# TBarCode .NET
## Barcode Library for .NET

Version 9

# Developer Manual

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WWW.TEC-IT.COM

# 1 Content

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# 3   Introduction

## 3.1   What is TBarCode?

**TBarCode** is a set of professional tools for the generation of barcodes. More than 80 different symbologies (linear barcodes, 2D barcodes and stacked barcode variants) can be printed or exported as graphics files. All industry formats are supported. The barcodes can be generated in the highest possible resolution and quality.

**TBarCode** is available in several versions for different operating systems, applications and programming environments.

The following versions are included in this setup:

| | |
|---|---|
| **TBarCode OCX** | A Microsoft® ActiveX® compliant barcode control. It can be used with Microsoft® Office applications as well as by software developers. |
| **TBarCode .NET** | A .NET barcode library for software developers. It includes barcode controls for Windows Forms and ASP.NET 2.0. |
| **TBarCode Library** | A DLL for Windows platforms for software developers.<br>(A DLL for Windows CE/Windows Mobile is available on request. Please contact us with your platform details.) |

## 3.2   What is TBarCode .NET?

**TBarCode .NET** is .NET library for barcode generation. This library contains

- a .NET class for creating or printing barcodes
- and barcode controls for Windows Forms and ASP.NET 2.0 applications.

## 3.3   Scope of this Document

This document explains how you can add barcodes to your .NET applications with **TBarCode .NET**. The complete API (application programming interface) is described in the *TBarCode .NET Developer Reference*.

## 3.4   Restrictions of the Demo Version

In the demo version the barcodes will be drawn with a demo-hint. That means that the word "Demo" or the phrase "www.tec-it.com" is drawn partially over the barcode. The demo-hint does not influence the readability of the barcode in a negative way.

> ► In special cases (e.g. very small or high-resolution barcodes) you may want to test the product without restrictions. To obtain a temporary license key contact sales@tec-it.com.
> ► For enabling the full-featured version (without the demo hints) you can obtain a license key from TEC-IT (http://www.tec-it.com/order/).
> ► For more information on licensing **TBarCode,** please refer to chapter 8.

# 4 Installation

## 4.1 Requirements

### 4.1.1 Operating Systems

The following operating systems are supported:

- Microsoft Windows 2000 SP3
- Microsoft Windows XP SP2
- Microsoft Windows Server 2003
- Microsoft Windows Vista

### 4.1.2 .NET Version / IDEs

**TBarCode .NET** requires .NET Framework 2.0 or higher. It can be used with all IDEs supporting .NET 2.x (like Microsoft Visual Studio 2005[1]).

## 4.2 Download and Setup

Download **TBarCode** from http://www.tec-it.com/Download ► *TBarCode* and execute the setup application. Depending on your selection one or more of the following components are installed – along with documentations and sample applications:

- **TBarCode OCX**
  A barcode ActiveX control for Microsoft Office users and for software developers. User manual and API reference are included in the setup.
- **TBarCode Library**
  For software developers. Developer manual and API reference are included in the setup.
- **TBarCode .NET**
  For .NET developers. Developer manual and API reference are included in the setup.

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► Administrative rights are required to install **TBarCode**.

► **TBarCode OCX** is an ActiveX control. ActiveX controls must be registered within the Microsoft Windows operating system before they can be used. This registration is executed automatically by the setup application. On demand you can register the OCX file manually with the command line tool *"regsvr32.exe".*

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[1] VS2003 is not supported because it uses .NET 1.1

# 5  Barcode Form Control

## 5.1  Introduction

This chapter explains how to insert a barcode into a .NET Windows Form. **TBarCode** contains a Windows Form control called *BarcodeControl*, which can easily be added to any .NET form.

Requirements to work through the tutorial:

- **TBarCode 9.0** installed.
- Visual Studio 2005 or a Visual Studio 2005 Express Edition[2] or newer versions.
- Basic knowledge about any .NET language (VB.NET, C#, etc.)

## 5.2  Create or Open a Project

Start Visual Studio and open an existing Windows Forms project or create a new project:

1. Select *File ► New Project…*
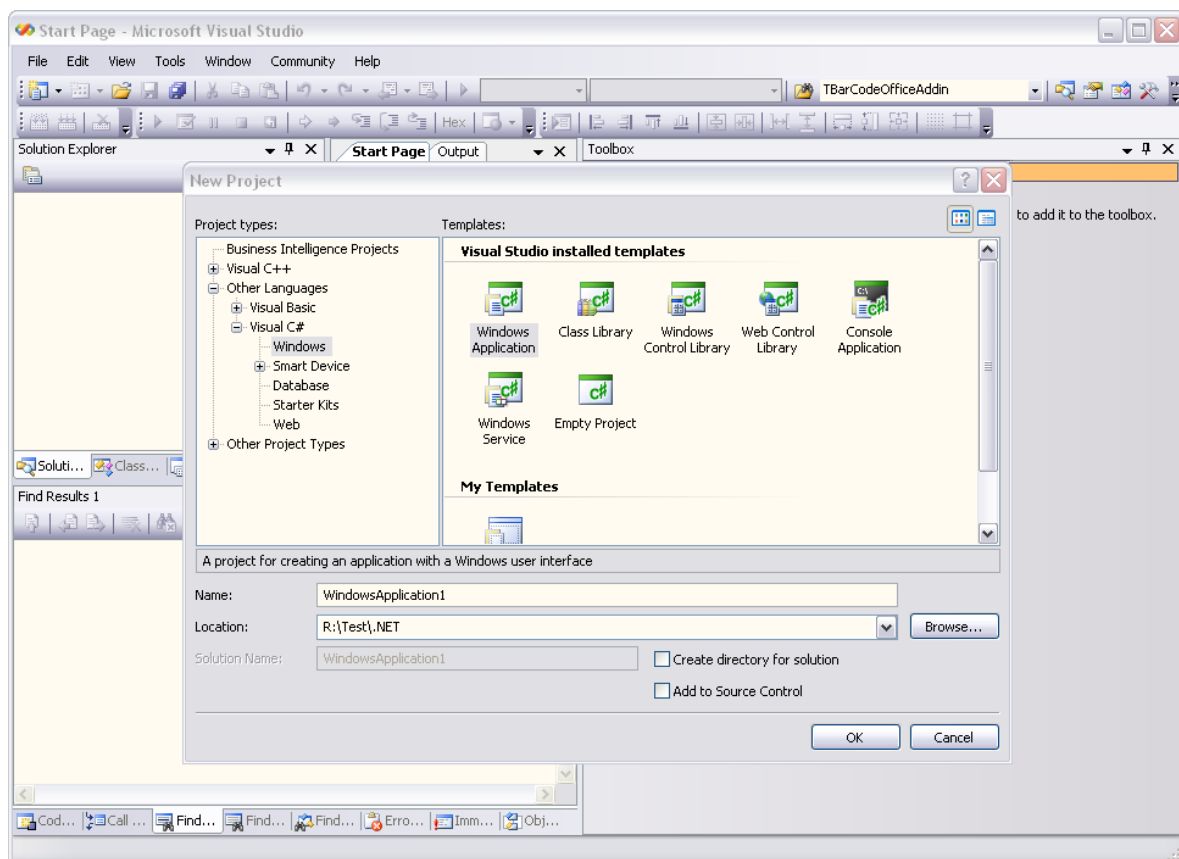2. Choose *Windows Application* and click *Ok*.



*Figure 1: Create a New Project*

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[2] The Visual Studio Express Editions are free development environments form Microsoft. Visit http://msdn.microsoft.com/vstudio/express/default.aspx to find out more.

## 5.3 Reference the Barcode Controls

To work with the barcode controls, you first need to add them into Visual Studio:

1. Open the Toolbox (⚒).
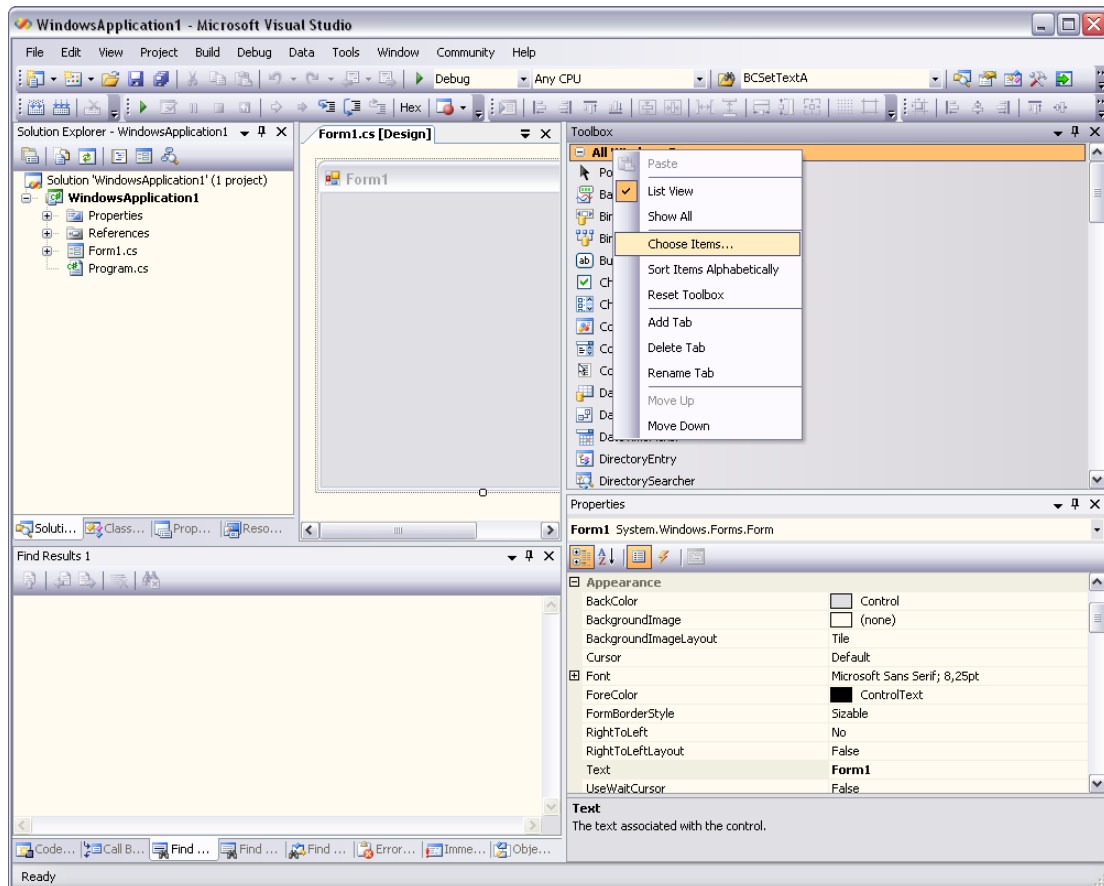2. Right-click *All Windows Forms* and select *Choose Items…*



*Figure 2: The Toolbox Context Menu.*

3. In the *Choose Toolbox Items* dialog click the *Browse…* button.
4. In the *Open* dialog navigate to *C:\Program Files\TEC-IT\TbarCode9\Bin* (or the path you have chosen during setup).
5. Select *TECIT.TBarCode.dll* and click *Open*.
6. Two new controls named *BarcodeControl* should now show up in the *Choose Toolbox Items* dialog. Make sure they are checked and click *Ok*.
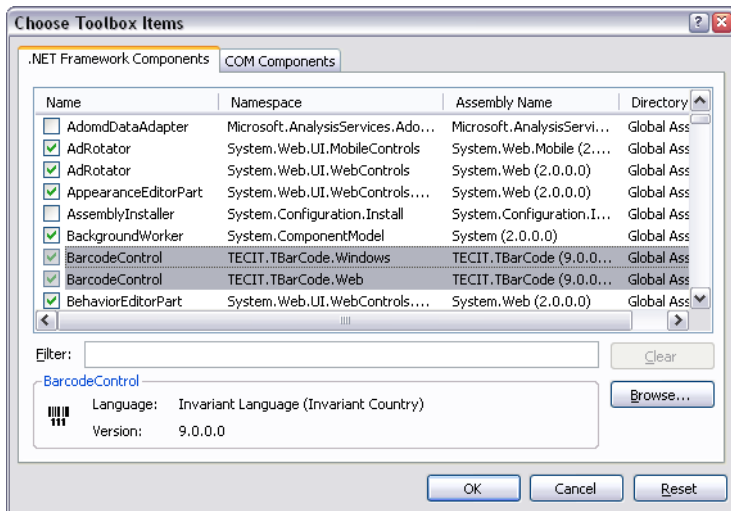
*Figure 3: The Choose Toolbox Items Dialog with BarcodeControls.*

## 5.4 Add Barcode to a Form

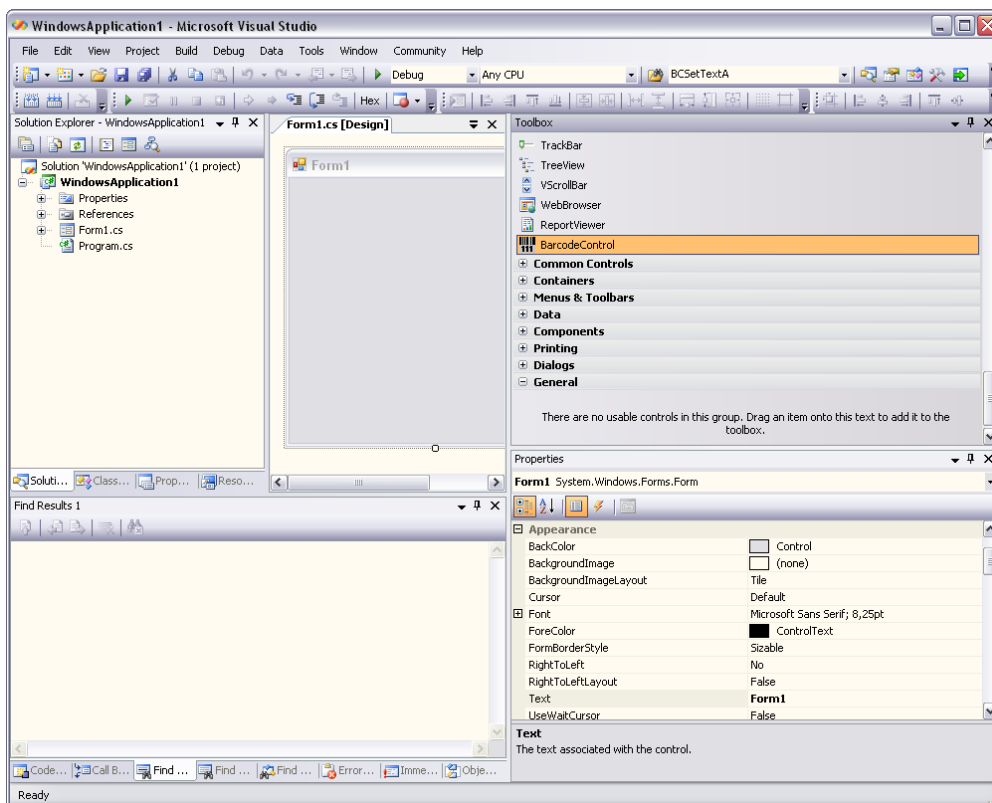Now, simply drag and drop the *BarcodeControl* from the *Toolbox* onto your Windows form.


*Figure 4: Toolbox with BarcodeControl.*

## 5.5 Adjust Properties

The barcode is now visible on your Windows Form. You can change the appearance (position and size) in the design view.

To change more barcode properties:

1. Right-click the barcode control and select *Properties*.
2. Visual Studio's *Properties* dialog appears. In the *Properties* dialog you can adjust the barcode properties, such as barcode type, check digit method, module width, etc.
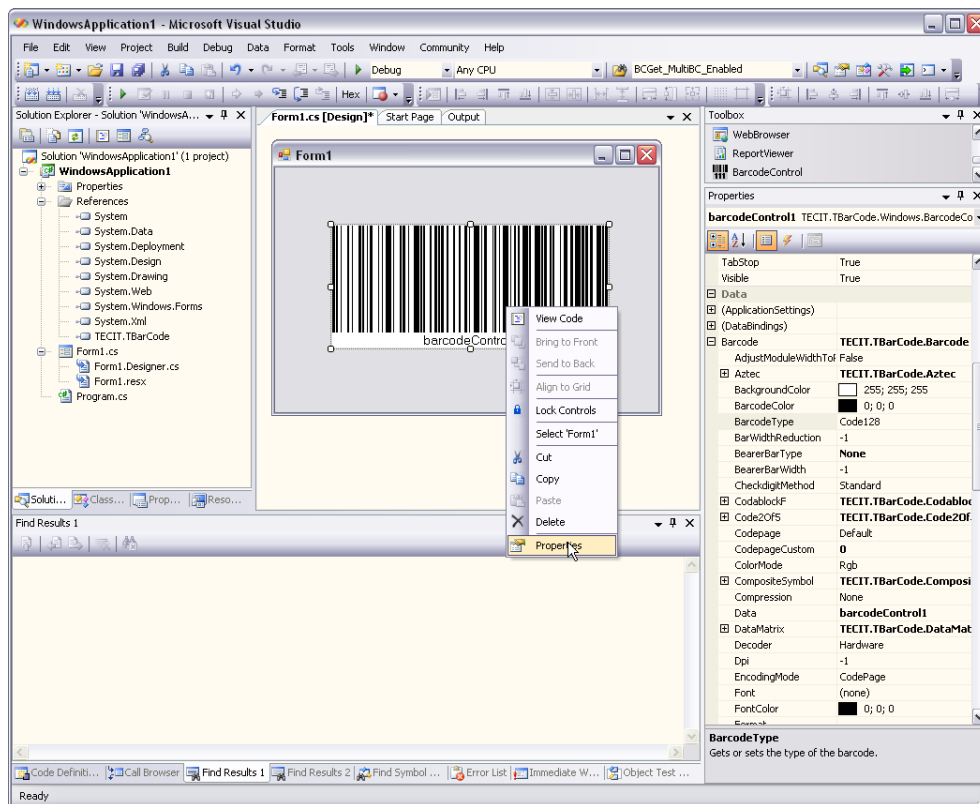


*Figure 5: Windows Form with Barcode Control.*

## 5.6  Finally – Run the application

You have to click *Start Debugging* ( ) to run the application.

## 5.7  More Information

More information about the *BarcodeControl* can be found in the „*TBarCode .NET 9.0 Developer Reference*". The Windows Form control is contained in the namespace *TECIT.TBarCode.Windows*.
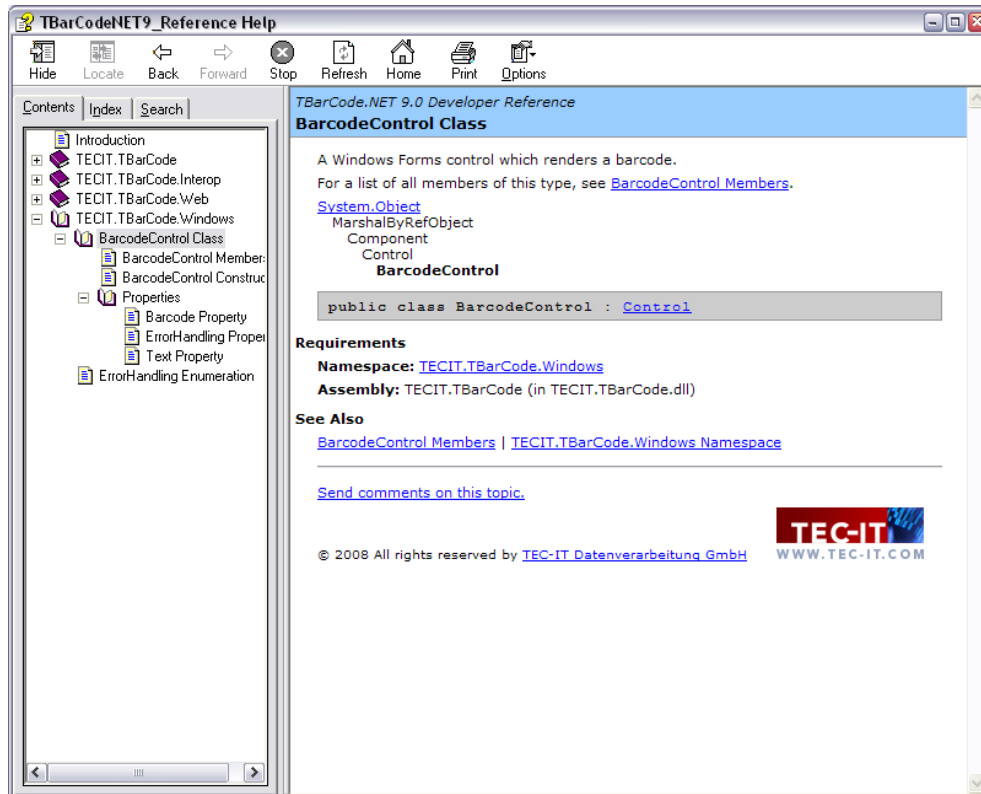
Figure 6: Screenshot of TBarCode .NET 9.0 Developer Reference.

# 6  Barcode Web-Control

## 6.1  Introduction

This chapter explains how to insert a barcode into an ASP.NET web site. **TBarCode** contains a web control called *BarcodeControl*, which can easily be added to any ASP.NET page.

Requirements to work through the tutorial:

- **TBarCode 9.0** installed.
- Visual Studio 2005 or a Visual Studio 2005 Express Edition or newer versions.
- Basic knowledge about any .NET language (VB.NET, C#, etc.)

## 6.2  Create/Open a Website

Start Visual Studio and open an existing ASP.NET web site or create a new web site:

1. Select *File ► New Web Site…*
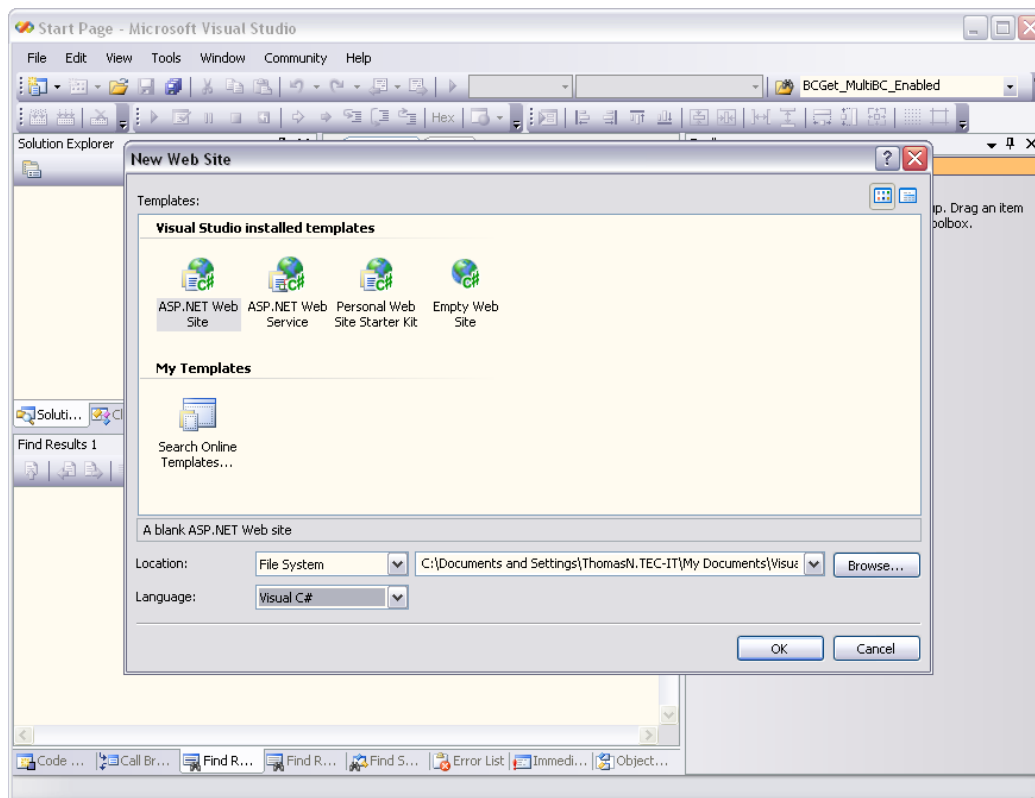2. Choose *ASP.NET Web Site* and click *OK*.



*Figure 7: Create a New Project*

## 6.3  Reference the Barcode Controls

To work with the barcode controls, you first need to add them into Visual Studio:

1. Open the Toolbox (🔧).
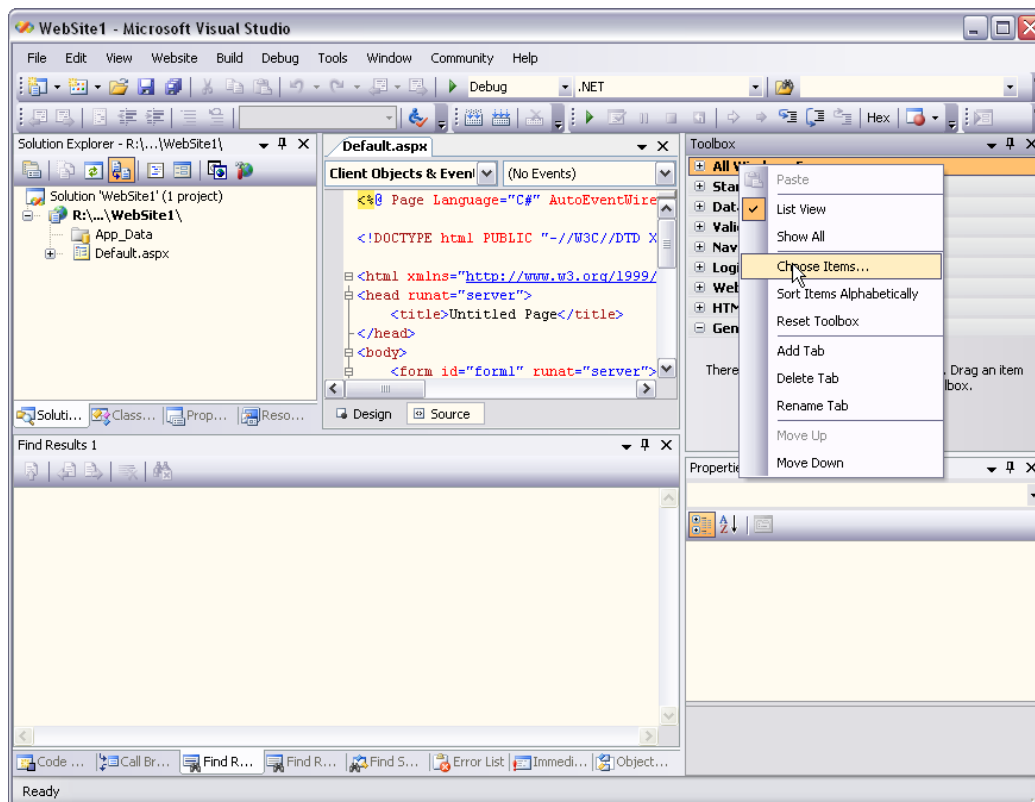2. Right-click *Standard* and select *Choose Items…*

Figure 8: The Toolbox Context Menu.

3.  In the *Choose Toolbox Items* dialog click the *Browse…* button.
4.  In the *Open* dialog navigate to *C:\Program Files\TEC-IT\TbarCode9\Bin* (or the path you have chosen during setup).
5.  Select *TECIT.TBarCode.dll* and click *Open*.
6.  Two new controls named *BarcodeControl* should show up in the *Choose Toolbox Items* dialog. Make sure they are checked and click *OK*.
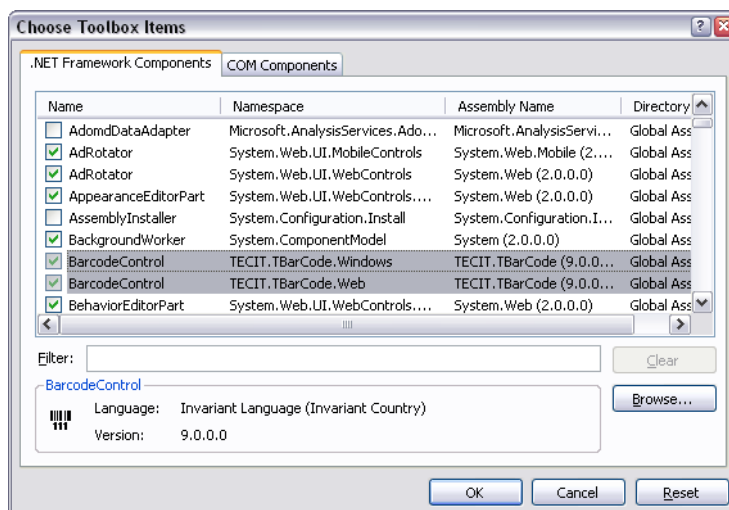


Figure 9: The Choose Toolbox Items Dialog with BarcodeControls.

## 6.4   Add Barcode to Form

Now, simply drag and drop the BarcodeControl from the Toolbox onto your ASPX page. A place-holder appears where the barcode will be rendered.
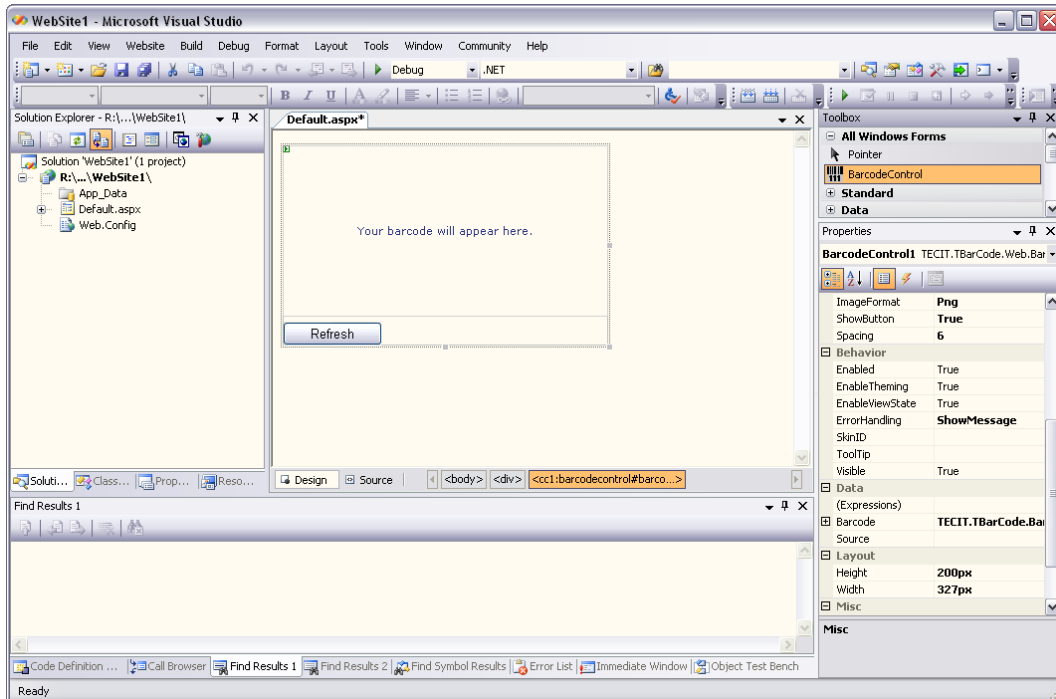


*Figure 10: BarcodeControl (Place-Holder) on ASPX page.*

## 6.5   Adjust Properties

The barcode placeholder is now visible on your ASPX page. You can change the appearance (position and size) in the design view.

To change more barcode properties:

1.   Right-click the barcode control and select Properties.
2.   Visual Studio's Properties dialog appears. In the Properties dialog you can adjust the barcode properties, such as barcode type, check digit method, module width, etc.
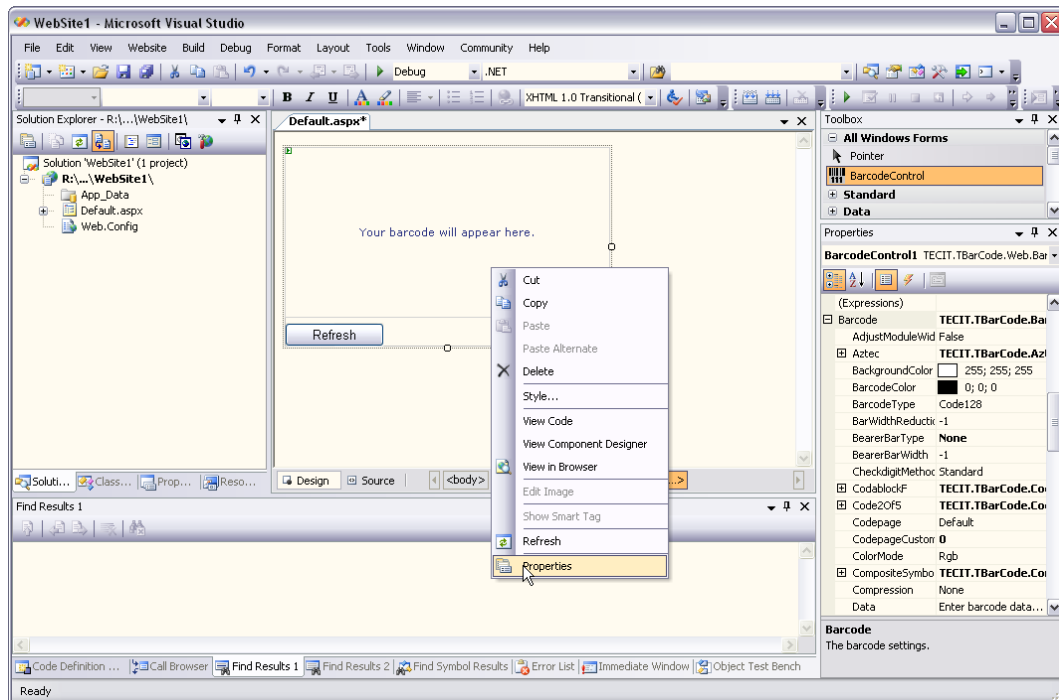
Figure 11: Properties of Barcode Control.

## 6.6   Finally – Preview Web Page in Browser

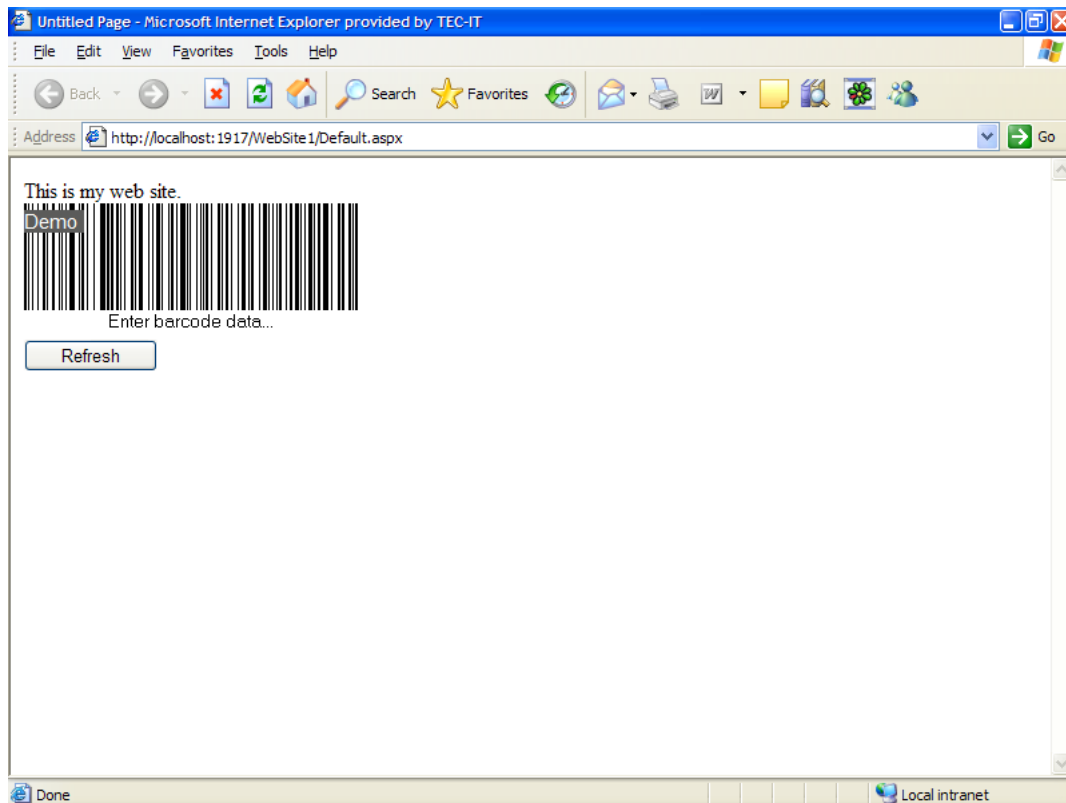Please click Start Debugging ( ) to preview the web page in the browser.


Figure 12: Web-Page with Barcode Control.

## 6.7 More Information

More information about the *BarcodeControl* can be found in the „*TBarCode .NET 9.0 Developer Reference*". The web control is contained in the namespace *TECIT.TBarCode.Windows*.
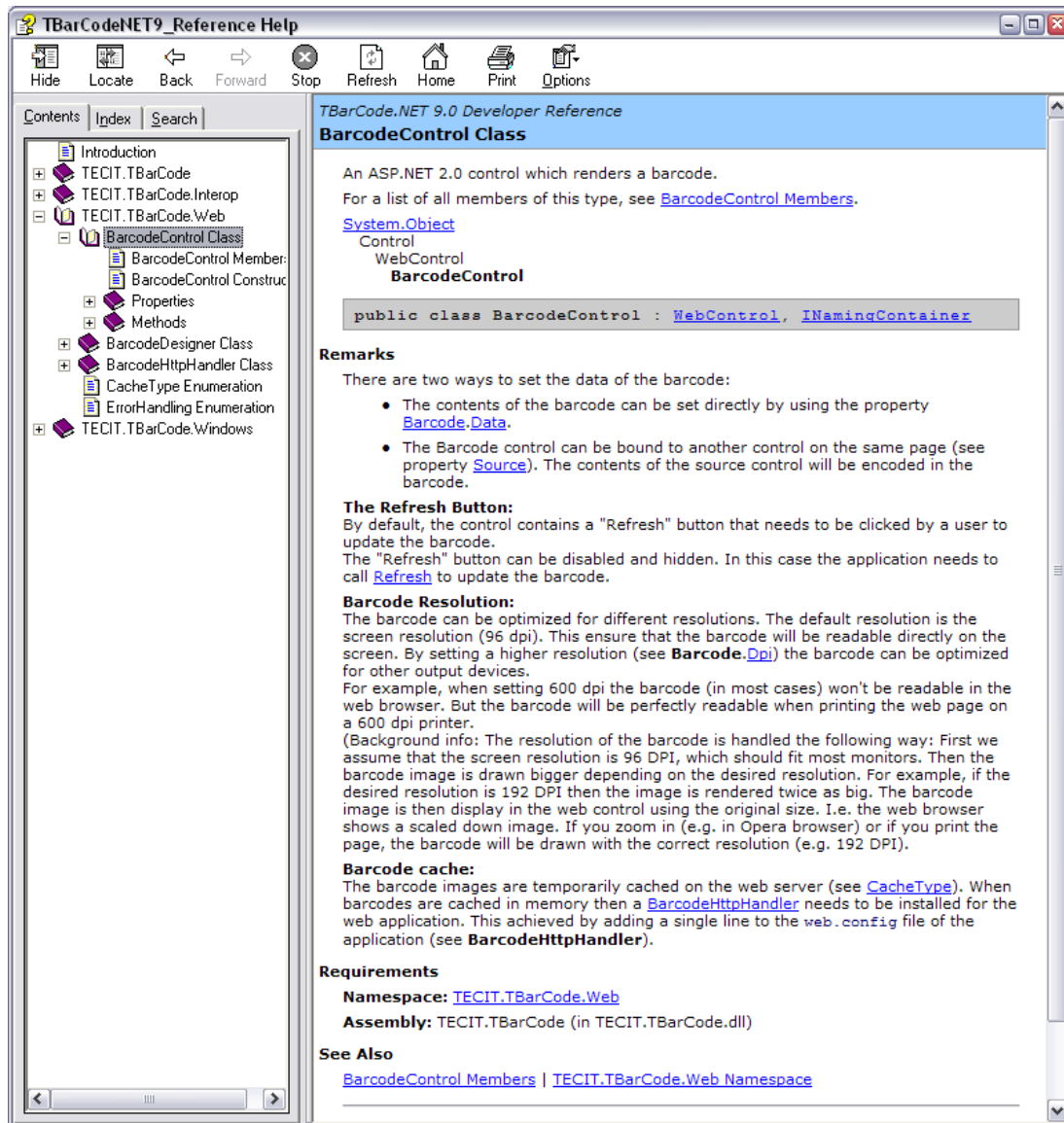


*Figure 13: Screenshot of TBarCode .NET 9.0 Developer Reference.*

# 7   Barcode Class

## 7.1   Introduction

**TBarCode** not only provides a Windows Form Control and a Web Control to generate barcodes. The core functions are implemented in the class *Barcode*. This class can be used to generate barcodes in any type of application (e.g. in a Windows Forms application, on web site, in console applications, etc.).

Here is a brief tutorial on how to render a barcode using the class *Barcode*.

Requirements to work through the tutorial:

- **TBarCode 9.0** installed.
- Visual Studio 2005 or a Visual Studio 2005 Express Edition or newer versions.
- Basic knowledge about the C# language.


## 7.2   Create a new Project

Start Visual Studio and create a new project:

1. Select *File ►New Project…*
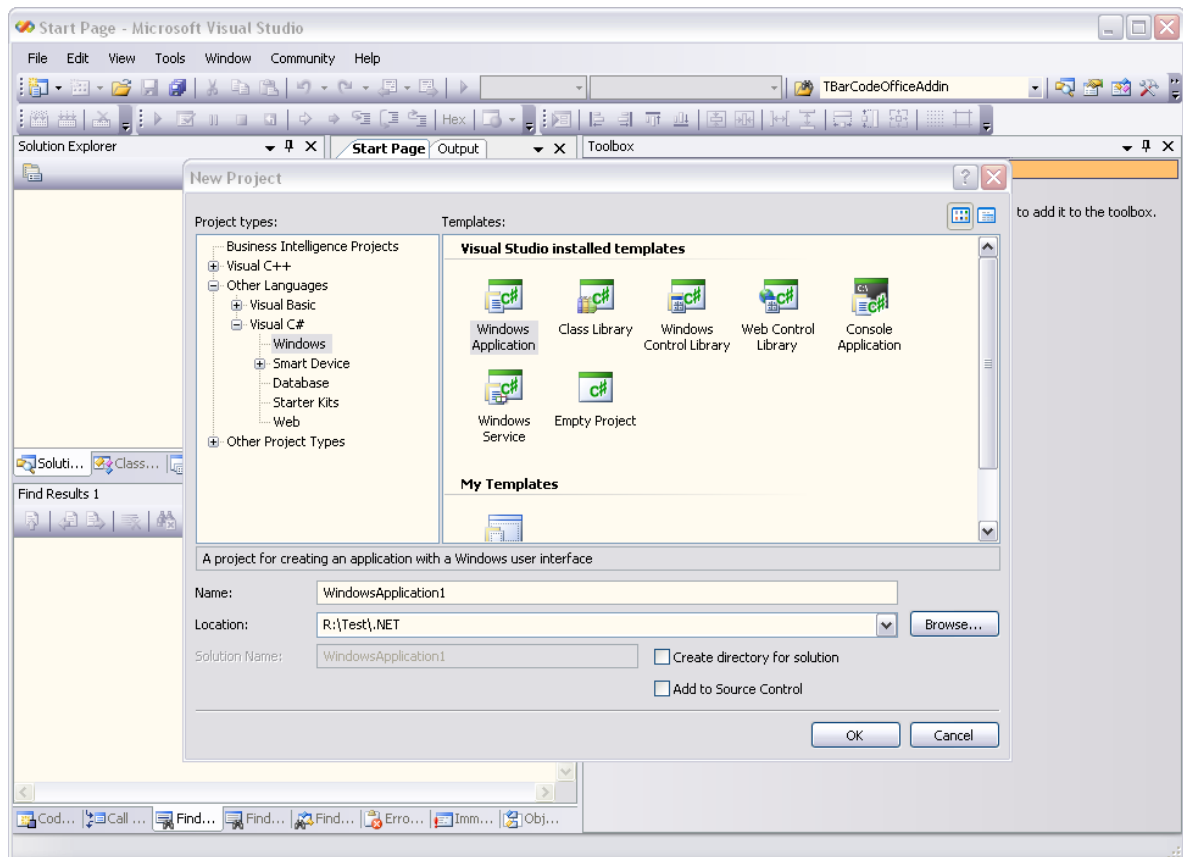2. Choose *Windows Application* and click *Ok*.



*Figure 14: Create a New Project*

## 7.3  Add Reference to TBarCode

In order to use the class Barcode, the project needs to reference the **TECIT.TBarCode.dll**:

1. In the *Solution Explorer* right-click *References* and choose *Add Reference…*
2. In the *Add Reference* dialog switch to the page *Browse*.
3. Navigate to the installation folder of **TBarCode** (usually *C:\Program Files\TEC-IT\TbarCode9\Bin*).
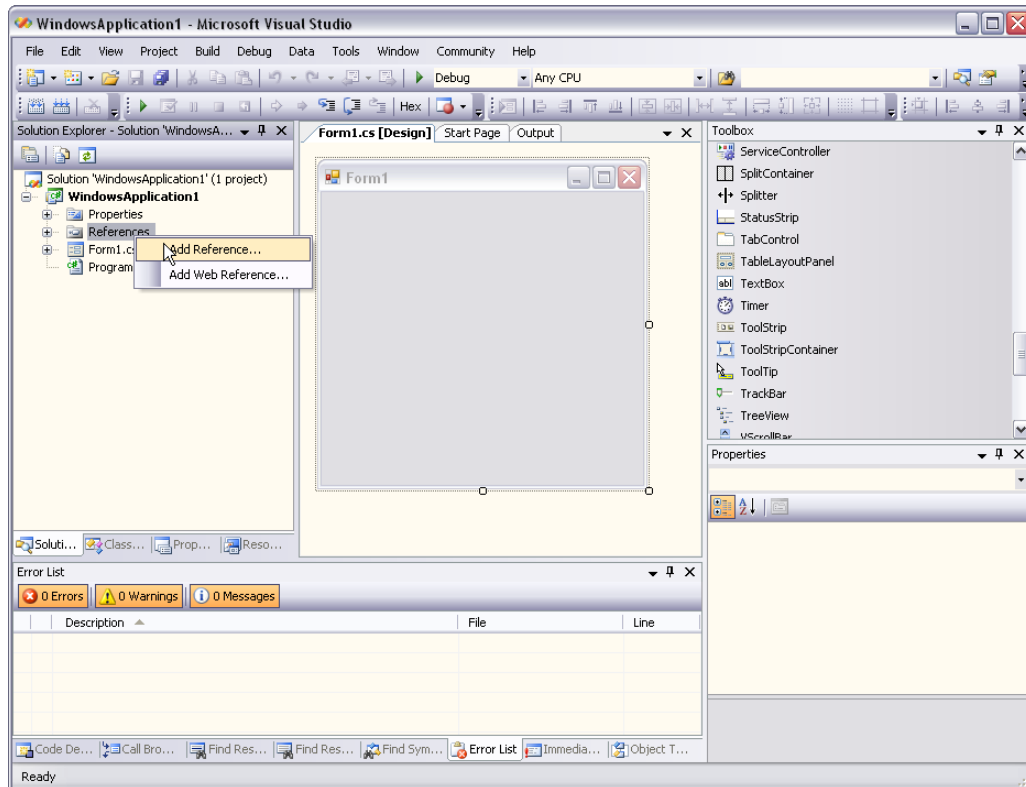4. Select **TECIT.TBarCode.dll** and click *OK*.
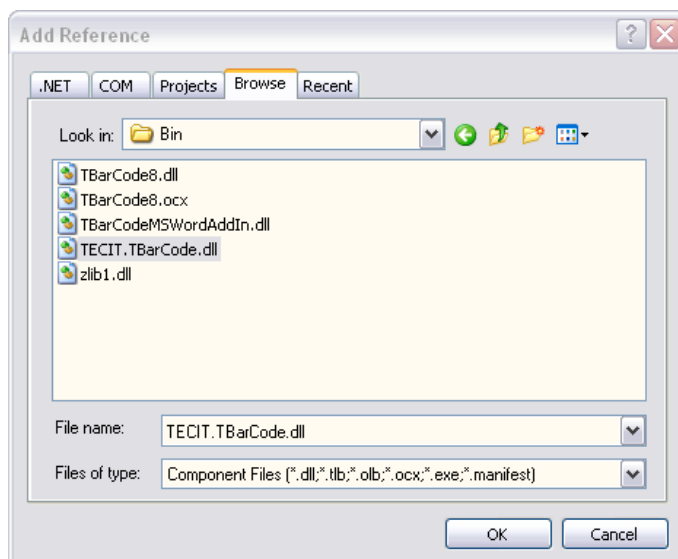

Figure 15: Add Reference in Solution Explorer


Figure 16: Add TECIT.TBarCode.dll as Reference

## 7.4    Render Barcodes

There are various ways to render a barcode using **TBarCode**. Here we will create a custom *Paint()*-method that draws a barcode.

### 7.4.1      Add Barcode Object

### 7.4.2      Write custom OnPaint-Method

1.   Right-click the form in Design View and select Properties.
2.   In the *Properties* dialog select Events ( ) and double-click *Paint* (in the category *Appearance*) to create a custom Paint-method.
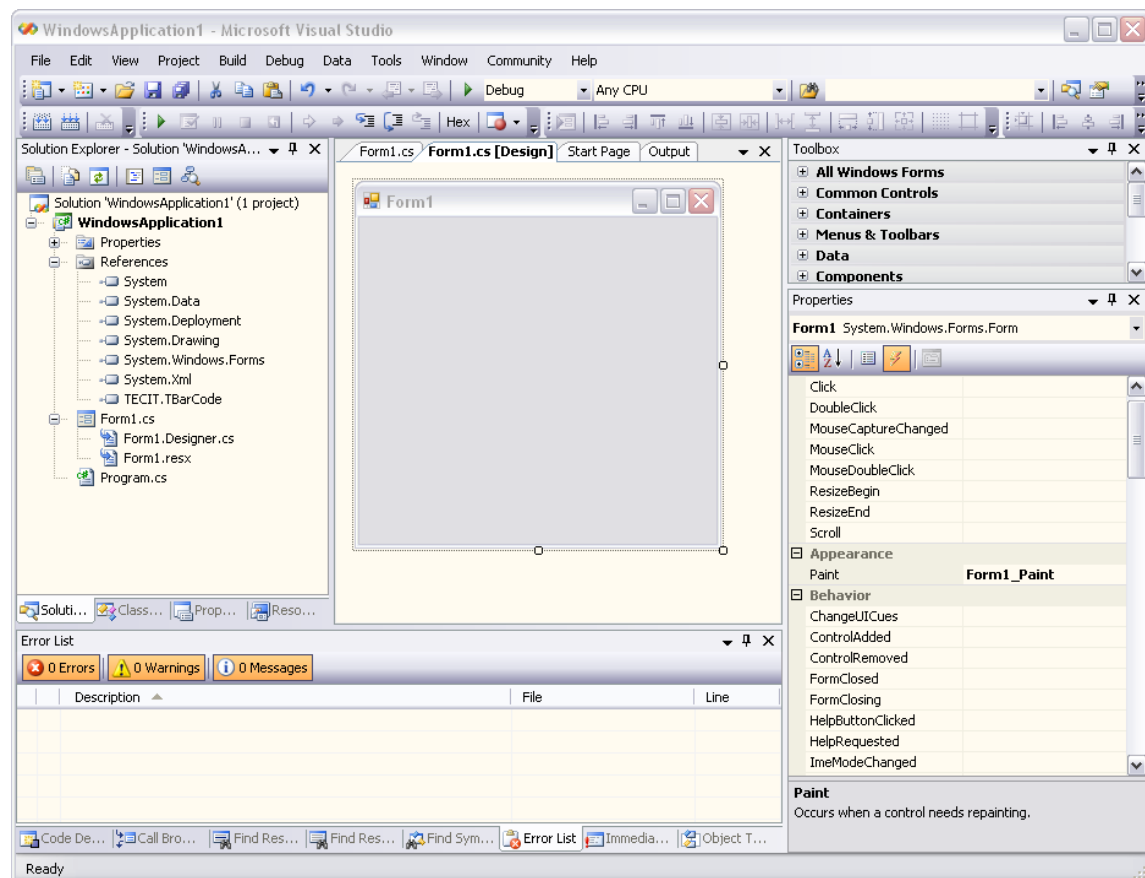

*Figure 17: Adding a Custom Paint-Event-Handler.*

3.   Now, we can use a Barcode object to render a barcode. Add the following lines of code (marked as **bold**):

```csharp
// C# Sample

using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Text;
using System.Windows.Forms;
using TECIT.TBarCode;

namespace WindowsApplication1
{
  public partial class Form1 : Form
  {
```

```csharp
    Barcode barcode;

    public Form1()
    {
      InitializeComponent();
      SetStyle(ControlStyles.ResizeRedraw, true);
      MinimumSize = new Size(100, 100);

      // Initialize barcode
      barcode = new Barcode();
      barcode.BarcodeType = BarcodeTypes.DataMatrix;
      barcode.Data = "Here is some random context for my sample barcode.";
    }

    private void Form1 Paint(object sender, PaintEventArgs e)
    {
      // Define the position and size of the barcode.
      Rectangle rectangle = this.ClientRectangle;
      rectangle.Inflate(-20, -20);
      barcode.BoundingRectangle = rectangle;

      // Draw the barcode
      barcode.Draw(e.Graphics);
    }
  }
}
```

In this sample we create a Data Matrix barcode, which is a 2-dimensional barcode variant.

## 7.5 Finally – Run the application

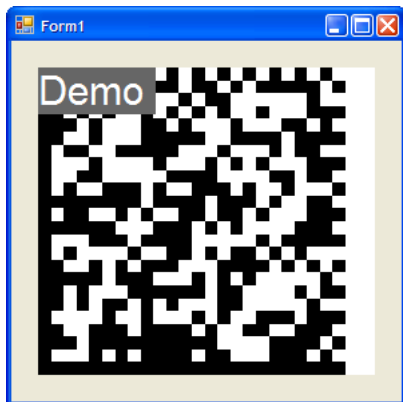Please click *Start Debugging* ( ▶ ) to run the application. The result can be seen in Figure 18.



*Figure 18: A Windows Form that renders a Barcode.*

## 7.6 More Information

More information about the *Barcode* class can be found in the "*TBarCode .NET 9.0 Developer Reference*". The class is contained in the namespace *TECIT.TBarCode*.
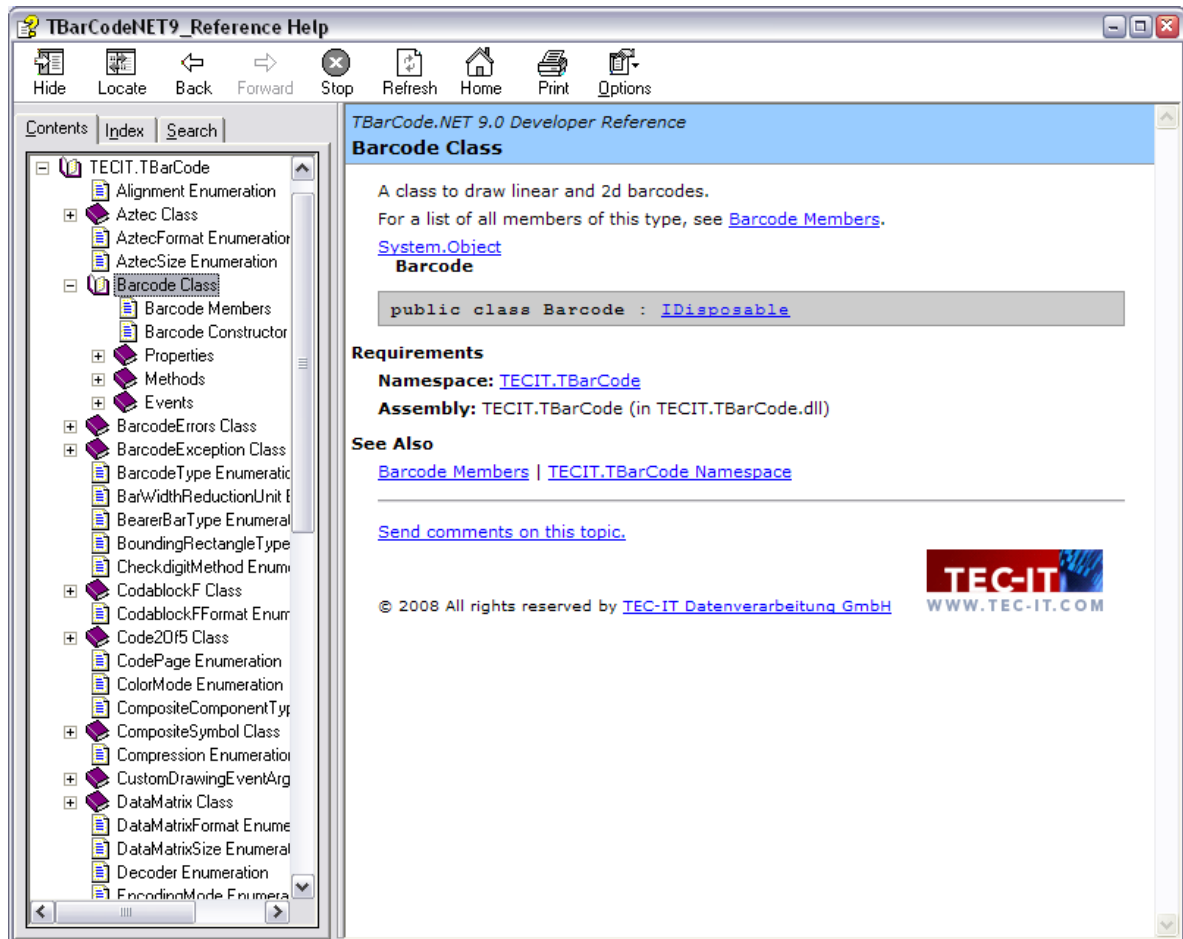


*Figure 19: Screenshot of TBarCode .NET 9.0 API Reference.*

# 8   How to license TBarCode

## 8.1   License Types

Please check out http://www.tec-it.com/order for available license types and pricing.

## 8.2   License TBarCode

Without a valid license an additional text "Demo" is drawn across the barcode as shown in Figure 20.

As soon as you have acquired a license, you can pass the license data to **TBarCode**, for example:

```
barcode.License("John Smith", LicenseType.DeveloperOrWeb, 1, "00000000",
                TBarCodeProduct.Barcode1D);
```

Alternatively, you can set the license by using the license-properties of the barcode object. For example:

```
barcode.Licensee = "John Smith";
barcode.LicenseType = LicenseType.DeveloperOrWeb;
barcode.LicenseCount = 1;
barcode.LicenseKey = "00000000";
barcode.LicensedProduct = TBarCodeProduct.Barcode1D;
```


*Figure 20: Barcode rendered **without** a valid License.(Demo mode)*


*Figure 21: Barcode rendered with a valid License.*

# 9   Redistributing TBarCode

This chapter explains what is important when redistributing a custom application that uses the **TBarCode** .NET controls.

## 9.1   Dependencies

A .NET application that uses **TBarCode** requires the following files:

- **TECIT.TBarCode.dll**
  This is a .NET assembly that contains the .NET controls. This file is mandatory.
- **TBarCode9.dll**
  This is a native Win32 library that performs barcode generation. This file is mandatory.
- **zlib1.dll**
  This is a 3$^{rd}$-party library that performs data compression. This file is optional. It is only required, when data compression in barcodes is enabled.

These files are located in the folder *C:\Program Files\TEC-IT\TbarCode9\Bin* (or in the folder you have chosen during setup).

Additionally the Visual C++ 2008 runtime components have to be installed on the computer. See next section how to distribute them with your application.

## 9.2   Redistribution

When redistributing a custom application the files described above need to be redistributed together with the application. The DLLs should be located in the same folder as the executable.

For web applications, the DLLs should be placed in the *bin* directory of the website.

Other files than those listed above must not be redistributed.

You may have to redistribute the **Visual C++ 2008 runtime components** (MS CRT9.0 DLLs) with your application and ensure they are installed on the target computer.

There are two options to install them:

- You can install these components with the *Microsoft Visual C++ 2008 Redistributable Package (x86)* available at
  http://www.microsoft.com/downloads/details.aspx?familyid=A5C84275-3B97-4AB7-A40D-3802B2AF5FC2&displaylang=en.
  The package installs all required runtime DLLs. The exact version of the required CRT Runtime DLLs is: *9.0.30729.4148.*
- If you use a setup tool and your installer supports merge modules (*.msm files) you can add the required msm packages to your setup:
  - *Microsoft_VC90_CRT_x86.msm*
  - *policy_9_0_Microsoft_VC90_CRT_x86.msm*

Please contact TEC-IT Support if you need assistance.

# 10 Contact and Support Information

**TEC-IT Datenverarbeitung GmbH**

Address: Wagnerstr. 6
AT-4400 Steyr
Austria/Europe

Phone: +43 / (0)7252 / 72 72 0

Fax: +43 / (0)7252 / 72 72 0 – 77

Email: office@tec-it.com

Web: http://www.tec-it.com

# Appendix A: Related Downloads

## A.1    Barcode Reference

The document "*Barcode Reference*" provides an overview over supported barcode types and gives additional information on how to use them.

The following issues are discussed:

- Supported barcode symbologies (with detailed information on each barcode type)
- Check digits (general information and available check digits methods)
- Print ratio and ratio hints (or Ratio Format)
- Format strings
- Escape sequences and control characters
- Application Identifiers
- MaxiCode and UPS standards

The *Barcode Reference* is available as separate document on the TEC-IT web-site http://www.tec-it.com ► Support ► Knowledge Base

The direct URL is as follows:

http://www.tec-it.com/download/PDF/Barcode_Reference_EN.pdf.

## A.2    Samples

TEC-IT provides a number of sample applications which allow customers to start with the development of their own applications and/or documents as fast as possible.

Sample applications are included in the **TBarCode9** setup (Start Menu: *TEC-IT TBarCode 9* ► *Examples)* or can be downloaded from the TEC-IT web site http://www.tec-it.com (download area).

> ►    Make sure **TBarCode** was installed before trying to run any sample application!

## A.3    User Manual

For user of Microsoft Office one additional document Is provided:

- User Manual
  A description on how to use **TBarCode OCX** (the Microsoft ActiveX compliant Barcode Control) in applications which are part of Microsoft Office. Microsoft Word, Microsoft Excel, Microsoft Access and Microsoft InfoPath are discussed
- API Reference
  A detailed description of the **TBarCode** interface (methods, properties, enumerations and events).

These documents are included in the setup (Start Menu: *TEC-IT TBarCode 9* ► *Manuals).*