

Crystal Reports

Adding barcodes to reports

Overview

This document provides an overview of barcodes, how barcodes work in the Crystal Reports Designer, and examples of the barcode font types. This document has been written for Crystal Reports 10 and earlier.

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Introduction

This document outlines the following:

- An explanation of barcode fonts
- Using barcode creation functions and the User Function Library (UFL) in Crystal Reports

What is a barcode?

A barcode is a series of vertical black and white stripes that are read by a barcode scanner. The vertical black and white lines can contain product information, such as price, weight, and size. Once it has been scanned, the barcode is translated and often printed out onto a receipt.

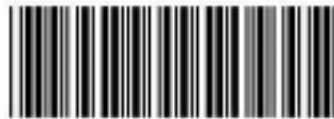
For example, in a retail store, the clerk can scan the barcode instead of manually entering a 20-digit number for each product as it passes through the checkout counter. This allowed a quick, easy and inexpensive method of data input for retail stores.

There are different types of barcode fonts for the unique needs of various industries.

For example, UPC symbols are used on, but not limited to, compact disks (CDs), grocery items, and magazines while Code 39 is used in video rental stores, on identification (ID) cards, and for labels. Code 128 is a code made up of symbols used often by the shipping industry.

Examples of standard barcode fonts

Code 39



Code 39

UPC



UPC

Example of non-standard barcode fonts

PDF417



Using barcodes in Crystal Reports

Installing barcodes and the barcode UFL

To create barcodes in Crystal Reports, you must first purchase a barcode font set from a vendor such as Azalea Software or IDAutomation. Install the barcode fonts according to the instructions provided by the vendor. Also, you need to download the latest barcode User Function Library files (UFL's) from their web site at:

<http://www.azalea.com/>

<http://www.idautomation.com/>

Currently, there are two types of barcode UFLs available for download. One is for use in creating the standard, conventional barcodes. The other type of barcode UFL is for use with the PDF417 barcode font set only.

Once you have successfully downloaded the appropriate barcode UFL file, you will need to extract the UFL files to the correct locations depending on the operating system, Crystal Reports version and the barcode UFL type. Refer to the following tables for the correct location based on vendor and Crystal Reports version.

Table A: File location of Azalea Software barcode UFL drivers for Crystal Reports 10

Operating system	Barcode UFL type	Driver File names	File location
Windows 2000, 2003, XP	For standard, conventional barcodes.	Barcode.dll	C:\windows\system32 or C:\winnt\system32 Depends on the operating system.
		U2lbcodes.dll	C:\Program Files\Common Files\Crystal Decisions\2.5\bin
Windows 2000, 2003, XP	For PDF417 barcodes.	Pdf417mba.dll	C:\windows\system32 or C:\winnt\system32 Depends on the operating system.
		U2lpdf417.dll	C:\Program Files\Common Files\Crystal Decisions\2.5\bin

Table B: File location of Azalea Software barcode UFL drivers for Crystal Reports 9

Operating system	Barcode UFL type	Driver File names	File location
Windows 9x, 2000, ME, XP, NT	For standard, conventional barcodes.	Barcode.dll	C:\windows\system32 or C:\winnt\system32 Depends on the operating system.
		U2lbcodes.dll	C:\Program Files\Common Files\Crystal Decisions\2.0\bin
Windows 9x, 2000, ME, XP, NT	For PDF417 barcodes.	Pdf417mba.dll	C:\windows\system32 or C:\winnt\system32 Depends on the operating system.
		U2lpdf417.dll	C:\Program Files\Common Files\Crystal Decisions\2.0\bin

Table C: File location of IDAutomation Software barcode UFL drivers for Crystal Reports 10

Operating system	Barcode UFL type	Driver File names	File location
Windows 2000, 2003, XP	For standard, conventional barcodes.	CRUFLidautomation.dll	C:\windows\system32 or C:\winnt\system32 Depends on the operating system. Note: This DLL must be registered.
Windows 2000, 2003, XP	For PDF417 barcodes.	CRUFLidautomationPDF.dll	C:\windows\system32 or C:\winnt\system32 Depends on the operating system. Note: This DLL must be registered.

Table D: File location of IDAutomation Software barcode UFL drivers for Crystal Reports 9

Operating system	Barcode UFL type	Driver File names	File location
Windows 9x, 2000, ME, XP, NT	For standard, conventional barcodes	CRUFLidautomation.dll	C:\windows\system32 or C:\winnt\system32 Depends on the operating system. Note: This DLL must be registered.
Windows 9x, 2000, ME, XP, NT	For PDF417 barcodes.	CRUFLidautomationPDF.dll	C:\windows\system32 or C:\winnt\system32 Depends on the operating system. Note: This DLL must be registered.

Table E: File location of Azalea Software barcode UFL drivers for Crystal Reports 8.5 and earlier

Operating system	Barcode UFL type	Driver File names	File location
Windows 9x, ME, XP, NT	Barcode UFL (for standard, conventional barcode font sets)	Barcode.dll	C:\windows\system32 or C:\winnt\system32 Depends on the operating system.
		U2lbcde.dll	C:\windows\crystal or C:\winnt\crystal Depends on the operating system.

NOTE	Use of the IDAutomation Barcode UFL functions is not fully supported in Crystal Reports 8.5 and earlier.
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Steps to verify that the barcode UFL has been successfully installed

1. Launch Crystal Reports.
2. From the **Insert** menu, select **Field Object** to open the **Field Explorer** dialog box.
3. Select **Formula Fields** and click **New**.

4. Type a formula name. For example, "test". The **Formula Editor** dialog box opens.
5. Find the available barcode functions under the section heading **Additional Functions**.

Now that the barcodes functions are available in Crystal Reports, you can create barcodes in a report.

NOTE	Creating barcodes in the Seagate Info Report Designer is the same as creating barcodes in the Crystal Reports Designer. The same steps apply.
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Displaying barcodes in Crystal Reports

Crystal Reports uses the barcode UFL to display barcodes in a report. In the following sections, you will find examples of formulas, which contain barcode functions and methods to be applied in Crystal Reports.

NOTE	The following examples require that you are familiar with creating formulas in Crystal Reports. For information on how to create formulas, refer to the Crystal Reports Online Help by pressing F1 .
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Code 39

Background

Code 39 barcode can contain an alphanumeric string. Code 39 is an industry standard barcode as defined by the American National Standards Institute (ANSI). This barcode is used as the standard for many government institutions.

The arguments that are accepted by this function can contain the numbers 0-9, the letters A-Z, both uppercase and lowercase, to a maximum formula output of 254 characters. The formula in this section returns a value that Code 39 can understand when scanned.

Steps to display Code 39 barcodes

To display Code 39 barcodes, create a formula in Crystal Reports and then apply the applicable barcode font format.

1. Create a formula in Crystal Reports similar to the following:

For Azalea

```
//Formula to display Code 39 barcodes with the Azalea  
//barcode function  
BarcodeC39("ABC123ab")
```

For IDAutomation

```
//Formula to display Code 39 barcodes with the IDAutomation
//barcode function
IDAutomationFontEncoderCode39("ABC123ab")
```

2. Insert the formula field onto the report.

The delimiter characters at the beginning and at the end of the barcode syntax indicate to the scanner where the barcodes starts and finishes.

3. Select the formula field and format it by selecting the appropriate Code 39 barcode font from the font drop-down list.

Upon formatting the formula field with a Code 39 barcode font, a series of vertical black and white lines that represent the barcode value appears.

When a barcode scanner reads the display, it will return the example's value of ABC123abc.

For more information on this barcode, refer to:

http://www.mecsw.com/specs/code_39.html

PDF417

Background

PDF417 is a two-dimensional, high-density, non-linear type of barcode. "PDF" stands for Portable Data File. PDF417 barcodes are capable of displaying more information than the standard barcode types. PDF417 barcodes are currently used for labeling hazardous materials, storing technical specifications and calibration data on electronic instruments, and encoding fingerprints and photographs on drivers' licenses.

Over 1800 alphanumeric characters or over 2700 numeric digits can be encoded in a single PDF417 barcode. Up to 900 characters can be encoded per square inch.

Steps to display PDF417 barcodes

To display PDF417 barcodes, create a formula in Crystal Reports and then apply the applicable barcode font.

1. Create a formula in Crystal Reports similar to the following:

For Azalea:

```
//Azalea's example formula to display PDF417 barcodes
NumberVar rows := simplePDF417DoIt({Your Field Here});
NumberVar i := 0;
StringVar Barcode := "";
for i := 1 to rows step 1 do
    Barcode := Barcode + simplePDF417GetIt(i);
```

For IDAutomation:

```
//IDAutomation's example formula to display PDF417 barcodes
StringVar CompleteBarcodeString:="";
StringVar DataToEncode:= {Your Field Here};
NumberVar i:=0;
NumberVar Segments:=
IDAutomationPDF417EncoderPDFSet(DataToEncode,0 ,0 ,0 ,0 ,0 ,0
);
For i:=0 to Segments Do
(
CompleteBarcodeString := CompleteBarcodeString +
IDAutomationPDF417EncoderPDFGet(i);
);
CompleteBarcodeString
```

2. Insert the formula into the report.
3. Select the formula field and format it by selecting the correct PDF417 barcode font from the font drop-down list.

Upon formatting the formula field with a PDF417 barcode font, a pattern of black and white lines that represent the barcode value appears.

When a barcode scanner reads the display, it will return the example's value.

For more information on this barcode, refer to:

<http://www.mecsw.com/specs/pdf417.html>

What font applies to which barcode function?

The following tables provide a list of font sets available for purchase from Azalea Software and IDAutomation. The tables include the corresponding functions and font styles for each font set.

Azalea Font Sets

Azalea font set	Functions	Font style
C128Tools	<ul style="list-style-type: none"> • BarcodeC128C • BarcodeC128B • BarcodeC128C • BarcodeC128Auto • BarcodeFNC1C • BarcodeUCC128SSCC • BarcodeUCC128SSCCPostal 	Code 128
C39Tools	<ul style="list-style-type: none"> • BarcodeC39 • BarcodeC39ASCII 	Code 39
UPCTools	<ul style="list-style-type: none"> • BarcodeUPCA • BarcodeUPCE • BarcodeBookland • BarcodeISSN • BarcodeEAN8 • BarcodeEAN13 	UPC, OCR
PostTools	<ul style="list-style-type: none"> • BarcodePostnet 	ZipCodeBarcode
I2of5Tools	<ul style="list-style-type: none"> • Barcode2of5 • Barcode2of5SCCF 	Interleaved 2 of 5
CodaBar	<ul style="list-style-type: none"> • BarcodeCodabarA • BarcodeCodabarB • BarcodeCodabarC • BarcodeCodabarD 	Codabar
Code93	<ul style="list-style-type: none"> • BarcodeCode93 	Code 93
2of5	<ul style="list-style-type: none"> • Barcode2of5 	2 of 5
AzaleaMBA	<ul style="list-style-type: none"> • PDF417DoIt • PDF417GetIt 	PDF417

IDAutomation Font Sets

IDAutomation font set	Functions	Font style
IDAutomationPOSTNET fonts IDAutomationPLANET fonts	<ul style="list-style-type: none"> • IDAutomationFontEncoderPostnet 	Postnet Planet
IDAutomationC128 fonts	<ul style="list-style-type: none"> • IDAutomationFontEncoderCode128 • IDAutomationFontEncoderUCC128a • IDAutomationFontEncoderCode128b • IDAutomationFontEncoderCode128c 	Code 128
IDAutomationC39 fonts IDAutomationHC39 fonts	<ul style="list-style-type: none"> • IDAutomationFontEncoderCode39Mod43 • IDAutomationFontEncoderCode39 	Code 39
IDAutomationI25 fonts IDAutomationHI25 fonts	<ul style="list-style-type: none"> • IDAutomationFontEncoderI2of5 	Interleaved 2 of 5
IDAutomationUPCEAN fonts	<ul style="list-style-type: none"> • IDAutomationFontEncoderUPCa • IDAutomationFontEncoderUPCe 	UPC
IDAutomationUPCEAN fonts	<ul style="list-style-type: none"> • IDAutomationFontEncoderEAN13 • IDAutomationFontEncoderEAN8 	EAN
IDAutomationPDF417 fonts	<ul style="list-style-type: none"> • IDAutomationPDF417EncoderPDFSet • IDAutomationPDF417EncoderPDFGet 	PDF417

Finding More Information

This is a list of references used to create this document. For more information on barcodes, click the following links:

- [Azalea Software](#)
- [IDAutomation](#)
- [The Barcode Software Center](#)

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