
MAX_LABELS=16
MAX_RECORD=2048
```

The string “[Printer Destination Table]” is the section header. The PRT_DEST element defines a printer destination.

Logical - is a name assigned by the user and is the name by which users refer to the printer. It can be any useful name, such as ACCOUNTING or DOCK_10. It is a text string of up to 40 characters. It cannot contain any command line delimiters (space, comma, equal sign, slash, etc.) because it may be used on the command line.

Type - is one of two keywords {DEVICE, PIPE}.

DEVICE - used for writing directly to I/O devices such as /dev/lp0, /dev/tty1a, etc.

PIPE - used to specify a pipe command string

Physical -The meaning of the physical name depends on the destination type. *DEVICE* is the device name; *FILE* is the file name. For PIPE destinations, 'physical name' is the shell command line that is passed to the system when opening the pipe stream. The command is executed and a pipe is opened from the Formatter to the program started with the command line.

BARCODE 2000 XML DIRECT does not limit the number of print destinations, and the number of Logical names. Several Logical names can refer to the same physical name. This can be quite useful in shielding applications and operators from the details of printer management. Logical names should not be duplicated. If they are, the first definition will be used and any subsequent definitions will be ignored.

The number of physical devices is limited. The program will write to only the number of physical devices for which the user is licensed. This is implemented by counting from the top of the Printer Destination Table section; so, if a user is licensed for five printers, the program will write to the first five physical print destinations listed in the configuration file.

The DEFAULT element specifies the default printer by its logical name. If no default is specified, the first entry is taken as the default.

Defining a Delimiter

The Label Formatter can take a logical printer name as a parameter; the default printer will be used if no parameter is provided.

The Label Designer reads the list of logical names from the BC2000.cfg file and allows the user to select a printer from that list.

File Type

This section of BC2000.cfg defines a default file type and delimiter for input to the Formatter. The default built into the Formatter is Delimited file type with a delimiter character of '~'. The defaults can be overridden on the command line or in a job file.

[File Type]

Type = DELIMITED

#Type=FIXED

DELIMITER =~

#DELIMITER =,

#DELIMITER =.

The file BC2000.cfg must be in the UNIBAR base directory and must have at least one valid PRTDEST element. If not, the program will not print.

Capacity

This section, in general, the larger the settings the more memory consumed. Memory for many of these items is allocated up front, for the sake of simplicity; so it is allocated even if it is not used. Thus, if memory usage is a concern, you may want to keep these settings on the lean side.

Max Labels

The number of different label templates that will be loaded in a printer memory at one time. If this number is 5, on the 6th distinct label type encountered during a single printing, the constant part of the labels and graphics will be deleted from the printer memory. New labels and graphics will be loaded until the max number is reached again.

Max Record (Length)

The maximum length of a data record being sent to the Label Formatter. Records longer than this will have truncated data. If the truncated data needed data incomplete labels may be printed.

Unibar Base Directory

BARCODE 2000 XML DIRECT uses the install directory as a base directory for storing label templates, image files, configuration files, programs, etc.

The default base directory is “/unibar”. The user can change to any desired directory, but if the directory is changed, the *BARCODE 2000 XML DIRECT* programs must be informed. Setting the environment string will identify the desired directory.

The environment string should be set before the *BARCODE 2000 XML DIRECT* programs are run. The commands above can be inserted in a login script so they are automatically executed whenever the user logs on. If the *BARCODE 2000 XML DIRECT* programs cannot properly locate the base directory, the following error message will be displayed:

“Error - can’t open <base directory>/BC2000.cfg.”

Refer to the “*BARCODE 2000 XML DIRECT* Configuration File” section for details on setting up your Printer Destination Table.

Setting the Environment String

UNIX / Linux

$ UNIBAR=/usr/unibar

$ export UNIBAR

** NOTE - 'C:\UNIBAR' is the default directory that *BARCODE 2000 XML DIRECT* installs in on Windows systems. If you changed the directory, you must reflect that change in the UNIBAR system variable. **

Windows Systems

1) Go to Control Panel>System
2) Select the 'Environment' tab. (Under ‘Advanced’ tab for XP)
3) Select 'System Variable' by hitting ALT-V
4) Select the 'Variable' text box
5) Type: UNIBAR
6) Select the 'Value' text box
7) Type: C:\UNIBAR (or the path where *BARCODE 2000 XML DIRECT* was installed)
8) Select the Set button
9) Select the OK button

A Label Compliance Formats

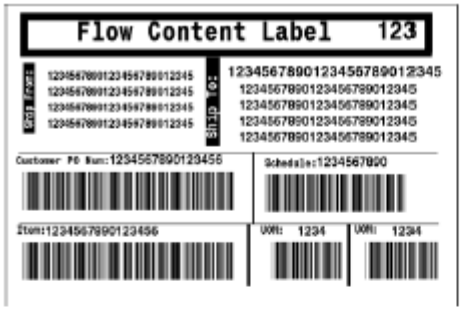
Label Formats

Each of the ten label types includes a picture of the sample label format, the name of the Unibar .lbl file, and a listing of the fields that are included in the.lbl file that can be assumed to be populated by Oracle in the XML file.

Although industry-standard label formats were preferred, they include a large number of fields that would be populated by Oracle only if the label was printed from certain business flows and, even then, only when certain fields in the application are populated and specific features used. Thus, the desire to show out-of-the-box compliance to various industry standards is countered by the desire to show robust label formats where data is almost always fully populated. Therefore, the label formats documented below do not map to any industry-standard formats.

As necessary, the fonts can be modified to match native printer fonts, and the field positioning can be modified accordingly.

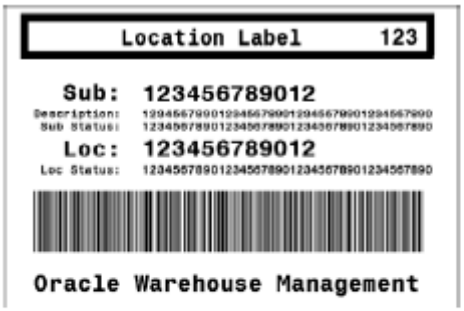
Flow Contents



Flowcont.lbl

Field	Variable Name
Schedule Number	wflow_schedule_number
Customer Purchase Order	Oline_cust_po_number
Item	item_concatenated_segments
Quantity	wflow_planned_quantity
UOM	Oline_order_quantity_uom
Organization	Oline_ship_from_organization_code
Customer	Ohead_customer_name
Ship to Address1	Ohead_shipping_to_addess_line_1
Ship to Address2	Ohead_shipping_to_addess_line_2
Ship to Address3	Ohead_shipping_to_addess_line_3
Ship to City	Ohead_shipping_to_town_or_city
Ship to State	Ohead_shipping_to_state
Ship to Postal Code	Ohead_shipping_to_postal_code
Ship from Address1	ship_from_address1
Ship from Address2	ship_from_address2
Ship from Address3	ship_from_address3
Ship from City	ship_from_city
Ship from State	ship_from_state
Ship from Postal Code	ship_from_postal_code

Location



Location.lbl

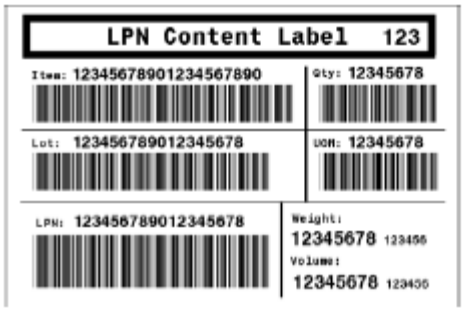
Field	Variable Name
Subinventory Name	subinventory_code
Subinventory Description	subinventory_description
Subinventory Status	subinventory_status
Locator Name	locator
Locator Status	locator_status
Organization Code	organization

LPN

Lpn.lbl

Field	Variable Name
License Plate Number	lpn
Organization Code	organization

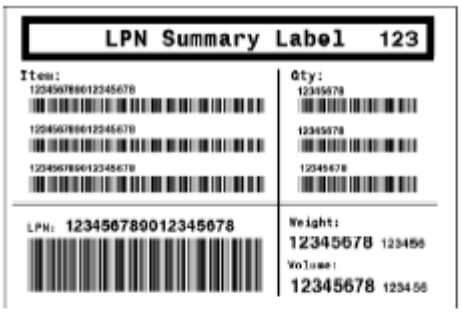
LPN Content



Lpncont.lbl

Field	Variable Name
License Plate Number	Lpn
Item	Item
Quantity	Quantity
Lot	Lot
UOM	Uom
Weight	gross_weight
Weight UOM	gross_weight_uom
Volume	Volume
Volume UOM	volume_uom
Organization Code	Organization

LPN Summary



Lpnsumm.lbl

Field	Variable Name
License Plate Number	Lpn
First Item	Item
First Quantity	Quantity
Second Item	item2
Second Quantity	quantity2
Third Item	item3
Third Quantity	quantity3
Weight	gross_weight
Weight UOM	gross_weight_uom
Volume	Volume
Volume UOM	volume_uom
Organization Code	Organization

Note that this label type requires that the fields for the 2nd and 3rd items and quantities be added to the label format in Oracle, as the seeded label format includes the item and quantity fields only once.

Material

Material.lbl

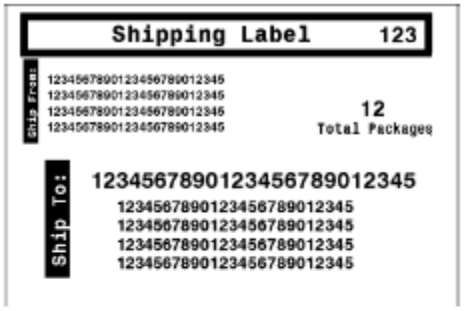
Field	Variable Name
Item	Item
Quantity	Quantity
Lot	lot_number
UOM	Uom
Organization Code	Organization

Serial

Serial.lbl

Field	Variable Name
Item	item
Revision	revision
Lot	lot_number
Serial	serial_number
Lot Status	lot_status
Serial Status	serial_number_status
Organization Code	organization

Shipping



Shipping.lbl

Field	Variable Name
Ship From Name	ship_from_addressee
Ship From Address1	ship_from_address1
Ship From Address2	ship_from_address2
Ship From City	ship_from_city
Ship From State	ship_from_state
Ship From Zip	ship_from_postal_code
Customer Name	customer
Ship To Address1	ship_to_address1
Ship To Address2	ship_to_address2
Ship To Address3	ship_to_address3
Ship To City	ship_to_city
Ship To State	ship_to_state
Ship To Zip	ship_to_postal_code
Total # of LPNs	total_number_of_lpns
Organization Code	organization

Shipping Contents

Shipcont.lbl

Field	Variable Name
Ship From Name	ship_from_addressee
Ship From Address1	ship_from_address1
Ship From Address2	ship_from_address2
Ship From City	ship_from_city
Ship From State	ship_from_state
Ship From Zip	ship_from_postal_code
Customer Name	customer
Ship To Address1	ship_to_address1
Ship To Address2	ship_to_address2
Ship To Address3	ship_to_address3
Ship To City	ship_to_city
Ship To State	ship_to_state
Ship To Zip	ship_to_postal_code
LPN # of Total	lpn_number_of_total
Total # of LPNs	total_number_of_lpns
Item	item
Quantity	quantity
UOM	uom
License Plate Number	lpn
Organization Code	organization

WIP Contents

Wipcont.lbl

Field	Variable Name
Job Name	job_schedule_name
Job Description	job_schedule_description
Job Start Quantity	job_start_quantity
Job Start Date	job_start_date
Assembly Name	job_assembly
Assembly Description	assembly_description
Component Name	item
Component Quantity	quantity
UOM	uom
License Plate	lpn
Department	requirements_department_name
Operation	requirements_operation_seq
Organization	organization

Note that the six “ship from” fields are not seeded in the default format, so if desired in the label output, they must be added to the Oracle format with the variable names as indicated here. Also, all the other fields use a dot as a naming convention in the variable name; these must be changed to underscores in Oracle, to match the variable names indicated here.

B Contact Information

Printronix Customer Support Center

IMPORTANT **Please have the following information available prior to calling the Printronix Customer Support Center:**

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout:

  Thermal Printer
  See “Printing A Configuration” in the *Quick Setup Guide*.

  Line Matrix Printer
  Press PRT CONFIG on the control panel, then press Enter.
- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing or emailing of these samples may be required)

Americas	(714) 368-2686
Europe, Middle East, and Africa	(31) 24 6489 410
Asia Pacific	(65) 6548 4114
China	(86) 800-999-6836

http://www.printronix.com/support.aspx

Printronix Supplies Department

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas	(800) 733-1900
Europe, Middle East, and Africa	33 (0) 1 46 25 19 07
Asia Pacific	(65) 6548 4116 or (65) 6548 4182
China	(86) 400-886-5598
India	(800) 102-7869

http://www.printronix.com/supplies-parts.aspx

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