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Application Note: ZSN027141-V1
Document Number D10009442
Date: **January 27, 2014**
Product(s) Affected: Zebra printers supporting the direct XML printing method.
Task: **Printing variable length formats using XML**

Overview.

This document describes a method of printing variable lengths on continuous media using templates stored in the printer and XML formatted variable data. This method can be used when the printer does not support a native line printing mode. Printing receipts is an example of where this method could be used.

A receipt can be considered as having three parts - a header, a body and footer. Templates can be designed for each section of the receipt and then stored in the printer. Each section may or may not contain variable information. XML formatted data can then be sent directly to the printer to populate any variable fields and print the appropriate sections. The variable length is determined by the amount of data required in the body section.

This concept is shown on page 3. The three sections of the receipt are indicated in the receipt image along with the XML formatted data that's used to print each section. The text highlighted in yellow is the variable data.

Procedure

The ZebraDesigner for XML V2 label design software can be used to create the printer command language (ZPL) and XML templates. For more information about ZebraDesigner and to download a demo version, [click here](#).

The format design and printing process can be summarized by the following actions.

- Using ZebraDesigner for XML V2, design three separate templates.
 - **Header template.** This template can include static fields, variable fields, and graphics. This template forms the top portion of the receipt.
 - **Body template.** This will typically be a single line of information of one or more variable fields and will have a short label length. This template is printed multiple times to create the variable length.
 - **Footer template.** This template can include static fields, variable fields and graphics. This template forms the end portion of the receipt.
- Using ZebraDesigner for XML V2, export the ZPL and XML files for each of the three templates. This action creates files on your computer.

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- Store the three ZPL templates in the printer.
- Embed the XML templates in your application.
 - Your application should populate variable data in to the XML templates prior to being sent to the printer.
- In the following order, send the populated XML streams directly to the printer.
 - XML to print the Header template.
 - One or more XML streams to print the Body template.
 - XML to print the Footer template.

The next section describes designing the templates in more detail and uses some features of ZebraDesigner for XML V2. The complete comprehensive user manual for ZebraDesigner for XML V2 can be downloaded from the manuals section of the product web page [here](#).



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Truck: 2100	Service Date: 01/06/2014	
Crew: Mark B., Leo L.	Inv: 63727	
Arrival Time: 11:36 am	Pick Up Time: 13:00 pm	
Order Type: REG		

Customer: Zebra Technologies 333 Corporate Woods Pkwy Vernon Hills, IL 60061	Acct#: 11279662 Phone: 847-555-4476
---	--

Qty	Item/Product	Service	Price
1	Lawn Service	Cut	\$76.00
1	Weed and Feed	SVC	\$24.00
1	Driveway	Clean	\$15.00

Sub Total:	\$116.00
Discount 10%:	-\$11.50
Tax (0%):	\$0.21
Total:	\$109.71

PAYMENT(S):
Check #: 2042 \$00.00
Balance:

I HAVE AUTHORIZED THE SERVICE OUTLINED ABOVE AND UNDERSTAND THE CHARGES ARE DUE UPON COMPLETION OF WORK

Header

Body

Footer

```

<?xml version="1.0" standalone="no"?>
<!DOCTYPE labels SYSTEM "label.dtd">
<labels _FORMAT="E:HEADER.ZPL" _QUANTITY="1" _PRINTERNAME="Printer 1" _JOBNAME="LBL101">
  <label>
    <variable name="PickUp">13:00 pm</variable>
    <variable name="Truck">2160</variable>
    <variable name="Crew">Mark B., Leo L.</variable>
    <variable name="Arrive">11:36 am</variable>
    <variable name="OrdType">REG</variable>
    <variable name="Inv">53727</variable>
    <variable name="SevDate">01/06/2014</variable>
    <variable name="Phone">847-555-4476</variable>
    <variable name="Acct">11279652</variable>
    <variable name="Cust">Zebra Technologies 333 Corporate Woods Pkwy Vernon Hills, IL 60061</variable>
  </label>
</labels>

<?xml version="1.0" standalone="no"?>
<!DOCTYPE labels SYSTEM "label.dtd">
<labels _FORMAT="E:LINES.ZPL" _QUANTITY="1" _PRINTERNAME="Printer 1" _JOBNAME="LBL101">
  <label>
    <variable name="Line1"> 1 Driveway Clean $15.00</variable>
  </label>
</labels>

<?xml version="1.0" standalone="no"?>
<!DOCTYPE labels SYSTEM "label.dtd">
<labels _FORMAT="E:LINES.ZPL" _QUANTITY="1" _PRINTERNAME="Printer 1" _JOBNAME="LBL101">
  <label>
    <variable name="Line1"> 1 Weed and Feed SVC $24.00</variable>
  </label>
</labels>

<?xml version="1.0" standalone="no"?>
<!DOCTYPE labels SYSTEM "label.dtd">
<labels _FORMAT="E:LINES.ZPL" _QUANTITY="1" _PRINTERNAME="Printer 1" _JOBNAME="LBL101">
  <label>
    <variable name="Line1"> 1 Lawn Service Cut $76.00</variable>
  </label>
</labels>

<?xml version="1.0" standalone="no"?>
<labels _FORMAT="E:FOOTER.ZPL" _QUANTITY="1" _PRINTERNAME="Printer 1" _JOBNAME="LBL101">
  <label>
    <variable name="SubTot">$115.00</variable>
    <variable name="Discount">-$11.50</variable>
    <variable name="Tax">$6.21</variable>
    <variable name="Total">$109.71</variable>
    <variable name="Balance">$00.00</variable>
    <variable name="Check">2042</variable>
  </label>
</labels>

```

Designing the section templates using ZebraDesigner for XML V2.

This section describes how to create the Header section of the template. Use the same procedure to design the Footer section.

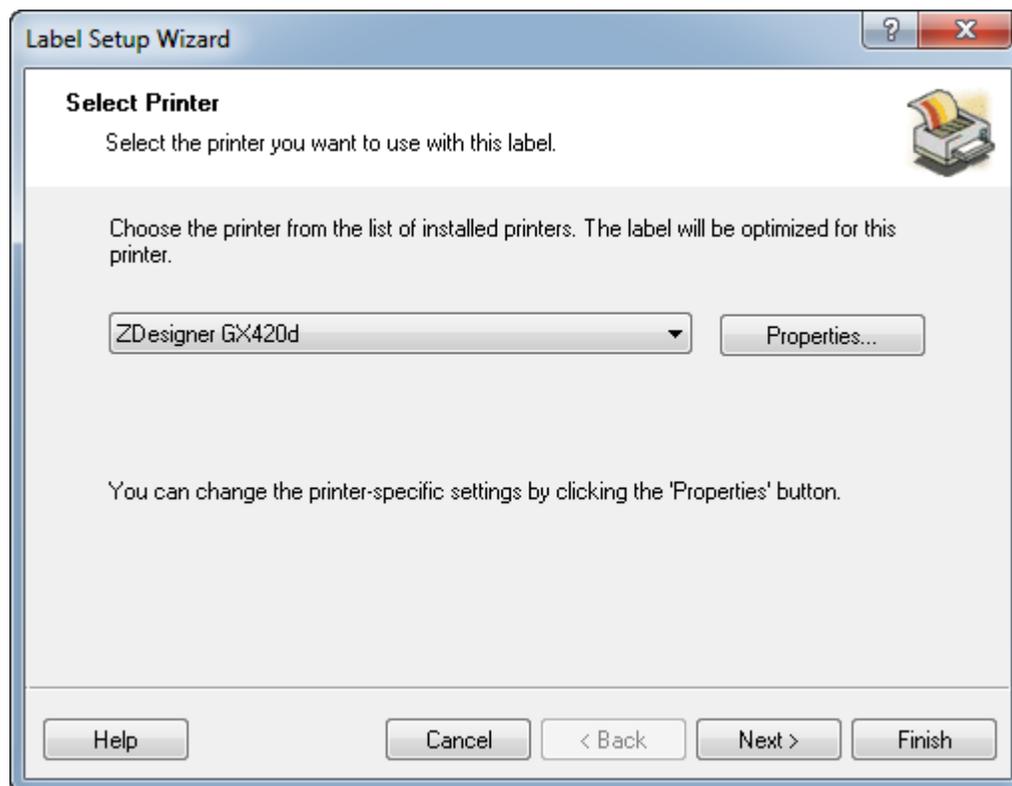
1. Create a new label.

Open ZebraDesigner for XML V2.

From the **File** menu, select **New** or click the  button in the Standard Toolbar. Each time you create a new label, a Label Setup Wizard will start to help you set up the label and connect to the printer.

2. Select a Printer

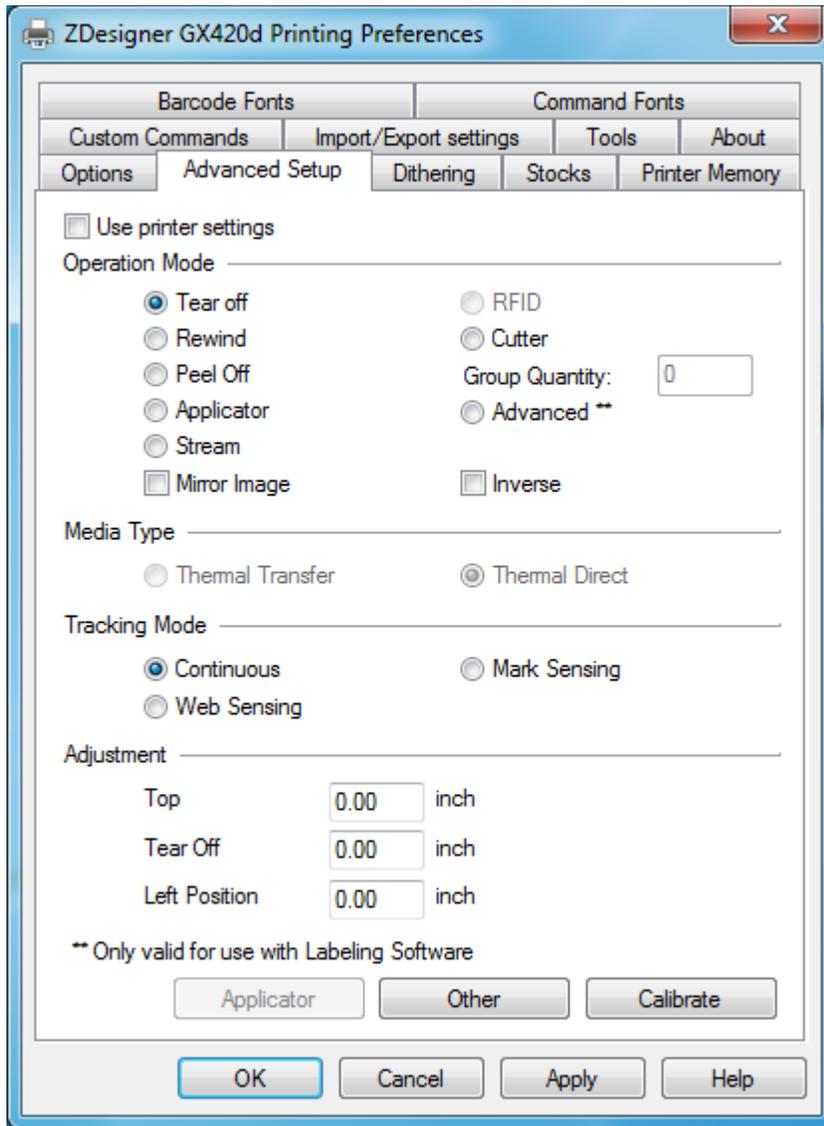
Select the printer you want to use for label printing.
(If you don't find your printer on the list, you'll need to install one from the **File** menu.)



Click the **Properties...** button to open the printer properties dialog.
Click the Advanced Setup tab.
Select Continuous for the Tracking Mode.

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Click the Ok button to close the printer properties dialog.



In the Label Setup Wizard, click the **Next** button.

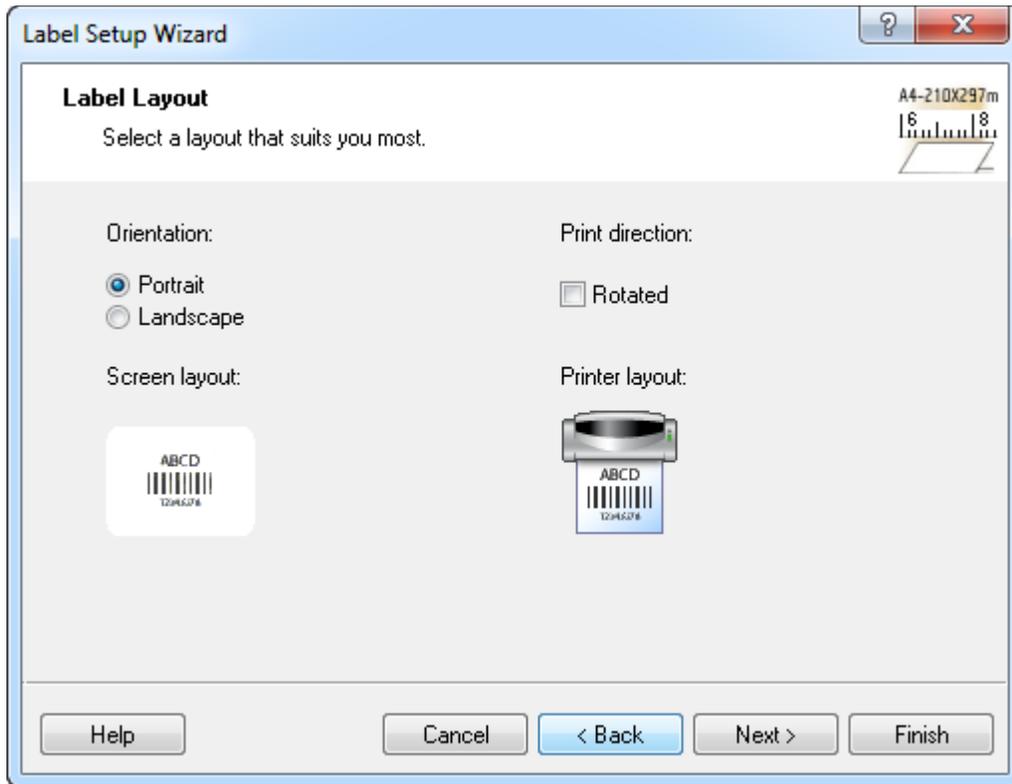
If you want to use the label stock, select your choices in the Select Stock window.

Click the **Next** button.

Leave the Page Size option at User defined default and check Automatic Sizing.

Click the **Next** button.

Select Portrait for the label orientation and leave the Rotated option unchecked for Print direction.



Click the **Next** button.

Enter the label height and width dimensions. This should be the height and width of the Header section of your receipt.

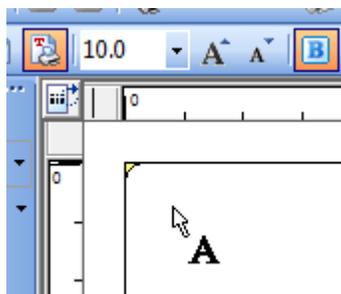
Note: Click the unit of measure button to change between millimeters, centimeters, inches or dots.

Click the **Finish** button.

A new empty label opens.

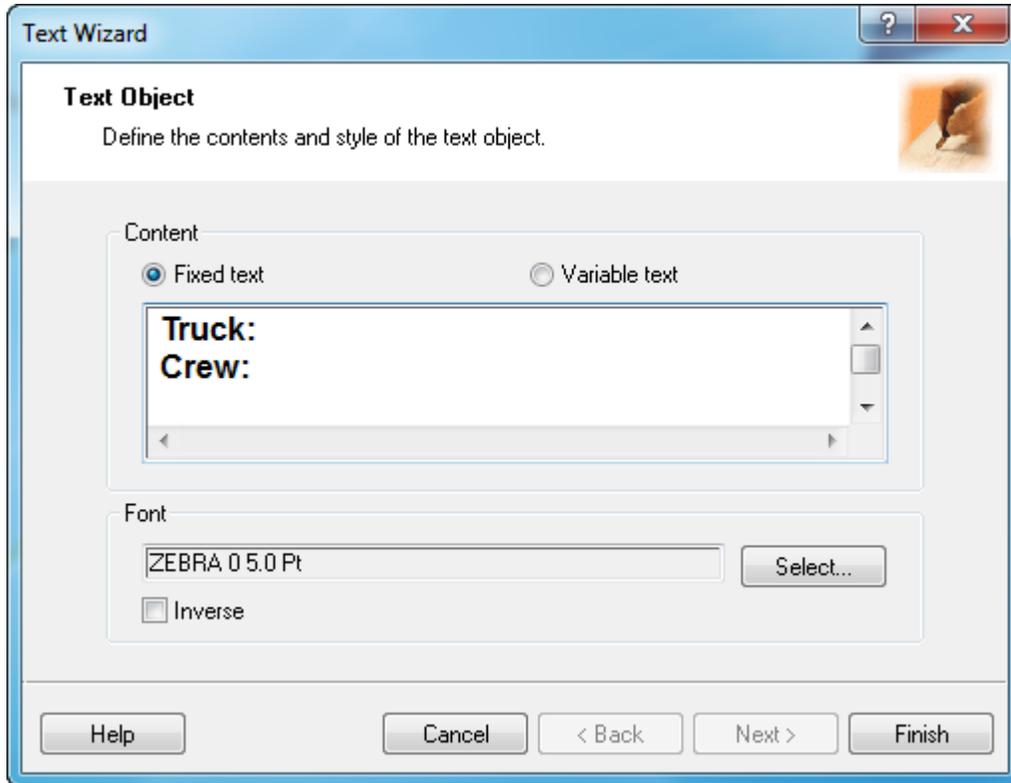
3. Enter a Fixed Text Field

Click the  button in the Toolbox. The text cursor appears on the screen.



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Move the cursor to the location on the label where you want to place the text object and click the mouse button. The Text Wizard dialog box with object properties opens. Type in the required text and click the **Finish** button. The field may contain multiple lines of text.

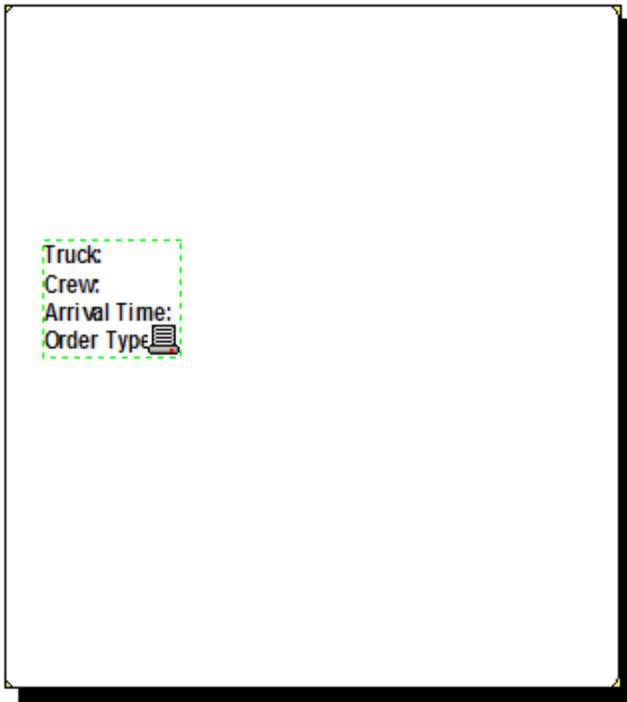


Click on the text object to select the object.

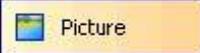
To change the position and size of the text object, select the text object and drag the object with your mouse to the required position.

Your format should now show fixed text fields:

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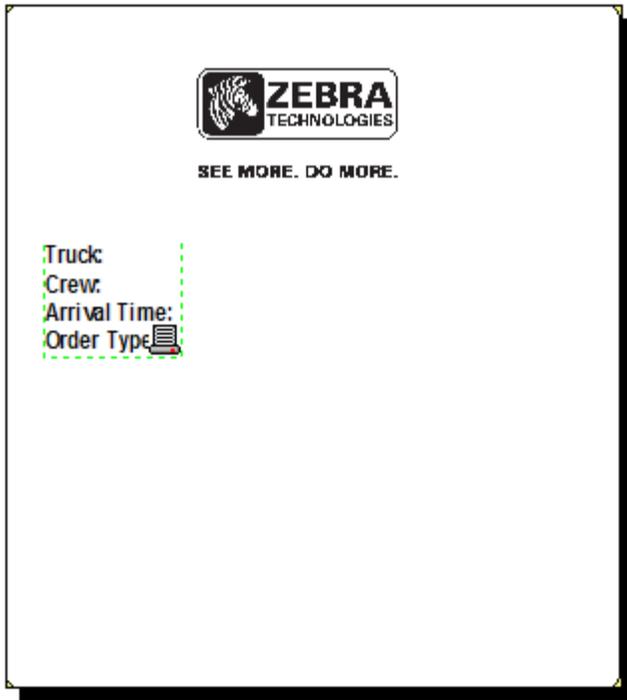
4. Insert Pictures

To insert a picture, click on the  button in the Toolbox. Move the cursor to the desired position on the label and click the mouse button.

The Graphics Wizard will open allowing you to browse for a picture on your computer. Browse and select a graphic from your computer and click the **Finish** button.

Your format should now include a graphic:

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5. Create Variable Fields

Overview

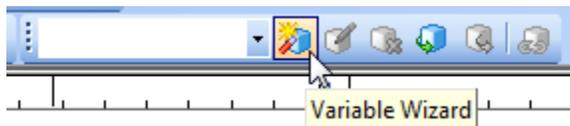
You may want to print formats in which the data changes for each print job. ZebraDesigner for XML allows you to create variables that you can use with text and bar code objects.

Variable Wizard

Use the variable wizard to create and manage the variables in the template. When you assign a value to the variables the same value will be used with all objects on the label that are linked to the variable.

The variables can be linked to Text and/or Bar Code objects.

Click the Variable Wizard button on the toolbar. The Variable Wizard will open.



Define Variable Name

Type in a variable name or use the default 'XML1'. The variable names will be included in the exported template.

Click the **Next** button.

Define Variable Properties

You can define the variable data properties in this step of the variable wizard.

Sample data: Enter the appropriate data for the variable. The entered data will be used for design and preview functionality. You will assign the variable with its proper value outside of ZebraDesigner for XML software.

Maximum number of characters: Define the maximum number of characters the variable can occupy. The number defined here must correspond to the external application that will actually set variable values.

Click the **Finish** button.

Create Additional Variables

Repeat Step 5 multiple times to create the required number of variable fields in your format.

6. Assign Variable Fields to Objects

Create fields linked to variables.

The object on the label that is linked to the variable can have different value for each printed label.

To create a text object linked to a variable, do the following:

Click the  button in the Toolbox.

Click the label where you want to place the text object. A Text Wizard starts.

Select **Variable text** for the Content.

Click the **Next** button.

Select **Variable Field**.

Click the **Next** button.

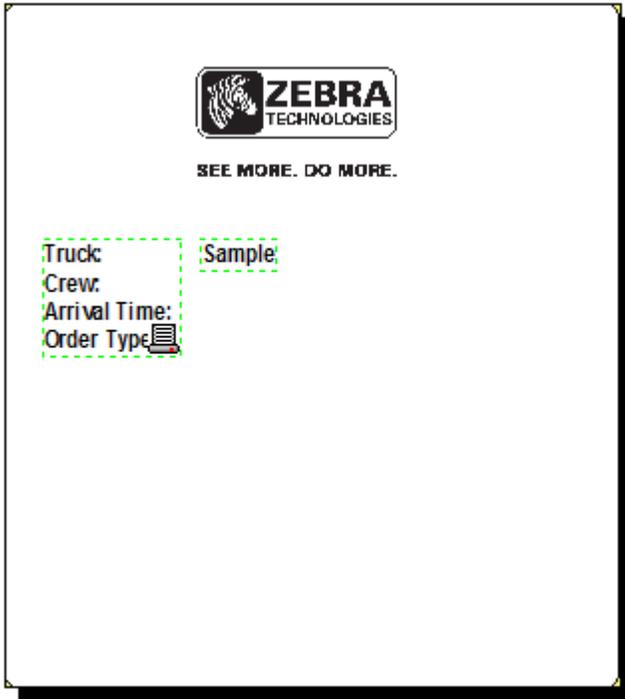
Select one of the existing variables in the list.

Click the **Finish** button. The text object is placed on the label and linked to the selected variable.

Note: This example shows how to create a text field linked to the variable. You can use the same approach to create and link variables to a Bar Code object.

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Your format should now include a variable field:



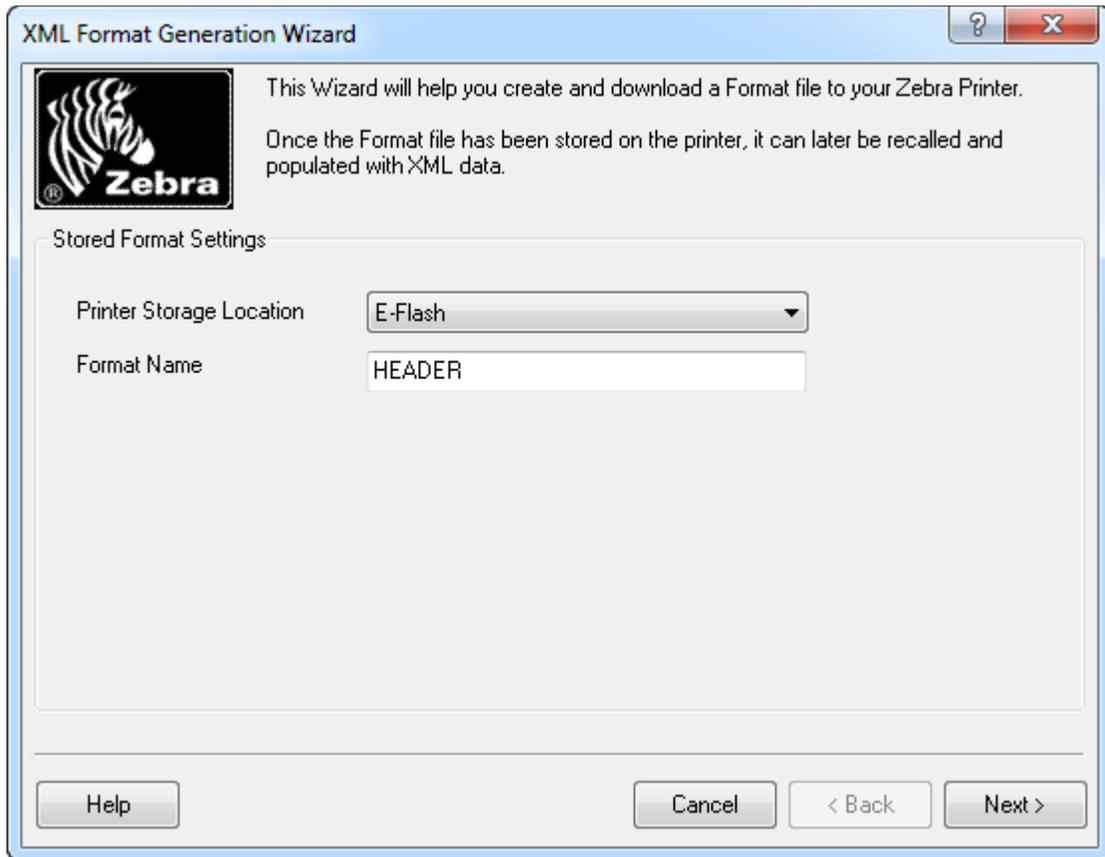
Continue to add additional fixed and variable objects as required.

7. Export the template

During the template design make sure it prints correctly. To verify the printout of your template, from the menu, select File > Test Print. When you are satisfied with the template design, you can export the template to the printer and/or file.

To export the template, do the following:

From the menu, select File > Export to Printer. The XML Format Generation Wizard starts.



Select E-Flash for the Printer Storage Location option. Type in a Format Name, for example HEADER. The format will be stored in the printer using this name.

Click the **Next** button.

Choose whether or not to send a test XML file. The test XML file will use the sample data that was entered when creating the variables. Make your selections and then click the **Next** button.

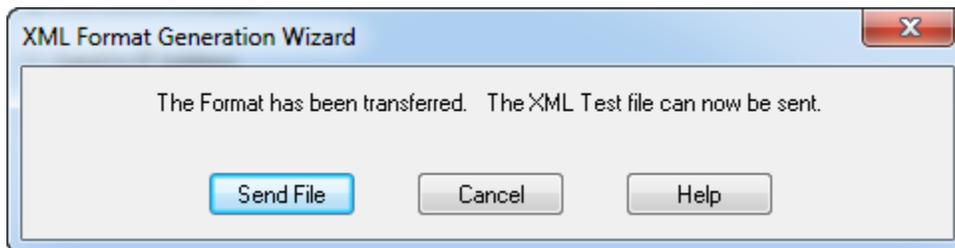


Select Destination

To store the template in the printer, select Use Current Location. If the option to send a test XML file was selected, a label can also be printed.

Click the **Next** button.

A confirmation dialog is displayed and you can choose whether or not to send the text XML file.



To create the XML template file on your computer, select the Send to File option. You can then take the XML template and embed in your application.

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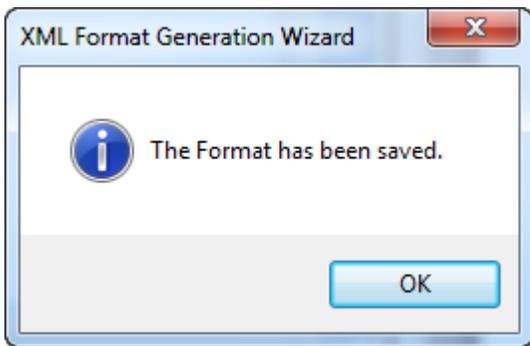
Click the **Next** button.

Type in a destination path or use the Browse button to browse and select a destination.

Click the **Next** button.

Both the ZPL and XML templates will be saved in the specified destination. A confirmation dialog will be displayed.

Click the **Ok** button to close the dialog and exit the XML Format Generation Wizard.



8. Create the Body Section of the Receipt

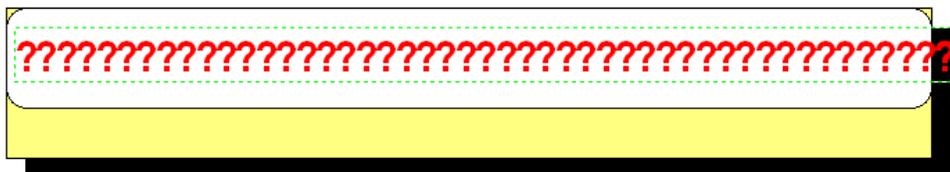
To create the body section of the receipt, follow the same steps above starting at step 1 but make the following changes.

In the Label Setup Wizard in Step 2, set a short Label Height, for example 0.2 inches (5mm). This is the section that gets printed repeatedly so the height of this template should be determined by the text size required and the distance between the printed lines.

This template will typically contain a single print line so only one variable need be created in Step 5.

In Step 6, simply add a single text field assigned to the one variable.

Your format should look similar to this:



Complete the export process as described in Step 7.