

Barcode Service

Barcode Generator Software for .NET

Version 1.1.0

Barcodes in Microsoft SQL Server Reporting Services (SSRS) and Crystal Reports

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1 Content

1		Content	2
2		Disclaimer	3
3		Haftungsausschluss	4
4	4.1 4.1.1 4.1.2 4.1.3 4.1.4 4.1.5	Before You Start Prerequisites TBarCode .NET Additional you need the following applications: For creating reports in Crystal Reports: For creating reports in SQL Server Reporting Services (SSRS): For hosting the Barcode Service in Internet Information Services (IIS):	5 5 5 5 5 5 5 5 5
5	5.1 5.2 5.3 5.4 5.5	Deploy the Barcode Service in IIS Precondition Installation With Default Path and Application Pool Installation With Custom Path and Application Pool Advanced Customisation Verify Installation	6 6 6 6 6 6
6	6.1 6.2 6.3	Insert Barcodes in Crystal Reports Creating the Report Creating the Barcode Final result	7 7 9 12
7	7.1 7.2 7.3 7.4	Insert Barcodes in SQL Server Reporting Services Creating the Reporting Project Report Design Creating the Barcode Final result	13 13 14 15 18
8		Contact and Support Information	19



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4 Before You Start

In the following we will show you how to install the Barcode Service in your Internet Information Services (IIS). In addition we show you how to create reports with dynamically added bar codes in Crystal Reports and SQL Server Reporting Services. The method described here is called "URL Integration", the bar code images are generated "on-the-fly" with the Barcode Service.

4.1 Prerequisites

4.1.1 TBarCode .NET

The Barcode Service utilizes the bar code generator component *TBarCode* .*NET* from the *TBarCode SDK*, which must be installed on your system.

TBarCode .NET 11.10 or higher.

You can download a free evaluation version of *TBarCode SDK* directly from our web site:

https://www.tec-it.com/download/tbarcode/windows/Download.aspx

The TBarCode SDK setup will install the TBarCode .NET assemblies into the GAC¹.

4.1.2 Additional you need the following applications:

Microsoft .NET Framework 4.6.1 or higher

Microsoft Visual Studio .NET 2015 or higher

4.1.3 For creating reports in Crystal Reports:

Crystal Reports 2016

4.1.4 For creating reports in SQL Server Reporting Services (SSRS):

Microsoft SQL Server Reporting Services

SQL Server Data Tools (SSDT)² for Visual Studio

4.1.5 For hosting the Barcode Service in Internet Information Services (IIS):

Internet Information Services (IIS) 10.0 or higher

Microsoft Web Deploy 3.6³ or higher

³ Web Deployment Tool Installation: <u>https://technet.microsoft.com/en-us/library/dd569059.aspx</u>



¹ For alternative assembly locations see here: <u>https://msdn.microsoft.com/en-us/library/ms155034(v=sql.110).aspx</u>

² SQL Server Data Tools in Visual Studio 2015: <u>https://msdn.microsoft.com/en-us/mt186501.aspx</u>



5 Deploy the Barcode Service in IIS

In this chapter we will guide you through the process of installing the Web Deployment Package for the Barcode Service in your Internet Information Services (IIS).

5.1 Precondition

Before starting make sure you have Internet Information Services 10 or higher and Microsoft Web Deploy 3.6 or higher installed. Additionally, you need administrator privileges to complete the installation.

5.2 Installation With Default Path and Application Pool

The simplest way of installing the Web Deployment Package is to use the deploy.cmd we provide for you. If you run it as Administrator, it will install Barcode Service in default mode. The path to Barcode Service will be set to *Default Web Site/barcodeservice* and hosted in the Application Pool *TEC-IT* (set to default configuration). If no errors occur during the deployment, you should be able to connect to the Barcode Service with this link immediately:

http://localhost/barcodeservice/

5.3 Installation With Custom Path and Application Pool

In case you want to specify your own path and application pool, you can also use deploy.cmd. Just pass your values as parameters along like this:

deploy.cmd "Default Web Site/barcodeservice" "TEC-IT"

The deploy.cmd will set the path to your input and create a new Application Pool for it, using your input as name and setting the configuration to default.

If you are not familiar with IIS and Web Deploy we recommend using the default values.

5.4 Advanced Customisation

For a more custom installation please use

- BarcodeService.deploy.cmd
- BarcodeService.SetParameters.xml

as described in BarcodeService.deploy-readme.txt.

Keep in mind that using BarcodeService.deploy.cmd will use the DefaultAppPool in IIS.

5.5 Verify Installation

Verify the installation by calling the URL for the barcode service configuration page

http://localhost/barcodeservice/BarcodeServer.aspx





6 Insert Barcodes in Crystal Reports

The following chapter describes how bar codes can be integrated into Crystal Reports by using a picture box linked to the Barcode Service. The graphic location of the image to be printed is specified as an http/https-URL to the Barcode Service. The report reads the image data stream and displays the bar codes during runtime.

The advantage of this solution is that the bar codes are always "up to date". The barcode generator service can be hosted on the internet or in your intranet.

6.1 Creating the Report

Start Crystal Reports and use the Report wizard to generate a new report.

START A NEW REPORT	MY RECENT REPORTS		
Blank report	ReportBarcodeServerDPIT	est.rpt	
Report wizard	Report1.rpt		
Cross-tab report wizard	Open File		
Mailing label report wizard			
OLAP Cube Report Wizard			
2	Standard Report Creation Wizard		×
C	ata		
	Choose the data you want to report on.		
Ava	lable Data Sources:	Selected Tables:	G .
lights Res	🚈 Add Command 🛛 🔺	🖃 号 DESKTOP-50NAC	CL0\SQLEXPRESS
		Employees	
		<u>></u>	
And a state of the	Categories	>>	
	CustomerCustomer		
	CustomerDemogra	*	
The second secon	Employees	<<	
	Order Details		
	I Orders		
	Products		
	E Shippers		
ly formatted. <	>		actionable

In the project wizard choose your database connection (in the sample the Northwind database⁴ is used) and select the fields you want to put into your report (in this sample: *FirstName*, *LastName* and *Title* from the *Employees* table).

⁴ Download: <u>https://northwinddatabase.codeplex.com/</u>



ailable Fields:	Fields to Display:	+ 4
 Employees EmployeeID LastName FirstName TitleOfCourtesy BirthDate HireDate Address City Region PostalCode Country HomePhone 	 Employees.Lastvame Employees.FirstName Employees.Title 	

After you finished the *Creation Wizard* insert a picture as placeholder for your bar code.

Aa	Text Object	
		P) * (P) * 🛄 🔳 👷 🙀 .
Σ	Summary Eield Heading Sort Control	
(8	<u>G</u> roup	
1 × B	<u>O</u> LAP Grid <u>C</u> ross-Tab Sub <u>r</u> eport Line <u>B</u> ox	Print Date] <u>FirstName</u> <u>Title</u>
	P <u>icture</u> C <u>h</u> art M <u>a</u> p Flas <u>h</u>	≩ FirstName Title
	OLE Object Template Field Object	
		Field Heading Sort Control Group Chart Field Heading Sout Control Chart Chart Chart Map Flash OLE Object Template Field Object

In the screenshot below we used an image from the Barcode Service with default data. Later in this sample we show you how to encode data from the *Employees* table. If you need a bar code for each row, insert the image in the *Details* section.





	Print Date	2418	2724	
me	FirstName	Title	a d	
me	₽irstName	Ţitle		} → ABCabc

6.2 Creating the Barcode

Right click the image you inserted and go to Format Graphic...

Title	3		
Ţitle	E		
			OLE Object:
			Forma <u>t</u> Graphic
		4	Format <u>P</u> ainter
			Move
			Size and Position
			Add to Repository
		×	Cut
		D	Сору
			Convert Picture Object
			Paste
			Delete

In the *Format Editor* window in the *Common* tab set the checkbox for *Can Grow*.

Format Edi	tor			×
Common	Picture	Border	Hyperlink	
Object N	lame: Text:		Picture 1	×-2
□ Re <u>a</u> d	l-only ress		Lock Position and Size	*2
<mark>∠ Çan</mark>	Grow		Maximum number of lines:	<u>×-2</u>



In the Picture tab make sure that *Scaling* is set to 100%, set *Use Original URL* and click the *Formula Editor* button on the right side.

Common Pic	ture Border	Hyperlink			
Crop From			Scaling	Proversion	
Left:	0,00] cm	<u>W</u> idth:	100	%
Right:	0.00		H <u>e</u> ight:	100	%
Top	0.00]	Size		
1 <u>0</u> 0.	0,00		Width:	5,13	cm
Bottom:	0,00] cm	Heigh <u>t</u> :	2,80	cm
Original Siz	e				
Width:	5,13	cm	Height:	2,80	cm
Reget					
					-
Graphic Loo	ation:				X+2

Open the barcode service configuration page

http://<host name>/barcodeservice/BarcodeServer.aspx

Now copy the URL for your barcode from the textbox in Barcode Services. Make sure that you have selected *Crystal Reports* as target system.

TBarCode SDK Barcode Service

Barcode 1	Гуре		Barcode Image		
Code 128		•			
Data					
ABCabc			ABCabc		
-		1	Refresh Barcode		
Size			Generate Barcode Service URL		
Medium		•	Calculate URL for: Crystal Reports		
Advanced	L		"http://localhost:50314/BarcodeHandler.ashx? barcodetype=Code128&modulewidth=0.508&height=		
Resolution:	300 dpi	▼ Default	URLEncode("ABCabc", 1)		
Fore color:	000000	Default			







Finally, set the data you want to encode in your barcode. In case of this sample, the *LastName* from the *Employees* table is used.

Please note that we use the URLEncode function in order to support special characters.





6.3 Final result

Afterwards, the generated report should look like this:



WWW.TEC-IT.COM



7 Insert Barcodes in SQL Server Reporting Services

The following chapter describes how bar codes can be integrated into SSRS report by using an image box linked to the Barcode Service. The image source of the image to be printed is specified as an http/https-URL. The report reads the image data stream and displays the bar codes during runtime.

The advantage of this solution is that you don't have to deal with security during report runtime (no additional code modules required in the report), there are changes in the database and the bar codes are always "up to date". The barcode generator service can be hosted on the internet or in your intranet.

7.1 Creating the Reporting Project

New Project					? ×
▷ Recent		.NET F	amework 4.5.2 - Sort by: Default	• # E	Search Installed Templates (Ctrl+E)
▲ Installed		R.A	Report Server Project Wizard	Business Intelligence	Type: Business Intelligence
 Templates Business Intellig Analysis Series Intelgration Reporting S Visual C# Windows Universe Window Classic Cloud Extensibility iOS LightSwitch Office/Shan Silverlight Test WCF WorkFlow 	ence vices Services envices		Report Server Project	Business Intelligence	Create a new Report Server project using Report Wizard.
Name:	ReportingService	s URL			
Location:	c:\users\docume	- ents\visu	al studio 2015\Projects	•	Browse
Solution name: ReportingService		s_URL			Create directory for solution Add to Source Control OK Cancel

Open Visual Studio 2015 and create a new report project

In the project wizard choose your database connection (in the sample the Northwind database⁵ is used) and select the fields you want to put into your report (in this sample: *FirstName*, *LastName* and *Title* from the *Employees* table).

⁵ Download: <u>https://northwinddatabase.codeplex.com/</u>



7.2 Report Design

Use the wizard to design your report as you want.

Insert an extra column for the generated barcode.

Insert an image object into the new column, where you want to create the barcode in.

ReportingServices_URL - Microsoft V File Edit View Project Build Control Control Con	ïsual Studio Debug Team Format Repo ♥ • Debug • Default	vrt Tools Test Analyze Win → Start → 5 - Segoe U	Quick Launch (Ctrl+Q)	P □ × Sign in ■ U A ■ U<
First Name Last Name FirstName] LastName] Row Groups	Title [Title]	Text Box Cut Cut Copy Paste Select → Expression Text Box Properties Tablix Insert Column → Delete Columns Delete Columns Delete Rows Add Group → Add Total Insert → Cut Cut Cut Cut Cut Cut Cut Cut	Text Box Line Rectangle Map Data Bar Indicator	
Error List Output				↑ Publish ▲





7.3 Creating the Barcode

In the image properties window select External as image source.

Click on the expression icon to open the expression window.

Image Properties		×
General Size	Change name, image, and tooltip options.	
Visibility	Name:	
Action	Image1]
Border	ToolTip:	
		f _x
	Select the image source:	
	External \sim	
	Use this image:	
	×	L.
Help	ОК С	ancel

Open the barcode service configuration page

http://<host name>/barcodeservice/BarcodeServer.aspx

Now copy the URL for your barcode from the textbox in Barcode Services. Make sure that you have selected *SQL Server Reporting Services* as target system.

TBarCode SDK Barcode Service

Barcode	Туре		Barcode Image
Code 128		•	
Data			
ABCabc			ABCabc
		1	Refresh Barcode
Size			Generate Barcode Service URL
Custom r	nodule width + height	•	Calculate URL for: SQL Server Reporting Services V
Module width:	0.508	mm 🔻	="http://localhost:50314/BarcodeHandler.ashx?
Height:	25.4		25.4&unit=mm&dpi=300&imagetype=PNG&data=" + System.Net.WebUtility.UrlEncode("ABCabc")
Advance	d		
Resolution	n: 300 dpi 🔹	Default	





Now set the data you want to encode in your barcode. In case of this sample, the *LastName* from the *Employees* table is used.

xpression		
Set expression for: Value		
<u>i&data=</u> " + System.Net.Web	Utility.UrlEncode(Fields!I	.astName.Value)
100 % + 4 Category: Constants	Item:	Values:
Built-in Fields Parameters <u>Fields (DataSet1)</u> Otatasets Variables Operators Common Functions		FirstName k3 Title
Help		OK Cancel

Since SSRS ignores the DPI value stored in a picture (the default value of 96 DPI is too low for printing) we have to fix this manually. Therefore, we have to select *Fit proportional* in the *Size* tab.

hage Properties		ā
General	Change the display size and part	dding options.
Size		
Visibility	Display:	
Action	O Original size	
Border	Resize item to accommodate the	image
	○ Fit to size	
	Resize image to fit inside the iten	n
	 Fit proportional 	
	Resize image to fit inside the iten ratio	n while maintaining the aspect
	O Clip	
	Clip image to fit inside the item	
	Padding options	
	Left:	Right:
	0pt 🗦 🖍	0pt 🔶 🏂
	Тор:	Bottom:
	0pt 🔶 fx	0pt _ ƒx
Help		OK Cancel





Afterwards we have to select the image box and edit the Size values in the Properties.

Because in this sample a Code 128 with a height of 25.4 mm and a given module width is used, we set the *Height* value of the image box to 25.4 mm.

Depending on the type of your barcode, the width of the barcode may grow according to number of encoded characters, so make sure to select a suitable width (no clipping). If you generate a bar code with a fixed, given width, use this value as *Width*.

Properties		- ₽ ×
Image8 Image		
24 ×		
 BorderWidth ⊕ General ⊕ Localization ⊕ Other 	1pt	*
Position	0:- 0:-	
	80mm 25.4mm	
Width	80mm	
Height	25.4mm	
	Opt, Opt, Opt, Opt	
Sizing	FitProportional	
		-
Height Specifies the height of the it	em.	

- Barcodes need fine tuning according to the printing resolution (DPI).
- Please contact our Support (see section 8) in case you have advanced requirements (like thermal transfer printers) or problems with bar code quality.





7.4 Final result

Afterwards, the generated report should look like this:

Report1







Contact and Support Information 8

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