

XML Direct for SAP Quick Setup Guide

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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. Designed in conjunction with SAP, this solution allows users to quickly leverage RFID technology by connecting tagged objects with the business view of an ERP system.

The following 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 3 also provides directions to find and use sample template files on the CD.

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 SAP All-DC, supported variable names, links to All configuration guides, and sample XML file formats that correspond to the sample template files.
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.

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SAP Solution

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

Overview:SAP Auto-ID Infrastructure

SAP Auto-ID Infrastructure (SAP AII) is an out-of-the-box solution that integrates RFID technology with existing SAP logistics systems and delivers a generic infrastructure that enables integration with heterogeneous system landscapes. The solution consists of one or more SAP AII systems that can be implemented on various types of platforms, from PDAs through workstations, to large servers.

The system can be deployed in two ways:

- SAP AII Standalone system that can operate independently from an ERP system
- SAP AII Integrated in Supply Chain Execution

You can integrate SAP AII with both mobile and fixed RFID devices.

Process Overview

The high level sequence of events leading to RFID tag commissioning is as follows:

1. Auto-ID Infrastructure provides a master list of variable names, including “EPC”, which can be used during label design. The values of these variables can be provided in the WriteTagData command sent by Auto-ID Infrastructure.
2. The label designer creates a named format with the Printronix Tool Barcode 2000 XML Direct and downloads it to the printer memory using the same tool. The content of the format directs the printer to print a label that includes the value of several variables from the master list. The format also directs the printer to write the value of the “EPC” variable to the RFID tag.
3. The Printronix XML enabled RFID printer is connected to the TCP/IP network and given a specific IP address. The printer listens for print commands on a TCPsocket for a specific port.
4. Auto-ID Infrastructure is configured with the address and port of the RFID printer, the name of the printing format, and the associated list of variable names.

5. Auto-ID Infrastructure selects the printer and print format, and evaluates the values for the associated data variables, including a unique EPC value. An XML stream containing an SAP All-DC WriteTagData command message is sent to the printer.
6. The printer prints a label and writes the EPC to the RFID tag embedded in the label.

Process Details - Pre-supplied Formats

Several named formats specific to SAP are provided in the Printronix XML Direct Starter CD included with the Printronix XML enabled printer. After installing the Barcode2000 XML Direct product, these formats can be easily modified to suit your specific needs and downloaded directly to the printer within one integrated GUI tool. The tool can also be used to create formats from scratch. See Barcode2000 XML Users manual for details.

Supported All Variable Names

The following variables can be included in the WriteTagData command:

Variable Name	Description
EPC	Hexadecimal EPC
EPC_TYPE	EPCType (SGTIN-96, SSCC-96...)
EPC_URN	EPC in uri format
EPC_URN_NO_HEADER	EPC uri format numeric portion
SSCC	Serialized Shipping
GTIN	Global Trade Identification Number
PRODUCT	Product associated with the GTIN in the EPC
PRODUCT_DESCRIPTION	Product Description
PRODUCT_QUANTITY	Quantity in the base unit of measure
BASE_UOM	Base unit of measure
UOM	EPC unit of measure
DOCUMENT_NO	Document ID
DOCUMENT_TYPE	Document Type Code
BUSINESS_PARTNER	Business Partner Name
BUSINESS_PARTNER_ADDRESS	Address of Business Partner

Some users may want to use a given printer format or command message for multiple purposes. To accommodate this and provide maximum flexibility, the following rules apply: If a field appears as a part of the WriteTagData command, but is not included in the designated printer format, then that field is simply not processed. If a field is not included as part of a WriteTagData command but does appear on the designated printer format, it is also not processed. This allows the design of forms whose layout is partially data driven.

Error Handling

- In general, command messages are assumed to be well-formed. No error processing is performed on poorly formed command messages that do not match the AII-DC XML schema.
- For non-RFID data, if the value supplied for a variable name exceeds that defined in a form definition then the value is truncated.
- When encoding an RF tag, in the event there is a mismatch between the amount of data being sent and the size of the tag as defined on the form (i.e. 96 bits, 64 bits) or the actual capacity of the RF Tag, then an error message is printed on the form to alert the operator. There is no padding or truncation as this is undesirable behavior in an RFID environment.

SAP Documentation

A detailed description of the SAP AII printer interface, including architectural diagrams, configuration, setup, and XML schema, can be found in the following documents available from SAP:

For instructions on the setup of the SAP Auto-ID Infrastructure for RFID label printing - **[SAP RFID-Enabled Slap&Ship Outbound Processing: Configuration Guide](#)**

For a description of the interface between SAP Auto-ID Infrastructure and RFID device controllers – including printers - refer to the **[SAP AII-DC 1.0](#)** Word document in the SAP\Reference Documents folder on the CD.

Examples

The following examples illustrate the use of all WriteTagData command message fields names defined within SAP AII-DC at this time. XML code corresponding label format definition, and a sample label are also provided. Label design files corresponding to each example are bundled with the installation of the Barcode2000 -XML software located in the SAP directory of your starter CD.

SGTIN96

The first example shows the encoding of a 96-bit SGTIN on an RFID label along with related human readable text and a bar code. It shows all variables being used on a single form.

Sample XML Code for SGTIN96

```
<?xml version="1.0" encoding="UTF-8" ?>
- <Command xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="Command.xsd">
- <WriteTagData readerID="SGPRINT">
- <Item>
- <FieldList format="sgtin96.pgl" jobName="SGPRINT20050502233326"
quantity="1">
  <Field name="BUSINESS_PARTNER">9000090001</Field>
  <Field name="BUSINESS_PARTNER_ADDRESS">/ 54321</Field>
  <Field name="DOCUMENT_NO">012</Field>
  <Field name="DOCUMENT_TYPE">51</Field>
  <Field name="EPC">30740242200C0D00000004B3</Field>
  <Field name="EPC_TYPE">SGTIN-96</Field>
  <Field name="EPC_URN">urn:epc:tag:sgtin96:3.0037000.012340.1203</
Field>
  <Field name="EPC_URN_NO_HEADER">3.0037000.012340.1203</Field>
  <Field name="GTIN">00037000123408</Field>
  <Field name="PRODUCT">RFID_MAT1</Field>
  <Field name="PRODUCT_DESCRIPTION">RFID Material</Field>
</FieldList>
</Item>
</WriteTagData>
</Command>
```

Sample PGL code for SGTIN96

NOTE: This file is included on your CD

```
~SETUP;SGTIN96
~NORMAL
~PAPER;PRINT DIR 1;WIDTH 40
~SETUPEND
~CREATE;SGTIN96;432;DISK
SCALE;DOT;300;300
RFWTAG;96
96;DF1;H
STOP
BOX
7;74;37;1750;1170
```

```
STOP
FONT;FACE 92250;SLANT OFF
ALPHA
POINT;300;200;40;40;"PRINTRONIX"
POINT;400;100;14;12;*BUSINESS_PARTNER:*
POINT;450;100;14;12;*BUSINESS_ADDRESS:*
POINT;500;100;14;12;*DOCUMENT_NO:*
POINT;550;100;14;12;*DOCUMENT_TYPE:*
POINT;600;100;14;12;*EPC_TYPE:*
POINT;650;100;14;12;*EPC_URN_NO_HEADER:*
POINT;700;100;14;12;*GTIN:*
POINT;750;100;14;12;*PRODUCT:*
POINT;800;100;14;12;*PRODUCT_DESCRIPTION:*
POINT;1600;100;14;12;*EPC:*
AF1;25;T;POINT;1600;200;14;12
AF2;45;T;POINT;1650;100;14;12
AF3;25;T;POINT;400;600;14;12
AF4;25;T;POINT;450;600;14;12
AF5;25;T;POINT;500;600;14;12
AF6;25;T;POINT;550;600;14;12
AF7;25;T;POINT;600;600;14;12
AF8;25;T;POINT;650;600;14;12
AF9;25;T;POINT;700;600;14;12
AF10;25;T;POINT;750;600;14;12
AF11;25;T;POINT;800;600;14;12
STOP
BARCODE
C3/9;XRD2:2:4:4;H4.100;BF1;25;950;100
PDF;B
STOP
END
~LINK;SGTIN96;DISK
~DF1;*EPC*
~BF1;*EPC*
~AF1;*EPC*
~AF2;*EPC_URN*
~AF3;*BUSINESS_PARTNER*
```


```
~AF4;*BUSINESS_PARTNER_ADDRESS*
~AF5;*DOCUMENT_NO*
~AF6;*DOCUMENT_TYPE*
~AF7;*EPC_TYPE*
~AF8;*EPC_URN_NO_HEADER*
~AF9;*GTIN*
~AF10;*PRODUCT*
~AF11;*PRODUCT_DESCRIPTION*
~NORMAL
```

NOTE: Field names used in the template (such as EPC_URN and DOCUMENT_NO) and supplied as parameters to the LINK command are case sensitive and must match field names supplied in the XML data stream. The LINK command replaces EXECUTE command found in non-XML enabled templates. Details of the LINK command are documented in the PGL programmers reference manual available from Printronix.

Notice the ~CREATE statement has a ";DISK" parameter. This stores the template in the printer's permanent memory.

SGTIN96 Label Illustration

PRINTRONIX	
BUSINESS_PARTNER:	9000090001
BUSINESS_ADDRESS:	/54321
DOCUMENT_NO:	012
DOCUMENT_TYPE:	51
EPC_TYPE:	SGTIN-96
EPC_URN_NO_HEADER:	3.0037000.012340.1203
GTIN:	00037000123408
PRODUCT:	RFID_MAT1
PRODUCT_DESCRIPTION:	RFID_Material



30740242200C0D00000004E3

EPC:30740242200C0D00000004E3
urn:epc:tag:sgtin-96:3.0037000.012340.1203

3

Troubleshooting

To aid in the initial setup, configuration, and troubleshooting several pre-tested files have been provided. On the CD containing XML Direct and manuals, browse to the SAP/files folder. The PGL folder contains two test files, TESTPRINT.PGL and SGTIN96.PGL. TESTPRINT is provided as a sample template file to assist in verifying XML printing capability when using non-RFID labels. SGTIN96 is provided for use with 96 bit RFID labels. The intent is for the user to download the desired 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 SAP-AII-DC.

Label printing is a complex operation and may be subject to problems. There may be problems in installing or configuring SAP or the Printronix 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 SAP 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 SAP 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 SAP does not match the variable names defined in the label software.

Solution The variable names included in the SAP 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 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), 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.

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.

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), 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 Download Template 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 OK.
- 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 browse the *BARCODE 2000 XML DIRECT* Manual and 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

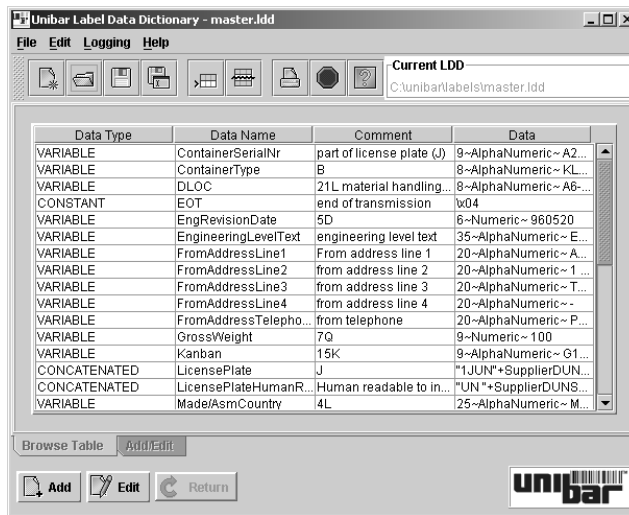


Figure 1. Easily define your data format using the Label Data Dictionary (LDD) component

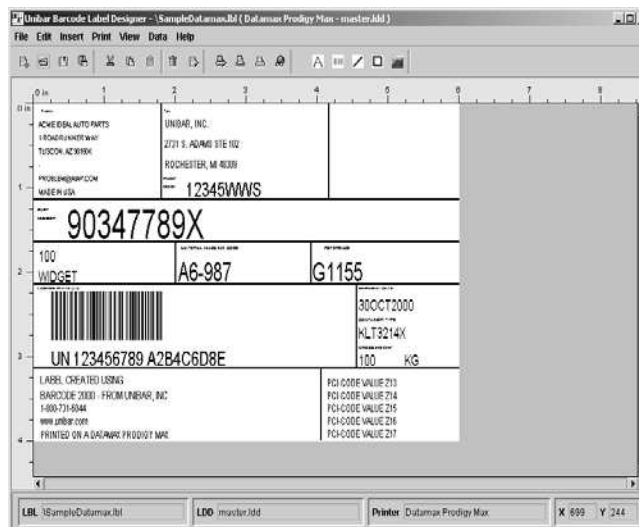


Figure 2. Point, Click, Drag and Drop all the fields on the label

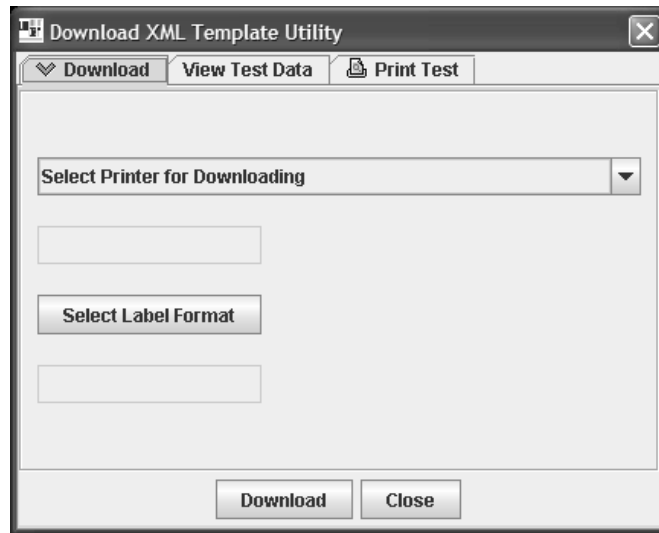


Figure 3. Download label formats to an XML enabled printer using the Download Template Utility (DTU)

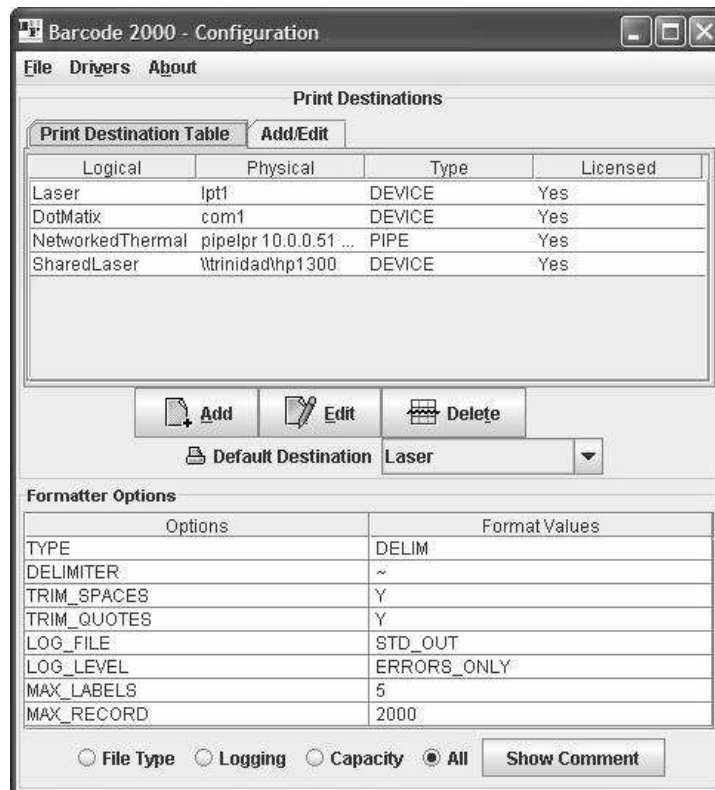


Figure 4. Set up printer destinations easily in the Configuration Tool

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.



Figure 5. 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.



Figure 6. 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 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

A 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 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: "1234"+MyField1+"ABCDE"+MyField2

MyField1 and MyField2 are variable fields set up 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 teh 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 three 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 to 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 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. 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 be 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.



Figure 7. LDS Menu Bar

File	To create, open, and close label files; print a sample label; set printer parameters; print preview current label template; quite the application.
Edit	To cut, copy, and paste label objects; delete label objects; deselect label objects
Insert	To insert the basic label objects; text, barcode, line, rectangle, and graphics.
Print	To print a sample label; set page parameters; set printer destination; set printer parameters, print preview current label template.

View	To customize the toolbar; toggle the header panel (toolbar) and the footer (toolbar); see label properties; set label data defaults.
Data	To add variables to the Label Data Dictionary (LDD) attributed to the current LDD (Label Design Document).
Help	To see the version (About) information and to access online help menu.

Toolbar



Figure 8. 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.

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 and Insert menus are available as a right-click menu item in the Designer.

Edit Field User instructions for editing an existing label object.

Cut Field Performs as a Cut operation, it is the combination of copy and delete. If a paste operation does not follow a cut operation, the item is lost.

Copy Field Performs as a Copy operation. If a paste operation does not follow a copy operation, the item is lost by the next action involving a cut or copy.

Paste Field Single action paste, must follow a cut or copy operation, multiple-pasting is not supported. The object pasted will be set to the last visual coordinates of the cursor, immediately prior to the call of 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 which printer the current label template will be sent for printing. Sends sample label to the currently selected printer.

Print Mapping
Allows the user to map existing label template from one printer to another.

VIEW

Set Label Data View

Set the visible label objects in three ways: 1. Field Names, 2. LDD Data default values, or 3. LDD maximum lengths.

Toolbars

File Toolbar Click check box if you want it to display.

Edit Toolbar Click check box if you want it to display.

Print Toolbar Click check box if you want it to display.

Insert Toolbar Click check box 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 Click check box if you want it to display.

Status Bar Click check box 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 allows you set the label specifics such as the name of the label, printer model, printer speed and label dimensions.

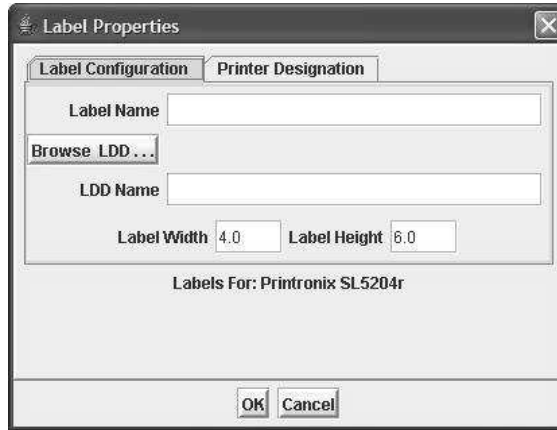


Figure 9. Label Configuration Screen

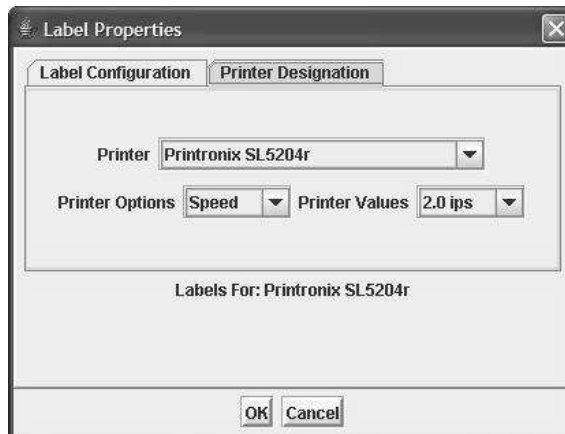


Figure 10. Printer Designation Screen

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 Operations

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.

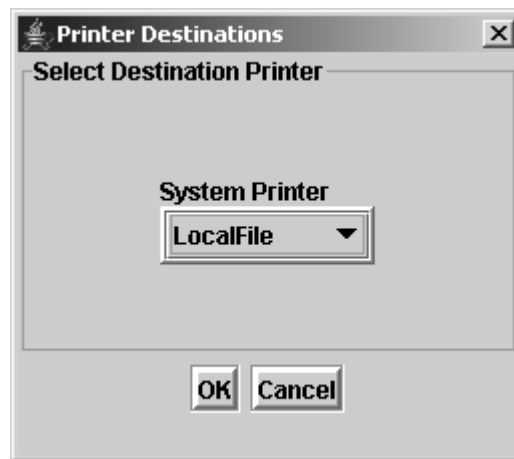


Figure 11. Selecting a Destination Printer

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 set up 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.

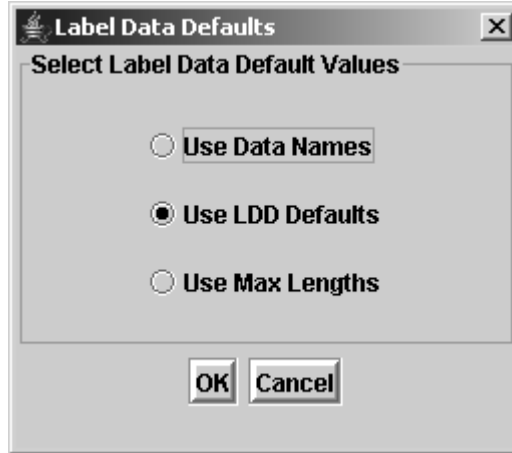


Figure 12. Selecting Label Data Default Values

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.

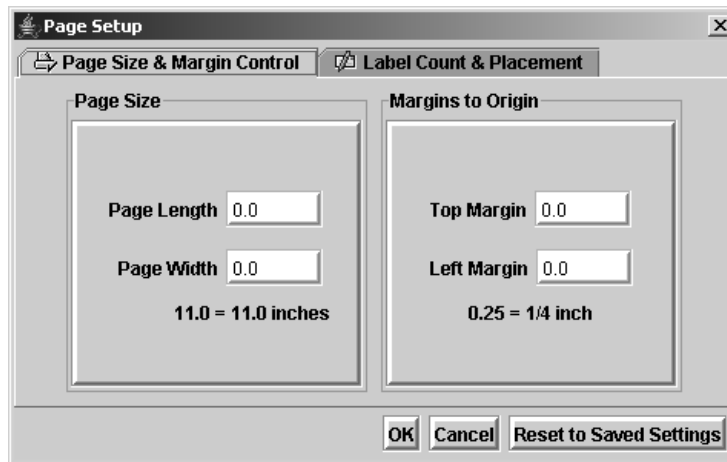


Figure 13. Page Size and Margin Control

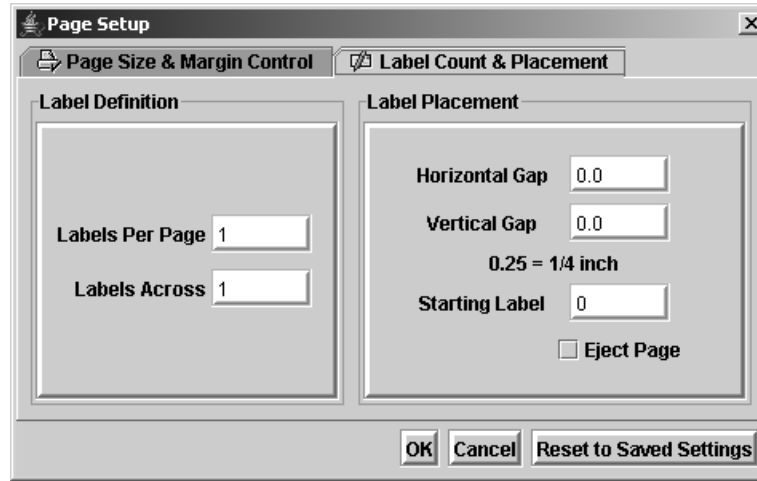


Figure 14. Label Count & Placement

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 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 1 1/4 inch.

Left Margin

Sets the left margin for the label template. Example 1.50 equals 1 1/2 inch.

Page Width

Sets the overall width of the page. This setting is used when printing to Avery label sheets (address labels, etc.)
Example: 11.0 equals 11 inches.

Page Length

Sets the overall length of the page. This setting is used when printing to Avery label sheets (address labels, etc.)
Example: 8.50 equals 8 1/2 inches.

Labels Per Page

Sets the number of labels on the label stock. This setting is used when printing Avery label sheets (address labels, etc.)

Labels Across

Sets the number of labels across the label stock. This setting is used when printing Avery label sheets (address labels, etc.)

Horizontal Gap

Sets the distance, horizontally, between the individual labels on the label template. This setting is used when printing to Avery label sheets (address labels, etc.). Example: 0.25 equals 1/4 inch.

Vertical Gap

Sets the distance, vertically, between the individual labels on the label template. This setting is used when printing to Avery label sheets (address labels, etc.). Example: 0.25 equals 1/4 inch.

Starting Label


Sets the starting label on a page at print time. This setting is 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 also known as 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 field.
Example: TEXT1 or TEXT2
Every time the field is added to the label template the number after the field name increases by one.

Font Types

Select 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. The fonts are 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 to use the newer Scalable Fonts.

Point – Limited Fonts

Sets the font size.

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 vice versa.

NOTE: When selecting the point size, Unibar automatically choose the recommended CPI. Fonts that do not support CPI is 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 one.

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. The range is from 5.0 to 120.0, in .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.

Rotation Sets the degree of rotation for the field.

X Position/Y Position

Displays the current location of the Barcode 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.

Height Sets the height of the barcode. The units are displayed in 1/100th of an inch (50 equals 1/2 inch).

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 1/100th of an inch (100 equals 1 inch). After the field has been placed on the label template, use this setting to make 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 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 3/4 inch thick.

Height Sets the height of the barcode. The units are displayed in 1/100th of an inch (50 equals 1/2 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 3/4 of an inch.

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 fine adjustments.

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 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 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.

Tag Length

This release currently supports 64-bit and 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 fine adjustments. For design purposes only, to help you avoid placing other objects over the actual RFID antenna on the tag.

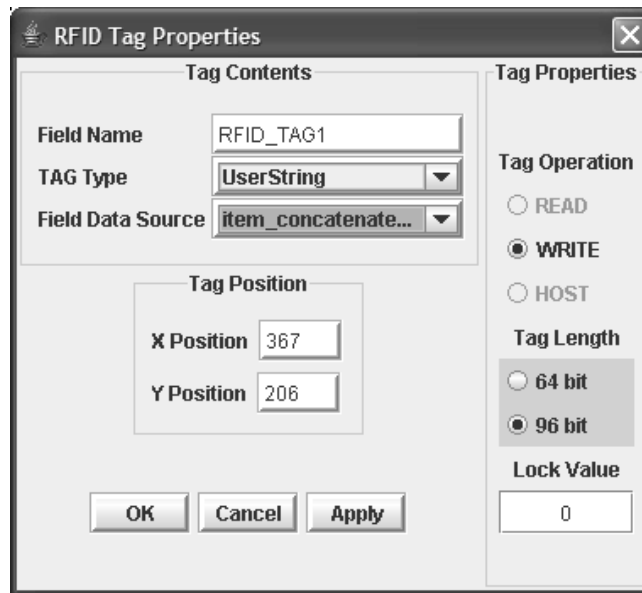


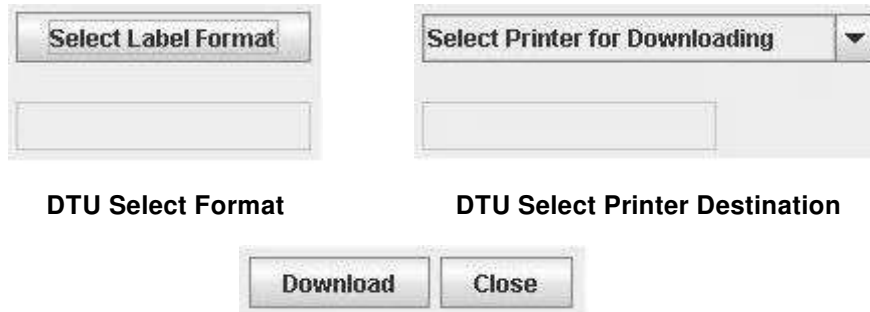
Figure 15. RFID Properties Dialog

Download Template Utility

Introduction to Downloading Templates

Purpose

The Download Template Utility (DTU) is primarily for sending label formats to your printer. Select the DTU utility by clicking on the Encode XML-Enabled Printer tab from the main menu. 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 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.

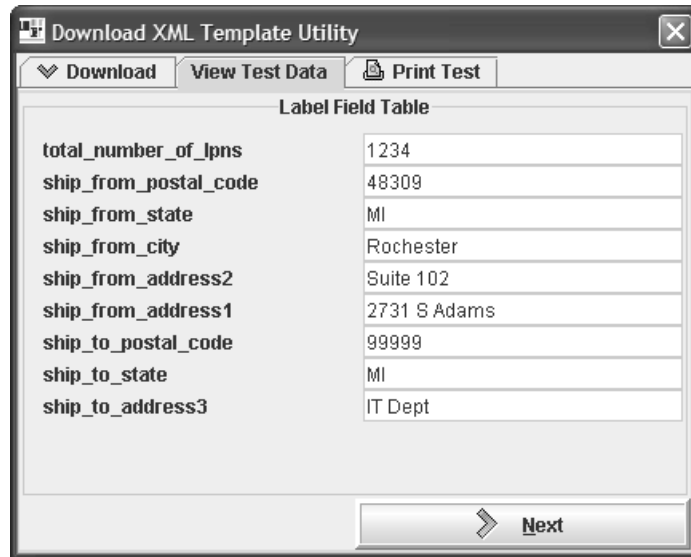


Figure 16. The View Test Data tab

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.

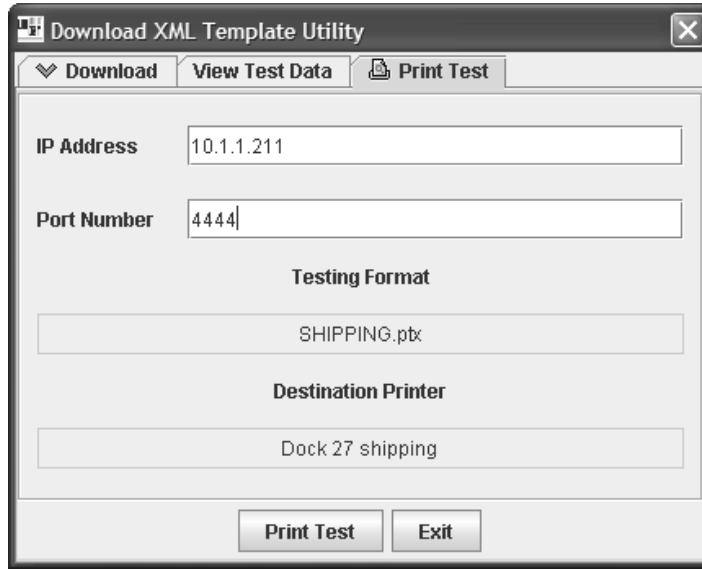


Figure 17. Pre-selected Format and XML Direct Printer with Destination IP Address and Port Number

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



Figure 18. 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 the driver name. To remove the printer driver from the Installed section, double-click 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).

 A screenshot of a configuration dialog box. It contains four rows of controls:

- Logical:** A text input field containing "Dock 27 shipping".
- Physical:** A text input field containing "lpr-S10.1.1.211 -Pd1prn".
- Type:** A dropdown menu with "DEVICE" selected.
- Licensed:** A dropdown menu with "Yes" selected.

Figure 19. Configuration Tool

- Logical** Sets the name assigned by the user to the printer by which the user refers. It can be any 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 in 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 (commonly used in Unix systems to pipe the output to the lp print command).

Licensed Sets the printer definition to Yes' or 'No. If 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

Figure 20. Formatter options, from the Configuration Tool

Type Sets the classification of data that will be sent to the Formatter. There are only two possibilities, delimited or fixed. Delimited data has a 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.

NOTE: This setting will be ignored if the printer does not support storing labels in the printer memory.

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 is 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 New Roman-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. Click 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. Click the Set button.
9. Click the OK button.



A

Contact Information

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