

The Developer's Guide to

# Asprise OCR SDK 4.0

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# 1 Introduction

## 1.1 About OCR

OCR (Optical Character Recognition) is the technology that allows you to transform images (e.g., images scanned from paper documents) into editable text-based computer files.

## 1.2 About Asprise OCR SDK

Embedded a high performance OCR engine, Asprise OCR SDK is OCR software development kit that can be used with VB, VB.NET, VC++, VC.NET, C#, Java, .Net, Borland C, Delphi, etc.

## 1.3 Features of Asprise OCR

An incomplete list of features offered by Asprise OCR:

### **Highest Level of Accuracy**

Asprise OCR can easily recognize difficult documents of poor image quality;

### **Excellent Format Retention**

Text layouts on the input documents are preserved;

### **High Speed**

Asprise OCR uses optimized OCR engine to perform excellent recognition in very short time;

### **Ease of Use**

We strive to make the developer's life easier. Complex parameter configurations are removed from Asprise OCR SDK. You only have to supply the image document. Asprise OCR can intelligently determine the best setting internally.

### **Barcode Recognition**

Beside characters (letters and numbers), Asprise OCR can recognize almost every kind

of bar code. You can choose to recognize barcode or characters or both. Currently, the following bar code formats are supported:

- CODE 128 (128b, 128C, 128raw)
- EAN 8 EAN 13
- UPC
- code 3 of 9
- code interleaved 2 of 5

## 1.4 Components of Asprise OCR SDK

Asprise OCR SDK comprises two main essential components:

- A set of library files, including the dll files, lib files, and header files.
- one sample application in a particular language/framework.

## 1.5 Compatibility of Asprise OCR SDK

Currently the following OS are supported:

OS	Evaluation version availability	Licensed version availability
Windows XP 32bit	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)
Windows XP 64bit	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)
Windows Vista 32bit	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)
Windows Vista 64bit	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)
Windows Server 32bit	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)
Windows Server 64bit	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)	<b>Yes</b> (Java, VB, C, C++, VB.NET & C#)
MacOS X PowerPC	<b>Yes</b> (Java & command line tool)	<b>Yes</b> (Java & command line tool)
MacOS X Intel	<b>Yes</b> (Java & command line tool)	<b>Yes</b> (Java & command line tool)

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Linux 32bit	<b>Yes</b> (Java & command line tool)	<b>Yes</b> (Java & command line tool)
Linux 64bit	<b>Yes</b> (Java & command line tool)	<b>Yes</b> (Java & command line tool)
Solaris SPARC	<b>Yes</b> (Java & command line tool)	<b>Yes</b> (Java & command line tool)
Solaris x86	<b>Yes</b> (Java & command line tool)	<b>Yes</b> (Java & command line tool)
AIX	<b>No</b> (Please evaluate on other platforms)	<b>Yes</b> (Java & command line tool)
HP-UX	<b>No</b> (Please evaluate on other platforms)	<b>Yes</b> (Java & command line tool)

---

## 2 Asprise OCR SDK Installation

In order to use Asprise OCR functions, you have to install Asprise OCR SDK correctly.

Installing Asprise OCR SDK comprises the following steps:

1. Download Asprise OCR SDK from <http://www.asprise.com/product/ocr>. You can choose the SDK matching your desired programming language.
2. Unzip the SDK to a directory. From now on, the unzipped directory is referred to as the "OCR\_ROOT" directory of the Asprise OCR SDK.
3. *For Windows only:* Copy the three dll files from the OCR\_ROOT folder to any of the folders in %PATH%, e.g. C:\Windows\System32.
4. Validate your installation by running the executable in OCR\_ROOT.

Now, you have successfully installed Asprise OCR SDK for your desired programming languages.

## 3 Development Environment Setup

This section explains software development environment setup for each programming language supported.

### 3.1 Java

[No particular environment setup is required.]

### 3.2 Visual Basic 6

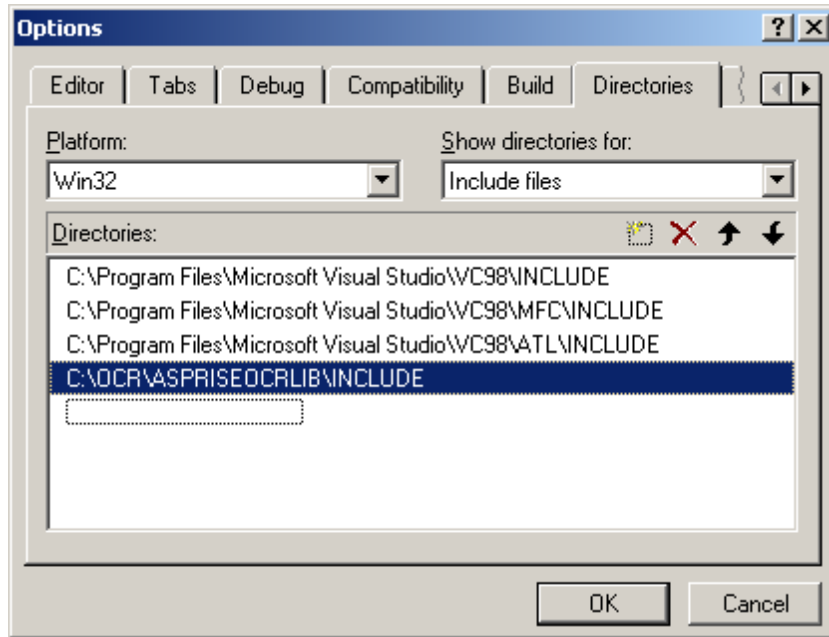
[No particular environment setup is required.]

### 3.3 Visual Basic.NET

[No particular environment setup is required.]

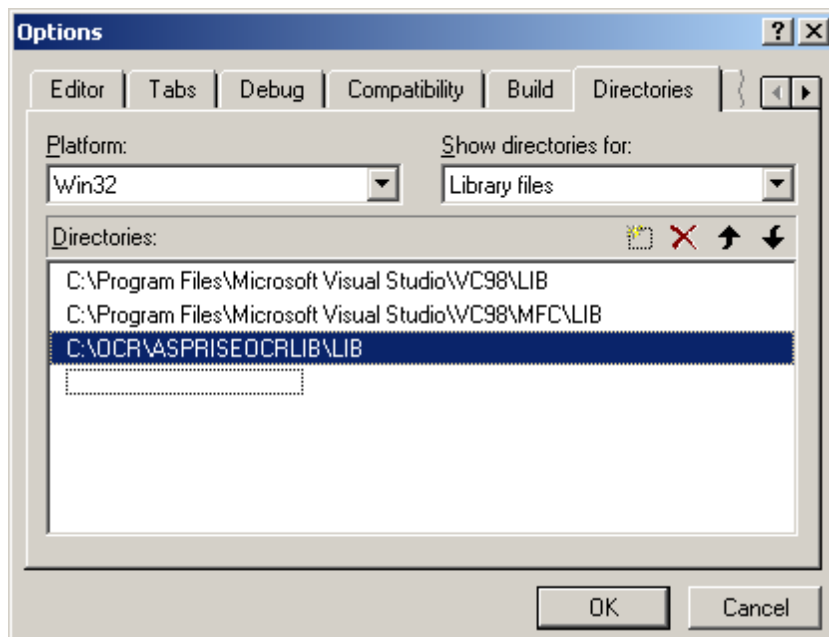
### 3.4 Visual C++ & Borland C++ Builder

**Step 1: Add OCR\_ROOT\AspriseOCRLib\include folder into your IDE's include path.** For VC++ IDE, click the menu Tools -> Options, and select Directories tab as shown below:



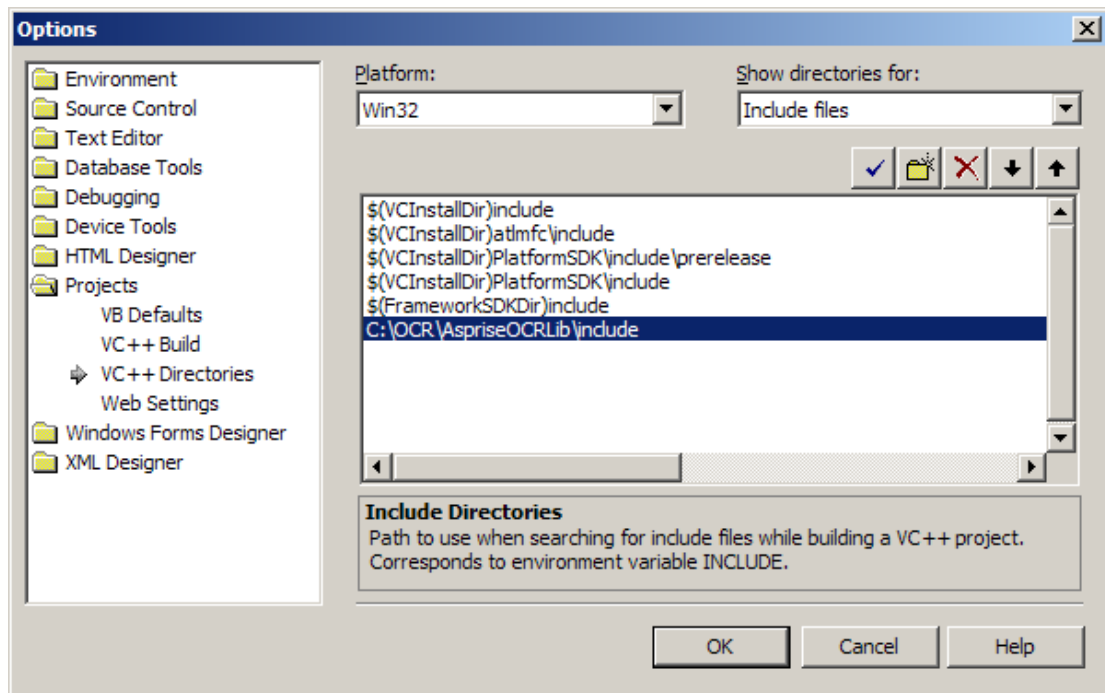
In above sample, the OCR\_ROOT directory is C:\OCR.

**Step 2: Add OCR\_ROOT\AspriseOCRLib\lib to your IDE's library directory.** The figure belows shows the VC++ setting:



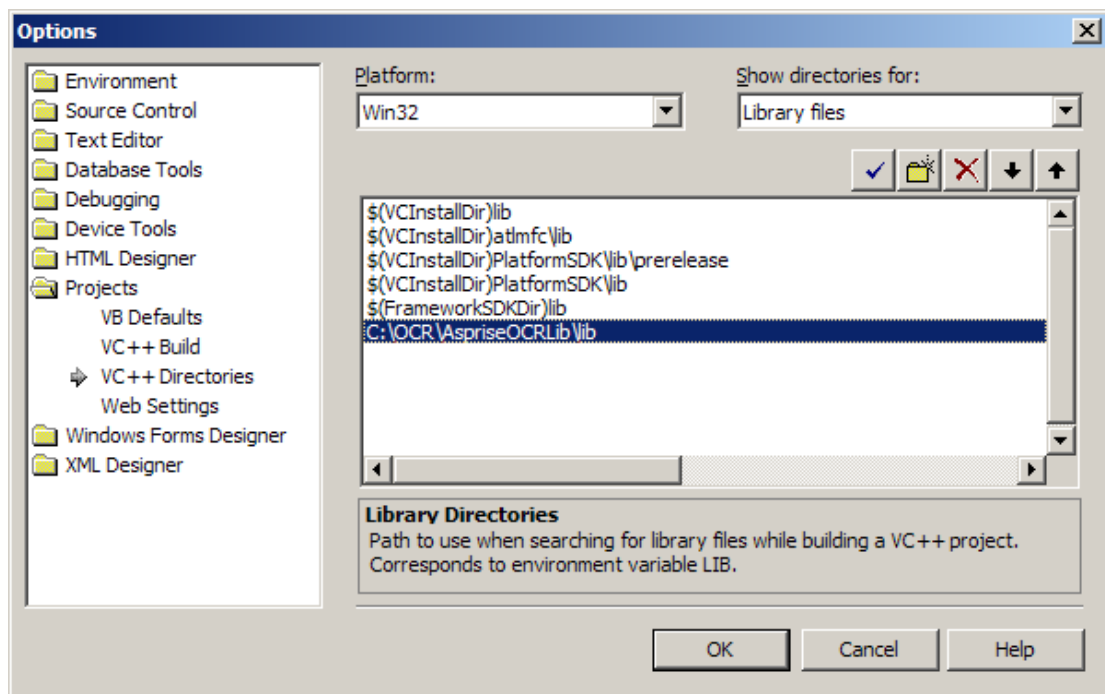
## 3.5 Visual C++.NET

**Step 1: Add OCR\_ROOT\AspriseOCRLib\include folder into your IDE's include path.** For VC++.NET IDE, click the menu Tools -> Options, and select Projects -> VC++ directories in the left panel as shown below:



In above sample, the OCR\_ROOT directory is C:\OCR.

**Step 2: Add OCR\_ROOT\AspriseOCRLib\lib to your IDE's library directory.** The figure below shows the VC++.NET setting:



## 3.6 .NET, C#

[No particular environment setup is required.]

## 4 Introduction to Asprise OCR API for C/C++/C#/VB/VB.NET/C#.NET

This section explains all the functions that you can use to perform various OCR tasks.

Asprise OCR exposes the following functions that enable you to perform OCR:

### [string] OCR([string] imagePath, [int] imageFileType)

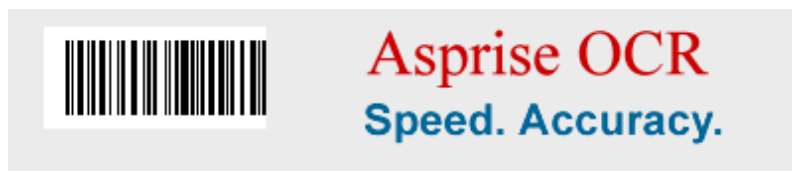
Note that [string] and [int] are string type and 32-bit integer type, which vary across different languages.

This function performs OCR on the specified image and returns the text recognized as a string. You pass the file path to the image to be recognized in the first argument and the image file type in the second argument. If you are unsure about the image file type or you want Asprise OCR detect it automatically, you can simply put '-1' in the second argument. Asprise OCR supports a wide range of image types. Image file types supported are listed in the table below. However, usually, you can pass image type as '-1' to let the system detect the image type automatically.

imageFileType (int) [Hex values]	File Extensions	Remarks
0x0420	.bmp	Windows bitmap
0x0421	.cut	Dr. Halo Cut File
0x0422	.doom	
0x0424	.ico	Icons
0x0425	.jpg, .jpeg	Jpeg
0x0426	.lbm	Interlaced bitmap
0x0427	.pcd	PhotoCD
0x0428	.pcx	
0x0429	.pic	PIC
0x042A	.png	Portable Network Graphics
0x042B	.pnm, .pbm	PNM

0x042C	.sgi	Silicon Graphics
0x042D	.tga	Targa
0x042E	.tif, .tiff	Tiff
0x042F	.thead	CHEAD
0x0430	.raw	RAW
0x0431	.mdl	Half life model
0x0432	.wal	Quake 2
0x0434	.lif	Homeworld file
0x0435	.mng	Mng animation
0x0435	.jng	JNG
0x0436	.gif	GIF
0x0437	.dds	DDS
0x0438	.dcx	DCX
0x0439	.psd	Photosh
0x043A	.exif	EXIF
0x043B	.psp	PSP
0x043C	.pix	PIX
0x043D	.pxr	PXR
0x043E	.xpm	XPM
-1	*	System auto detect.

For example, for the following image: (C:\ocr.gif): [This image is available at OCR\_ROOT\sampleImages]



Function call: OCR("C:\ocr.gif", -1) returns the following text:

```
[123456789012]
Asprise OCR
Speed. Accuracy.
```

Note that '[123456789012]' represents the bar code detected. The content of the barcode is '123456789012'.

**[string] OCRpart([string] imagePath, [int] imageFileType, [int] startX, [int] startY, [int] width, [int] height)**

Performs OCR on part of the image only. The coordinate of the upper left corner of the area to be OCRed is (startX, startY). The width and height of this area is width and height, respectively.

For example, function call `OCR("C:\ocr.gif", -1, 0, 0, 300, 85)` returns the following:

```
[123456789012]
Asprise C
Speed. Acc
```

Note that the image size for `C:\ocr.gif` is (400, 85).

**[string] OCRBarCodes([string] imagePath, [int] imageFileType)**

This function performs OCR on the given image and returns all the bar codes. If there is more than one bar code, each bar code is separated with a line break ('\r\n').

Eg.

`OCRBarCodes("C:\ocr.gif", -1)` returns:

```
123456789012
```

**[string] OCRpartBarCodes([string] imagePath, [int] imageFileType, [int] startX, [int] startY, [int] width, [int] height)**

This function performs OCR on the specified part of the given image and returns all the bar codes detected. If there is more than one bar code, each bar code is separated with a line break ('\r\n').

Eg.

OCRpartBarCodes("[C:\ocr.gif](#)", -1, 0, 0, 200, 80) returns:

123456789012

## Subimages/Pages

Some image files may contain multiple subimages or pages, for example, TIFF files. In this case, Asprise OCR performs OCR on all the subimages/pages and returns all the text recognized. Text recognized from different pages are separated with '\r\n\* \* \* \r\n'.

## 5 OCR Programming with Visual Basic 6

OCR programming with Visual Basic 6 comprises of two steps:

- Declared the exposed functions by Asprise OCR;
- Call these functions to perform your desired OCR tasks.

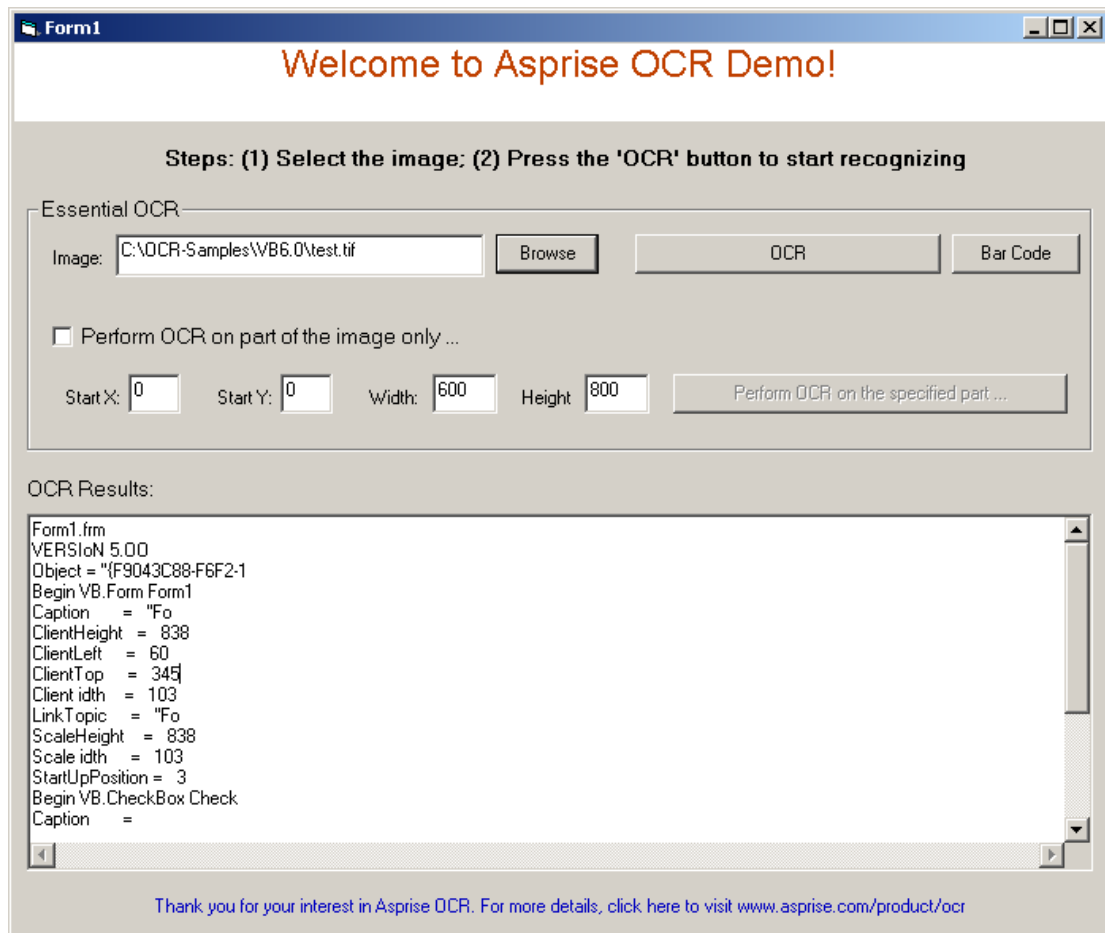
First, you need to declare the following functions exposed from the dll:

```
1 Private Declare Function OCR Lib "AspriseOCR.dll" (ByVal file As String, ByVal imageType As Long) As String
2 Private Declare Function OCRBarCodes Lib "AspriseOCR.dll" (ByVal file As String, ByVal imageType As Long) As String
3 Private Declare Function OCRpart Lib "AspriseOCR.dll" (ByVal file As String, ByVal imageType As Long, ByVal startX As Long, ByVal startY As Long, ByVal width As Long, ByVal height As Long) As String
```

Then you can start to call these functions:

```
Private Sub Command2_Click()
    Dim ret As String
    ret = OCR("C:\\ocr.gif", -1)
End Sub
```

The code below shows a completed VB OCR demo application as shown in the figure.



Code listing:

```

1  VERSION 5.00
2  Object = "{F9043C88-F6F2-101A-A3C9-08002B2F49FB}#1.2#0";
   "COMDLG32.OCX"
3  Begin VB.Form Form1
4  Caption = "Form1"
5  ClientHeight = 8385
6  ClientLeft = 60
7  ClientTop = 345
8  ClientWidth = 10335
9  LinkTopic = "Form1"
10 ScaleHeight = 8385
11 ScaleWidth = 10335
12 StartUpPosition = 3 'Windows Default
13 Begin VB.CheckBox Check1
14 Caption = "Perform OCR on part of the image only ..."
15 BeginProperty Font
16 Name = "MS Sans Serif"
17 Size = 9.75
18 Charset = 0
19 Weight = 400
20 Underline = 0 'False
21 Italic = 0 'False
22 Strikethrough = 0 'False
23 EndProperty

```

```
24 Height = 495
25 Left = 360
26 TabIndex = 18
27 Top = 2520
28 Width = 4095
29 End
30 Begin VB.CommandButton Command4
31 Caption = "Perform OCR on the specified part ..."
32 Height = 375
33 Left = 6240
34 TabIndex = 16
35 Top = 3120
36 Width = 3735
37 End
38 Begin VB.TextBox X
39 Height = 375
40 Left = 1080
41 TabIndex = 12
42 Text = "0"
43 Top = 3120
44 Width = 495
45 End
46 Begin VB.CommandButton Command3
47 Caption = "Bar Code"
48 Height = 375
49 Left = 8880
50 TabIndex = 4
51 Top = 1800
52 Width = 1215
53 End
54 Begin VB.CommandButton Command2
55 Caption = "OCR"
56 Height = 375
57 Left = 5880
58 TabIndex = 3
59 Top = 1800
60 Width = 2895
61 End
62 Begin VB.TextBox textPath
63 Height = 405
64 Left = 960
65 TabIndex = 2
66 Top = 1800
67 Width = 3495
68 End
69 Begin MSComDlg.CommonDialog dlgOpenFile
70 Left = 8040
71 Top = 2160
72 _ExtentX = 847
73 _ExtentY = 847
74 _Version = 393216
75 End
76 Begin VB.TextBox text
77 Height = 3375
78 Left = 120
79 MultiLine = -1 'True
80 ScrollBars = 3 'Both
```

```
81 TabIndex = 1
82 Top = 4440
83 Width = 10095
84 End
85 Begin VB.CommandButton Command1
86 Caption = "Browse"
87 Default = -1 'True
88 Height = 375
89 Left = 4560
90 TabIndex = 0
91 Top = 1800
92 Width = 975
93 End
94 Begin VB.Frame Frame1
95 Caption = "Essential OCR"
96 BeginProperty Font
97 Name = "MS Sans Serif"
98 Size = 9.75
99 Charset = 0
100 Weight = 400
101 Underline = 0 'False
102 Italic = 0 'False
103 Strikethrough = 0 'False
104 EndProperty
105 Height = 2415
106 Left = 120
107 TabIndex = 5
108 Top = 1440
109 Width = 10095
110 Begin VB.TextBox H
111 Height = 375
112 Left = 5280
113 TabIndex = 15
114 Top = 1680
115 Width = 615
116 End
117 Begin VB.TextBox W
118 Height = 375
119 Left = 3840
120 TabIndex = 14
121 Top = 1680
122 Width = 615
123 End
124 Begin VB.TextBox Y
125 Height = 375
126 Left = 2400
127 TabIndex = 13
128 Text = "0"
129 Top = 1680
130 Width = 495
131 End
132 Begin VB.Label Label6
133 Caption = "Height"
134 Height = 375
135 Left = 4680
136 TabIndex = 11
137 Top = 1800
```

```
138 Width = 735
139 End
140 Begin VB.Label Label5
141 Caption = "Width: "
142 Height = 375
143 Left = 3240
144 TabIndex = 10
145 Top = 1800
146 Width = 735
147 End
148 Begin VB.Label Label4
149 Caption = "Start Y: "
150 Height = 375
151 Left = 1800
152 TabIndex = 9
153 Top = 1800
154 Width = 735
155 End
156 Begin VB.Label Label3
157 Caption = "Start X: "
158 Height = 375
159 Left = 360
160 TabIndex = 8
161 Top = 1800
162 Width = 735
163 End
164 Begin VB.Label Label1
165 Caption = "Image: "
166 Height = 255
167 Left = 240
168 TabIndex = 6
169 Top = 480
170 Width = 975
171 End
172 End
173 Begin VB.Label Label9
174 Caption = "OCR Results: "
175 BeginProperty Font
176 Name = "MS Sans Serif"
177 Size = 9.75
178 Charset = 0
179 Weight = 400
180 Underline = 0 'False
181 Italic = 0 'False
182 Strikethrough = 0 'False
183 EndProperty
184 Height = 255
185 Left = 120
186 TabIndex = 20
187 Top = 4080
188 Width = 1575
189 End
190 Begin VB.Label Label8
191 Alignment = 2 'Center
192 Caption = "Thank you for your interest in Asprise OCR. For more
    details, click here to visit www.asprise.com/product/ocr"
193 ForeColor = &H00C00000&
```

```
194 Height = 375
195 Left = 0
196 TabIndex = 19
197 Top = 8040
198 Width = 10335
199 End
200 Begin VB.Label Label7
201 Alignment = 2 'Center
202 Caption = "Steps: (1) Select the image; (2) Press the 'OCR'
    button to start recognizing"
203 BeginProperty Font
204 Name = "MS Sans Serif"
205 Size = 9.75
206 Charset = 0
207 Weight = 700
208 Underline = 0 'False
209 Italic = 0 'False
210 Strikethrough = 0 'False
211 EndProperty
212 Height = 375
213 Left = 240
214 TabIndex = 17
215 Top = 960
216 Width = 9975
217 End
218 Begin VB.Label Label2
219 Alignment = 2 'Center
220 BackColor = &H80000009&
221 Caption = "Welcome to Asprise OCR Demo!"
222 BeginProperty Font
223 Name = "Arial"
224 Size = 18
225 Charset = 0
226 Weight = 400
227 Underline = 0 'False
228 Italic = 0 'False
229 Strikethrough = 0 'False
230 EndProperty
231 ForeColor = &H000040C0&
232 Height = 735
233 Left = 0
234 TabIndex = 7
235 Top = 0
236 Width = 10335
237 End
238 End
239 Attribute VB_Name = "Form1"
240 Attribute VB_GlobalNameSpace = False
241 Attribute VB_Creatable = False
242 Attribute VB_PredeclaredId = True
243 Attribute VB_Exposed = False
244 'Option Explicit
245
246 Private Declare Function OCR Lib "AspriseOCR.dll" (ByVal file As
    String, ByVal imageType As Long) As String
247 Private Declare Function OCRBarCodes Lib "AspriseOCR.dll" (ByVal
    file As String, ByVal imageType As Long) As String
```

```
248 Private Declare Function OCRpart Lib "AspriseOCR.dll" (ByVal file
    As String, ByVal imageType As Long, ByVal startX As Long, ByVal
    startY As Long, ByVal width As Long, ByVal height As Long) As
    String
249
250
251
252 Private Sub Check1_Click()
253 If Check1.Value = Checked Then
254 Command4.Enabled = True
255 Else
256 Command4.Enabled = False
257 End If
258 End Sub
259
260 Private Sub Command1_Click()
261
262 Dim fnum As Integer
263
264 On Error Resume Next
265 dlgOpenFile.ShowOpen
266 If Err.Number = cdlCancel Then
267 ' The user canceled.
268 Exit Sub
269 ElseIf Err.Number <> 0 Then
270 ' Unknown error.
271 MsgBox "Error " & Format$(Err.Number) & _
272 " selecting file." & vbCrLf & _
273 Err.Description
274 Exit Sub
275 End If
276 On Error GoTo 0
277
278 ' Read the file.
279 'fnum = FreeFile
280 'Open dlgOpenFile.FileName For Input As #fnum
281 'text.text = Input$(LOF(fnum), fnum)
282 'Close #fnum
283
284 textPath.text = dlgOpenFile.FileName
285
286 End Sub
287
288 Private Sub Command2_Click()
289 Dim ret As String
290 ret = OCR(textPath.text, -1)
291 text.text = ret
292 End Sub
293
294 Private Sub Command3_Click()
295 Dim ret As String
296 ret = OCRBarCodes(textPath.text, -1)
297 text.text = ret
298 End Sub
299
300 Private Sub Command4_Click()
301 Dim ret As String
```

```
302 ret = OCRpart(textPath.text, -1, CLng(X.text), CLng(Y.text),  
    CLng(W.text), CLng(H.text))  
303 text.text = ret  
304 End Sub  
305  
306 Private Sub Form_Load()  
307 dlgOpenFile.InitDir = App.Path  
308 dlgOpenFile.DialogTitle = "Open File"  
309 dlgOpenFile.Flags = _  
310 cdlOFNFileMustExist + _  
311 cdlOFNHideReadOnly + _  
312 cdlOFNLongNames + _  
313 cdlOFNExplorer  
314 dlgOpenFile.CancelError = True  
315 Command4.Enabled = False  
316 End Sub  
317  
318 Private Sub Label8_Click()  
319 Set oIE = CreateObject("InternetExplorer.Application")  
320 oIE.Visible = True  
321 oIE.Navigate ("http://asprise.com/product/ocr/")  
322 End Sub
```

The file containing the above code is located at OCR\_ROOT\sampleApp.

## Bad calling convention error

If you encounter bad calling convention error, please use the wrapper in OCR\_ROOT\OCR\_VB\_wrapper. Sample code is included in the wrapper.

The wrapper works for both the evaluation version as well as the licensed version of Asprise OCR.

## 6 OCR Programming with Visual Basic.NET

OCR programming with Visual Basic.NET comprises of two steps:

- Declared the exposed functions by Asprise OCR;
- Call these functions to perform your desired OCR tasks.

First, you need declare the following functions exposed from the dll if you are using Visual :

```
Declare Function OCR Lib "AspriseOCR.dll" Alias "OCR" (ByVal file As String, ByVal type As Integer) As IntPtr
```

```
Declare Function OCRBarCodes Lib "AspriseOCR.dll" Alias "OCRBarCodes" (ByVal file As String, ByVal type As Integer) As IntPtr
```

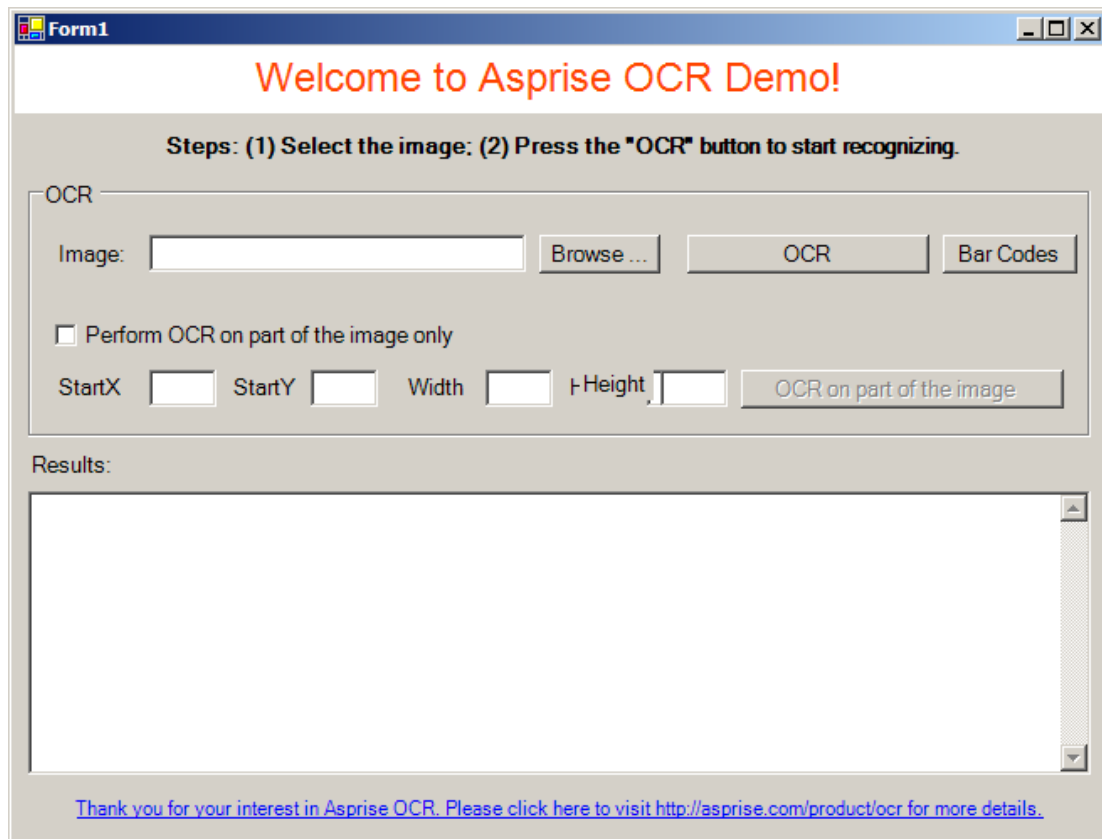
```
Declare Function OCRpart Lib "AspriseOCR.dll" Alias "OCRpart" (ByVal file As String, ByVal type As Integer, ByVal startX As Integer, ByVal startY As Integer, ByVal width As Integer, ByVal height As Integer) As IntPtr
```

```
Declare Function OCRpartBarCodes Lib "AspriseOCR.dll" Alias "OCRpartBarCodes" (ByVal file As String, ByVal type As Integer, ByVal startX As Integer, ByVal startY As Integer, ByVal width As Integer, ByVal height As Integer) As IntPtr
```

Now, you can make calls to these functions. eg.

```
Marshal.PtrToStringAnsi(OCR(textImage.Text, -1))
```

The code listed below creates a OCR utility application as shown in the figure.



```

1 Imports System.Runtime.InteropServices
2
3
4 Public Class Form1
5     Inherits System.Windows.Forms.Form
6
7     #Region " Windows Form Designer generated code "
8
9     Public Sub New()
10        MyBase.New()
11
12        'This call is required by the Windows Form Designer.
13        InitializeComponent()
14
15        'Add any initialization after the InitializeComponent()
16        call
17
18        End Sub
19
20        'Form overrides dispose to clean up the component list.
21        Protected Overloads Overrides Sub Dispose(ByVal disposing As
22        Boolean)
23            If disposing Then
24                If Not (components Is Nothing) Then
25                    components.Dispose()
26                End If
27            End If
28        End Sub
29
30        End Class

```

```
26         MyBase.Dispose(disposing)
27     End Sub
28
29     'Required by the Windows Form Designer
30     Private components As System.ComponentModel.IContainer
31
32     'NOTE: The following procedure is required by the Windows
Form Designer
33     'It can be modified using the Windows Form Designer.
34     'Do not modify it using the code editor.
35     Friend WithEvents Label1 As System.Windows.Forms.Label
36     Friend WithEvents Label2 As System.Windows.Forms.Label
37     Friend WithEvents GroupBox1 As System.Windows.Forms.GroupBox
38     Friend WithEvents Label3 As System.Windows.Forms.Label
39     Friend WithEvents LinkLabel1 As
System.Windows.Forms.LinkLabel
40     Friend WithEvents Label4 As System.Windows.Forms.Label
41     Friend WithEvents CheckBox1 As System.Windows.Forms.CheckBox
42     Friend WithEvents Label5 As System.Windows.Forms.Label
43     Friend WithEvents Label6 As System.Windows.Forms.Label
44     Friend WithEvents Label7 As System.Windows.Forms.Label
45     Friend WithEvents Label8 As System.Windows.Forms.Label
46     Friend WithEvents textImage As System.Windows.Forms.TextBox
47     Friend WithEvents buttonBrowse As System.Windows.Forms.Button
48     Friend WithEvents buttonOCR As System.Windows.Forms.Button
49     Friend WithEvents TextBox1 As System.Windows.Forms.TextBox
50     Friend WithEvents Label9 As System.Windows.Forms.Label
51     Friend WithEvents buttonBarcodes As
System.Windows.Forms.Button
52     Friend WithEvents buttonOCRPart As
System.Windows.Forms.Button
53     Friend WithEvents textHeight As System.Windows.Forms.TextBox
54     Friend WithEvents textWidth As System.Windows.Forms.TextBox
55     Friend WithEvents textStartY As System.Windows.Forms.TextBox
56     Friend WithEvents textStartX As System.Windows.Forms.TextBox
57     Friend WithEvents textResults As System.Windows.Forms.TextBox
58     Friend WithEvents OpenFileDialog1 As
System.Windows.Forms.OpenFileDialog
59     <System.Diagnostics.DebuggerStepThrough()> Private Sub
InitializeComponent()
60         Me.Label1 = New System.Windows.Forms.Label
61         Me.Label2 = New System.Windows.Forms.Label
62         Me.GroupBox1 = New System.Windows.Forms.GroupBox
63         Me.textHeight = New System.Windows.Forms.TextBox
64         Me.Label7 = New System.Windows.Forms.Label
65         Me.textWidth = New System.Windows.Forms.TextBox
66         Me.Label6 = New System.Windows.Forms.Label
67         Me.textStartY = New System.Windows.Forms.TextBox
68         Me.Label5 = New System.Windows.Forms.Label
69         Me.textStartX = New System.Windows.Forms.TextBox
70         Me.CheckBox1 = New System.Windows.Forms.CheckBox
71         Me.Label4 = New System.Windows.Forms.Label
72         Me.buttonBarcodes = New System.Windows.Forms.Button
73         Me.buttonOCR = New System.Windows.Forms.Button
74         Me.buttonBrowse = New System.Windows.Forms.Button
75         Me.textImage = New System.Windows.Forms.TextBox
76         Me.Label3 = New System.Windows.Forms.Label
```

```
77         Me.buttonOCRPart = New System.Windows.Forms.Button
78         Me.TextBox1 = New System.Windows.Forms.TextBox
79         Me.Label9 = New System.Windows.Forms.Label
80         Me.LinkLabel1 = New System.Windows.Forms.LinkLabel
81         Me.Label8 = New System.Windows.Forms.Label
82         Me.textResults = New System.Windows.Forms.TextBox
83         Me.OpenFileDialog1 = New
System.Windows.Forms.OpenFileDialog
84         Me.GroupBox1.SuspendLayout()
85         Me.SuspendLayout()
86         '
87         'Label1
88         '
89         Me.Label1.BackColor =
System.Drawing.SystemColors.ControlLightLight
90         Me.Label1.Font = New System.Drawing.Font("Arial", 18.0!,
System.Drawing.FontStyle.Regular,
System.Drawing.GraphicsUnit.Point, CType(0, Byte))
91         Me.Label1.ForeColor = System.Drawing.Color.OrangeRed
92         Me.Label1.Location = New System.Drawing.Point(0, 0)
93         Me.Label1.Name = "Label1"
94         Me.Label1.Size = New System.Drawing.Size(648, 40)
95         Me.Label1.TabIndex = 0
96         Me.Label1.Text = "Welcome to Asprise OCR Demo!"
97         Me.Label1.TextAlign =
System.Drawing.ContentAlignment.MiddleCenter
98         '
99         'Label2
100        '
101        Me.Label2.Font = New System.Drawing.Font("Microsoft Sans
Serif", 9.75!, System.Drawing.FontStyle.Bold,
System.Drawing.GraphicsUnit.Point, CType(0, Byte))
102        Me.Label2.Location = New System.Drawing.Point(0, 48)
103        Me.Label2.Name = "Label2"
104        Me.Label2.Size = New System.Drawing.Size(648, 23)
105        Me.Label2.TabIndex = 1
106        Me.Label2.Text = "Steps: (1) Select the image; (2) Press
the "OCR" button to start recognizing."
107        Me.Label2.TextAlign =
System.Drawing.ContentAlignment.MiddleCenter
108        '
109        'GroupBox1
110        '
111        Me.GroupBox1.Controls.Add(Me.textHeight)
112        Me.GroupBox1.Controls.Add(Me.Label7)
113        Me.GroupBox1.Controls.Add(Me.textWidth)
114        Me.GroupBox1.Controls.Add(Me.Label6)
115        Me.GroupBox1.Controls.Add(Me.textStartY)
116        Me.GroupBox1.Controls.Add(Me.Label5)
117        Me.GroupBox1.Controls.Add(Me.textStartX)
118        Me.GroupBox1.Controls.Add(Me.CheckBox1)
119        Me.GroupBox1.Controls.Add(Me.Label4)
120        Me.GroupBox1.Controls.Add(Me.buttonBarcodes)
121        Me.GroupBox1.Controls.Add(Me.buttonOCR)
122        Me.GroupBox1.Controls.Add(Me.buttonBrowse)
123        Me.GroupBox1.Controls.Add(Me.textImage)
124        Me.GroupBox1.Controls.Add(Me.Label3)
```

```
125     Me.GroupBox1.Controls.Add(Me.buttonOCRPart)
126     Me.GroupBox1.Controls.Add(Me.TextBox1)
127     Me.GroupBox1.Controls.Add(Me.Label9)
128     Me.GroupBox1.Location = New System.Drawing.Point(8, 80)
129     Me.GroupBox1.Name = "GroupBox1"
130     Me.GroupBox1.Size = New System.Drawing.Size(632, 152)
131     Me.GroupBox1.TabIndex = 2
132     Me.GroupBox1.TabStop = False
133     Me.GroupBox1.Text = "OCR"
134     '
135     'textHeight
136     '
137     Me.textHeight.Location = New System.Drawing.Point(376,
112)
138     Me.textHeight.Name = "textHeight"
139     Me.textHeight.Size = New System.Drawing.Size(40, 22)
140     Me.textHeight.TabIndex = 13
141     Me.textHeight.Text = ""
142     '
143     'Label7
144     '
145     Me.Label7.AutoSize = True
146     Me.Label7.Location = New System.Drawing.Point(328, 112)
147     Me.Label7.Name = "Label7"
148     Me.Label7.Size = New System.Drawing.Size(44, 18)
149     Me.Label7.TabIndex = 12
150     Me.Label7.Text = "Height"
151     '
152     'textWidth
153     '
154     Me.textWidth.Location = New System.Drawing.Point(272, 112)
155     Me.textWidth.Name = "textWidth"
156     Me.textWidth.Size = New System.Drawing.Size(40, 22)
157     Me.textWidth.TabIndex = 11
158     Me.textWidth.Text = ""
159     '
160     'Label6
161     '
162     Me.Label6.AutoSize = True
163     Me.Label6.Location = New System.Drawing.Point(224, 114)
164     Me.Label6.Name = "Label6"
165     Me.Label6.Size = New System.Drawing.Size(39, 18)
166     Me.Label6.TabIndex = 10
167     Me.Label6.Text = "Width"
168     '
169     'textStartY
170     '
171     Me.textStartY.Location = New System.Drawing.Point(168,
112)
172     Me.textStartY.Name = "textStartY"
173     Me.textStartY.Size = New System.Drawing.Size(40, 22)
174     Me.textStartY.TabIndex = 9
175     Me.textStartY.Text = ""
176     '
177     'Label5
178     '
179     Me.Label5.AutoSize = True
```

```
180         Me.Label5.Location = New System.Drawing.Point(120, 114)
181         Me.Label5.Name = "Label5"
182         Me.Label5.Size = New System.Drawing.Size(42, 18)
183         Me.Label5.TabIndex = 8
184         Me.Label5.Text = "StartY"
185         '
186         'textStartX
187         '
188         Me.textStartX.Location = New System.Drawing.Point(72, 112)
189         Me.textStartX.Name = "textStartX"
190         Me.textStartX.Size = New System.Drawing.Size(40, 22)
191         Me.textStartX.TabIndex = 7
192         Me.textStartX.Text = ""
193         '
194         'CheckBox1
195         '
196         Me.CheckBox1.Location = New System.Drawing.Point(16, 80)
197         Me.CheckBox1.Name = "CheckBox1"
198         Me.CheckBox1.Size = New System.Drawing.Size(272, 24)
199         Me.CheckBox1.TabIndex = 6
200         Me.CheckBox1.Text = "Perform OCR on part of the image
only"
201         '
202         'Label4
203         '
204         Me.Label4.AutoSize = True
205         Me.Label4.Location = New System.Drawing.Point(16, 114)
206         Me.Label4.Name = "Label4"
207         Me.Label4.Size = New System.Drawing.Size(42, 18)
208         Me.Label4.TabIndex = 5
209         Me.Label4.Text = "StartX"
210         '
211         'buttonBarcodes
212         '
213         Me.buttonBarcodes.Location = New System.Drawing.Point(544,
32)
214         Me.buttonBarcodes.Name = "buttonBarcodes"
215         Me.buttonBarcodes.Size = New System.Drawing.Size(80, 23)
216         Me.buttonBarcodes.TabIndex = 4
217         Me.buttonBarcodes.Text = "Bar Codes"
218         '
219         'buttonOCR
220         '
221         Me.buttonOCR.Location = New System.Drawing.Point(392, 32)
222         Me.buttonOCR.Name = "buttonOCR"
223         Me.buttonOCR.Size = New System.Drawing.Size(144, 23)
224         Me.buttonOCR.TabIndex = 3
225         Me.buttonOCR.Text = "OCR"
226         '
227         'buttonBrowse
228         '
229         Me.buttonBrowse.Location = New System.Drawing.Point(304,
32)
230         Me.buttonBrowse.Name = "buttonBrowse"
231         Me.buttonBrowse.Size = New System.Drawing.Size(72, 23)
232         Me.buttonBrowse.TabIndex = 2
233         Me.buttonBrowse.Text = "Browse ..."
```

```
234         '
235         'textImage
236         '
237         Me.textImage.Location = New System.Drawing.Point(72, 32)
238         Me.textImage.Name = "textImage"
239         Me.textImage.Size = New System.Drawing.Size(224, 22)
240         Me.textImage.TabIndex = 1
241         Me.textImage.Text = ""
242         '
243         'Label3
244         '
245         Me.Label3.AutoSize = True
246         Me.Label3.Location = New System.Drawing.Point(16, 34)
247         Me.Label3.Name = "Label3"
248         Me.Label3.Size = New System.Drawing.Size(46, 18)
249         Me.Label3.TabIndex = 0
250         Me.Label3.Text = "Image:"
251         Me.Label3.TextAlign =
System.Drawing.ContentAlignment.MiddleLeft
252         '
253         'buttonOCRPart
254         '
255         Me.buttonOCRPart.Location = New System.Drawing.Point(424,
112)
256         Me.buttonOCRPart.Name = "buttonOCRPart"
257         Me.buttonOCRPart.Size = New System.Drawing.Size(192, 23)
258         Me.buttonOCRPart.TabIndex = 14
259         Me.buttonOCRPart.Text = "OCR on part of the image"
260         '
261         'TextBox1
262         '
263         Me.TextBox1.Location = New System.Drawing.Point(368, 112)
264         Me.TextBox1.Name = "TextBox1"
265         Me.TextBox1.Size = New System.Drawing.Size(40, 22)
266         Me.TextBox1.TabIndex = 13
267         Me.TextBox1.Text = ""
268         '
269         'Label9
270         '
271         Me.Label9.AutoSize = True
272         Me.Label9.Location = New System.Drawing.Point(320, 114)
273         Me.Label9.Name = "Label9"
274         Me.Label9.Size = New System.Drawing.Size(44, 18)
275         Me.Label9.TabIndex = 12
276         Me.Label9.Text = "Height"
277         '
278         'LinkLabel1
279         '
280         Me.LinkLabel1.Font = New System.Drawing.Font("Microsoft
Sans Serif", 8.25!, System.Drawing.FontStyle.Regular,
System.Drawing.GraphicsUnit.Point, CType(0, Byte))
281         Me.LinkLabel1.Location = New System.Drawing.Point(0, 440)
282         Me.LinkLabel1.Name = "LinkLabel1"
283         Me.LinkLabel1.Size = New System.Drawing.Size(648, 23)
284         Me.LinkLabel1.TabIndex = 3
285         Me.LinkLabel1.TabStop = True
```

```

286         Me.LinkLabel1.Text = "Thank you for your interest in
Asprise OCR. Please click here to visit http://asp" & _
287         "rise.com/product/ocr for more details. "
288         Me.LinkLabel1.TextAlign =
System.Drawing.ContentAlignment.MiddleCenter
289         '
290         'Label8
291         '
292         Me.Label8.AutoSize = True
293         Me.Label8.Location = New System.Drawing.Point(8, 240)
294         Me.Label8.Name = "Label8"
295         Me.Label8.Size = New System.Drawing.Size(53, 18)
296         Me.Label8.TabIndex = 4
297         Me.Label8.Text = "Results:"
298         '
299         'textResults
300         '
301         Me.textResults.Location = New System.Drawing.Point(8, 264)
302         Me.textResults.Multiline = True
303         Me.textResults.Name = "textResults"
304         Me.textResults.ScrollBars =
System.Windows.Forms.ScrollBars.Both
305         Me.textResults.Size = New System.Drawing.Size(632, 168)
306         Me.textResults.TabIndex = 5
307         Me.textResults.Text = ""
308         '
309         'Form1
310         '
311         Me.AutoScaleBaseSize = New System.Drawing.Size(6, 15)
312         Me.ClientSize = New System.Drawing.Size(648, 469)
313         Me.Controls.Add(Me.textResults)
314         Me.Controls.Add(Me.Label8)
315         Me.Controls.Add(Me.LinkLabel1)
316         Me.Controls.Add(Me.GroupBox1)
317         Me.Controls.Add(Me.Label2)
318         Me.Controls.Add(Me.Label1)
319         Me.Font = New System.Drawing.Font("Microsoft Sans Serif",
9.75!, System.Drawing.FontStyle.Regular,
System.Drawing.GraphicsUnit.Point, CType(0, Byte))
320         Me.Name = "Form1"
321         Me.Text = "Form1"
322         Me.GroupBox1.ResumeLayout(False)
323         Me.ResumeLayout(False)
324
325     End Sub
326
327 #End Region
328
329     Declare Function OCR Lib "AspriseOCR.dll" Alias "OCR" (ByVal
file As String, ByVal type As Integer) As IntPtr
330     Declare Function OCRBarCodes Lib "AspriseOCR.dll" Alias
"OCRBarCodes" (ByVal file As String, ByVal type As Integer) As
IntPtr
331     Declare Function OCRpart Lib "AspriseOCR.dll" Alias "OCRpart"
(ByVal file As String, ByVal type As Integer, ByVal startX As
Integer, ByVal startY As Integer, ByVal width As Integer, ByVal
height As Integer) As IntPtr

```

```
332     Declare Function OCRpartBarCodes Lib "AspriseOCR.dll" Alias
"OCRpartBarCodes" (ByVal file As String, ByVal type As Integer,
ByVal startX As Integer, ByVal startY As Integer, ByVal width
As Integer, ByVal height As Integer) As IntPtr
333
334     Private Sub CheckBox1_CheckedChanged(ByVal sender As
System.Object, ByVal e As System.EventArgs) Handles
CheckBox1.CheckedChanged
335         If CheckBox1.Checked Then
336             buttonOCRPart.Enabled = True
337         Else
338             buttonOCRPart.Enabled = False
339         End If
340     End Sub
341
342     Private Sub buttonBrowse_Click(ByVal sender As System.Object,
ByVal e As System.EventArgs) Handles buttonBrowse.Click
343         OpenFileDialog1.InitialDirectory =
Application.StartupPath
344         OpenFileDialog1.ShowDialog()
345         textImage.Text = OpenFileDialog1.FileName
346
347     End Sub
348
349     Private Sub buttonOCR_Click(ByVal sender As System.Object,
ByVal e As System.EventArgs) Handles buttonOCR.Click
350         textResults.Text =
Marshal.PtrToStringAnsi(OCR(textImage.Text, -1))
351     End Sub
352
353     Private Sub buttonBarcodes_Click(ByVal sender As
System.Object, ByVal e As System.EventArgs) Handles
buttonBarcodes.Click
354         textResults.Text =
Marshal.PtrToStringAnsi(OCRBarCodes(textImage.Text, -1))
355     End Sub
356
357     Private Sub buttonOCRPart_Click(ByVal sender As System.Object,
ByVal e As System.EventArgs) Handles buttonOCRPart.Click
358         Dim startX As Int32
359         Dim startY As Int32
360         Dim width As Int32
361         Dim height As Int32
362
363         On Error Resume Next
364
365         startX = System.Convert.ToInt32(textStartX.Text)
366         startY = System.Convert.ToInt32(textStartY.Text)
367         width = System.Convert.ToInt32(textWidth.Text)
368         height = System.Convert.ToInt32(textHeight.Text)
369
370         textResults.Text =
Marshal.PtrToStringAnsi(OCRpart(textImage.Text, -1, startX,
startY, width, height))
371
372     End Sub
373
```

```
374     Private Sub LinkLabell_LinkClicked(ByVal sender As
      System.Object, ByVal e As
      System.Windows.Forms.LinkLabelLinkClickedEventArgs) Handles
      LinkLabell.LinkClicked
375
      System.Diagnostics.Process.Start("http://asprise.com/product/oc
      r")
376     End Sub
377
378     Private Sub Form1_Load(ByVal sender As System.Object, ByVal e
      As System.EventArgs) Handles MyBase.Load
379         buttonOCRPart.Enabled = False
380
381     End Sub
382 End Class
```

The complete Visual Basic.NET project is located at OCR\_ROOT\sample-project.

## **Resource Management**

Internally, Asprise OCR provides a “smart” cache for OCR results to avoid memory leak.

## 7 OCR Programming with Visual C++/Borland C++/C

Before you can start OCR programming with C or C++, you need to set up your IDE first (see section 3).

The following code creates a basic program to perform OCR:

```

1  #include <stdio.h>
2  #include "AspriseOCR.h"
3
4
5  /**
6   * Returns the path of the image file to be OCRed.
7   */
8  char * getInputFile(int argc, char* argv[]);
9
10
11 /**
12 * Program entry point.
13 */
14 int main(int argc, char* argv[])
15 {
16 char *text = ""; // used to point to the OCR text recognized.
17
18
19 /*-----
20 | Gets the path of the image file to be OCRed.
21 \-----*/
22
23 char *input = getInputFile(argc, argv);
24
25
26 printf("\r\n----- A S P R I S E O C R --- \r\n");
27 printf("Input file: %s\r\n\r\n", input);
28
29
30 /*-----
31 | Performs the actual OCR.
32 | The image path is specified in the first argument of the OCR
33 | func.
34 | The second argument is the type of the image. All supported
35 | types
36 | are defined in 'AspriseOCR.h'. Use IMAGE_TYPE_AUTO_DETECT to
37 | let
38 | the system to detect the image type automatically.
39 \-----*/
40
41 text = OCR(input, IMAGE_TYPE_AUTO_DETECT);

```

```
42 | Prints out the OCR results.
43 \-----*/
44
45 printf(text);
46
47 printf("\r\n\r\n\r\n\r\nPress the ENTER key to exit ...");
48 getchar();
49 return 0;
50 }
51
52
53
54 char * getInputFile(int argc, char* argv[]) {
55 char* file;
56
57 if(argc == 2) // if the user specifies a file as the argument,
58     use it.
59 return argv[1];
60
61 // otherwise, ask the user to input a file path.
62
63 file = (char *)calloc(sizeof(char), 200); // maximum 200
64     characters.
65
66 printf("> Please enter the path of the image file to be OCRed: ");
67 scanf("%s", file);
68 getchar(); // consumes the ENTER key.
69
70 return file;
71 }
```

The UI output:



```
cmd C:\JAVA\OCR-Samples\Generic\Debug\GenericC.exe
> Please enter the path of the image file to be OCRed: c:\ocr.gif
----- A S P R I S E   O C R -----
Input file: c:\ocr.gif
[123456789012]
Asprise OCR
Speed. Accuracy.

Press the ENTER key to exit ..._
```

## 8 OCR programming with C#, .NET

OCR programming with C# comprises of two steps:

- Declared the exposed functions by Asprise OCR;
- Call these functions to perform your desired OCR tasks.

First, you need declare the following functions exposed from the dll:

```
[DllImport("AspriseOCR.dll", EntryPoint="OCR")]
public static extern IntPtr OCR(string file, int type);

[DllImport("AspriseOCR.dll", EntryPoint = "OCRpart")]
static extern IntPtr OCRpart(string file, int type, int startX, int
startY, int width, int height);

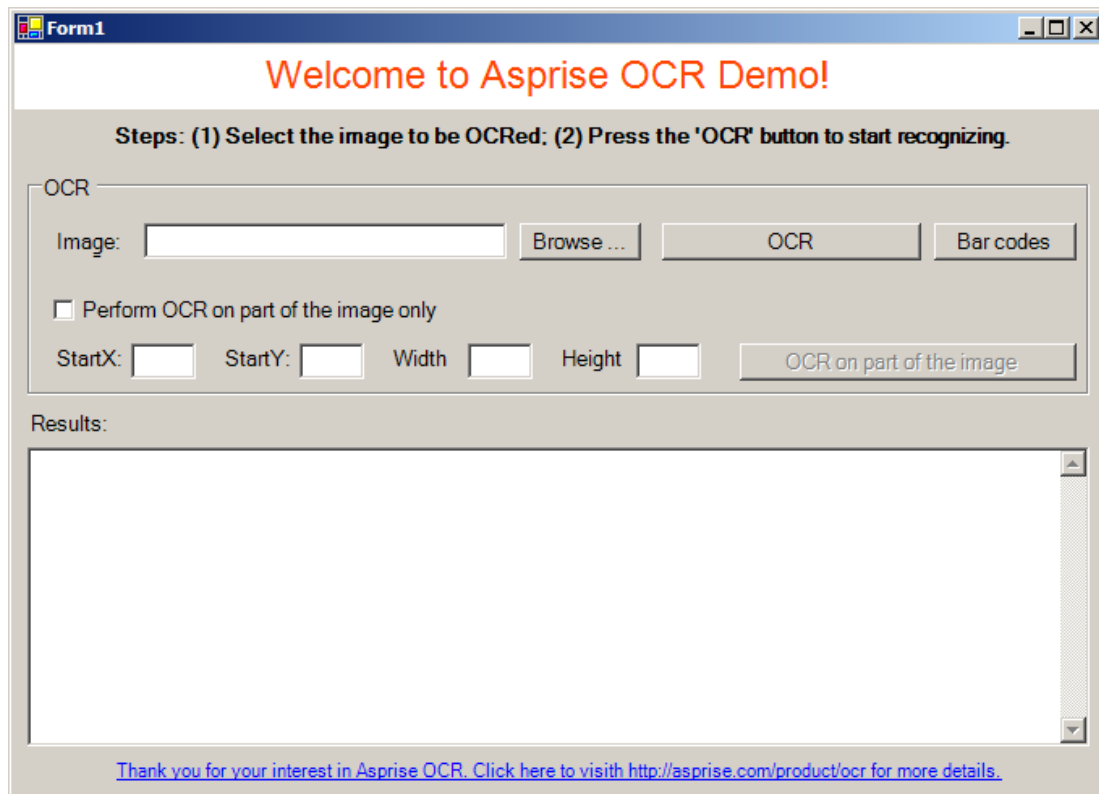
[DllImport("AspriseOCR.dll", EntryPoint = "OCRBarCodes")]
static extern IntPtr OCRBarCodes(string file, int type);

[DllImport("AspriseOCR.dll", EntryPoint = "OCRpartBarCodes")]
static extern IntPtr OCRpartBarCodes(string file, int type, int
startX, int startY, int width, int height);
```

Then you can start to call these functions. eg.

```
Marshal.PtrToStringAnsi(OCR(textImage.Text, -1));
```

The following code listed creates a OCR application as shown in the figure.



Form1

## Welcome to Asprise OCR Demo!

Steps: (1) Select the image to be OCRed; (2) Press the 'OCR' button to start recognizing.

OCR

Image:

Perform OCR on part of the image only

StartX:  StartY:  Width  Height

Results:

[Thank you for your interest in Asprise OCR. Click here to visit http://asprise.com/product/ocr for more details.](http://asprise.com/product/ocr)

```

1  using System;
2  using System.Drawing;
3  using System.Collections;
4  using System.ComponentModel;
5  using System.Windows.Forms;
6  using System.Data;
7  using System.Runtime.InteropServices;
8
9  namespace CSharpOCR
10 {
11     /// <summary>
12     /// Summary description for Form1.
13     /// </summary>
14     public class Form1 : System.Windows.Forms.Form
15     {
16         private System.Windows.Forms.Label label1;
17         private System.Windows.Forms.Label label2;
18         private System.Windows.Forms.GroupBox groupBox1;
19         private System.Windows.Forms.Label label3;
20         private System.Windows.Forms.CheckBox checkBox1;
21         private System.Windows.Forms.Label label4;
22         private System.Windows.Forms.Label label5;
23         private System.Windows.Forms.Label label6;
24         private System.Windows.Forms.Label label7;
25         private System.Windows.Forms.Label label8;
26         private System.Windows.Forms.LinkLabel linkLabel1;
27         private System.Windows.Forms.Button buttonBrowse;
28         private System.Windows.Forms.TextBox textBox1;
29         private System.Windows.Forms.Button buttonOCR;

```

```

30     private System.Windows.Forms.Button buttonBarcode;
31     private System.Windows.Forms.TextBox textStartX;
32     private System.Windows.Forms.TextBox textStartY;
33     private System.Windows.Forms.TextBox textWidth;
34     private System.Windows.Forms.TextBox textHeight;
35     private System.Windows.Forms.Button buttonOCRPart;
36     private System.Windows.Forms.TextBox textResults;
37     private System.Windows.Forms.OpenFileDialog
openFileDialog1;
38     private System.Windows.Forms.Label label9;
39     /// <summary>
40     /// Required designer variable.
41     /// </summary>
42     private System.ComponentModel.Container components = null;
43
44
45     [DllImport("AspriseOCR.dll", EntryPoint="OCR")]
46     public static extern IntPtr OCR(string file, int type);
47
48     [DllImport("AspriseOCR.dll", EntryPoint = "OCRpart")]
49     static extern IntPtr OCRpart(string file, int type, int
startX, int startY, int width, int height);
50
51     [DllImport("AspriseOCR.dll", EntryPoint = "OCRBarCodes")]
52     static extern IntPtr OCRBarCodes(string file, int type);
53
54     [DllImport("AspriseOCR.dll", EntryPoint =
"OCRpartBarCodes")]
55     static extern IntPtr OCRpartBarCodes(string file, int
type, int startX, int startY, int width, int height);
56
57
58     public Form1()
59     {
60         //
61         // Required for Windows Form Designer support
62         //
63         InitializeComponent();
64
65         //
66         // TODO: Add any constructor code after
InitializeComponent call
67         //
68         openFileDialog1.InitialDirectory =
Application.StartupPath;
69     }
70
71     /// <summary>
72     /// Clean up any resources being used.
73     /// </summary>
74     protected override void Dispose( bool disposing )
75     {
76         if( disposing )
77         {
78             if (components != null)
79             {
80                 components.Dispose();

```

```

81         }
82     }
83     base.Dispose( disposing );
84 }
85
86 #region Windows Form Designer generated code
87 /// <summary>
88 /// Required method for Designer support - do not modify
89 /// the contents of this method with the code editor.
90 /// </summary>
91 private void InitializeComponent()
92 {
93     this.label1 = new System.Windows.Forms.Label();
94     this.label2 = new System.Windows.Forms.Label();
95     this.groupBox1 = new System.Windows.Forms.GroupBox();
96     this.buttonOCRPart = new
System.Windows.Forms.Button();
97     this.textBox1 = new System.Windows.Forms.TextBox();
98     this.label7 = new System.Windows.Forms.Label();
99     this.textBox2 = new System.Windows.Forms.TextBox();
100    this.label6 = new System.Windows.Forms.Label();
101    this.textBox3 = new System.Windows.Forms.TextBox();
102    this.label5 = new System.Windows.Forms.Label();
103    this.textBox4 = new System.Windows.Forms.TextBox();
104    this.label4 = new System.Windows.Forms.Label();
105    this.checkBox1 = new System.Windows.Forms.CheckBox();
106    this.buttonBarcode = new
System.Windows.Forms.Button();
107    this.buttonOCR = new System.Windows.Forms.Button();
108    this.buttonBrowse = new System.Windows.Forms.Button();
109    this.textBoxImage = new System.Windows.Forms.TextBox();
110    this.label3 = new System.Windows.Forms.Label();
111    this.label9 = new System.Windows.Forms.Label();
112    this.label8 = new System.Windows.Forms.Label();
113    this.textBoxResults = new System.Windows.Forms.TextBox();
114    this.linkLabel1 = new
System.Windows.Forms.LinkLabel();
115    this.openFileDialog1 = new
System.Windows.Forms.OpenFileDialog();
116    this.groupBox1.SuspendLayout();
117    this.SuspendLayout();
118    //
119    // label1
120    //
121    this.label1.BackColor =
System.Drawing.SystemColors.ControlLightLight;
122    this.label1.Font = new System.Drawing.Font("Arial",
18F, System.Drawing.FontStyle.Regular,
System.Drawing.GraphicsUnit.Point, ((byte)0));
123    this.label1.ForeColor =
System.Drawing.Color.OrangeRed;
124    this.label1.Location = new System.Drawing.Point(0, 0);
125    this.label1.Name = "label1";
126    this.label1.Size = new System.Drawing.Size(672, 40);
127    this.label1.TabIndex = 0;
128    this.label1.Text = "Welcome to Asprise OCR Demo!";

```

```

129         this.label1.TextAlign =
System.Drawing.ContentAlignment.MiddleCenter;
130         //
131         // label2
132         //
133         this.label2.Font = new System.Drawing.Font("Microsoft
Sans Serif", 9.75F, System.Drawing.FontStyle.Bold,
System.Drawing.GraphicsUnit.Point, ((byte)0));
134         this.label2.Location = new System.Drawing.Point(0,
40);
135         this.label2.Name = "label2";
136         this.label2.Size = new System.Drawing.Size(672, 32);
137         this.label2.TabIndex = 1;
138         this.label2.Text = "Steps: (1) Select the image to be
OCRed; (2) Press the \'OCR\' button to start reco" +
139             "gnizing.";
140         this.label2.TextAlign =
System.Drawing.ContentAlignment.MiddleCenter;
141         //
142         // groupBox1
143         //
144         this.groupBox1.Controls.Add(this.buttonOCRPart);
145         this.groupBox1.Controls.Add(this.textHeight);
146         this.groupBox1.Controls.Add(this.label7);
147         this.groupBox1.Controls.Add(this.textWidth);
148         this.groupBox1.Controls.Add(this.label6);
149         this.groupBox1.Controls.Add(this.textStartY);
150         this.groupBox1.Controls.Add(this.label5);
151         this.groupBox1.Controls.Add(this.textStartX);
152         this.groupBox1.Controls.Add(this.label4);
153         this.groupBox1.Controls.Add(this.checkBox1);
154         this.groupBox1.Controls.Add(this.buttonBarCode);
155         this.groupBox1.Controls.Add(this.buttonOCR);
156         this.groupBox1.Controls.Add(this.buttonBrowse);
157         this.groupBox1.Controls.Add(this.textImage);
158         this.groupBox1.Controls.Add(this.label3);
159         this.groupBox1.Controls.Add(this.label9);
160         this.groupBox1.Location = new System.Drawing.Point(8,
80);
161         this.groupBox1.Name = "groupBox1";
162         this.groupBox1.Size = new System.Drawing.Size(656,
136);
163         this.groupBox1.TabIndex = 2;
164         this.groupBox1.TabStop = false;
165         this.groupBox1.Text = "OCR";
166         //
167         // buttonOCRPart
168         //
169         this.buttonOCRPart.Location = new
System.Drawing.Point(440, 104);
170         this.buttonOCRPart.Name = "buttonOCRPart";
171         this.buttonOCRPart.Size = new System.Drawing.Size(208,
23);
172         this.buttonOCRPart.TabIndex = 14;
173         this.buttonOCRPart.Text = "OCR on part of the image";
174         this.buttonOCRPart.Click += new
System.EventHandler(this.buttonOCRPart_Click);
175         //

```

```
176         // textHeight
177         //
178         this.textHeight.Location = new
System.Drawing.Point(376, 104);
179         this.textHeight.Name = "textHeight";
180         this.textHeight.Size = new System.Drawing.Size(40,
22);
181         this.textHeight.TabIndex = 13;
182         //
183         // label7
184         //
185         this.label7.AutoSize = true;
186         this.label7.Location = new System.Drawing.Point(328,
104);
187         this.label7.Name = "label7";
188         this.label7.Size = new System.Drawing.Size(47, 16);
189         this.label7.TabIndex = 12;
190         this.label7.Text = "Height";
191         this.label7.TextAlign =
System.Drawing.ContentAlignment.MiddleLeft;
192         //
193         // textWidth
194         //
195         this.textWidth.Location = new
System.Drawing.Point(272, 104);
196         this.textWidth.Name = "textWidth";
197         this.textWidth.Size = new System.Drawing.Size(40, 22);
198         this.textWidth.TabIndex = 11;
199         //
200         // label6
201         //
202         this.label6.AutoSize = true;
203         this.label6.Location = new System.Drawing.Point(224,
104);
204         this.label6.Name = "label6";
205         this.label6.Size = new System.Drawing.Size(42, 16);
206         this.label6.TabIndex = 10;
207         this.label6.Text = "Width";
208         this.label6.TextAlign =
System.Drawing.ContentAlignment.MiddleLeft;
209         //
210         // textStartY
211         //
212         this.textStartY.Location = new
System.Drawing.Point(168, 104);
213         this.textStartY.Name = "textStartY";
214         this.textStartY.Size = new System.Drawing.Size(40,
22);
215         this.textStartY.TabIndex = 9;
216         //
217         // label5
218         //
219         this.label5.AutoSize = true;
220         this.label5.Location = new System.Drawing.Point(120,
104);
221         this.label5.Name = "label5";
222         this.label5.Size = new System.Drawing.Size(47, 16);
223         this.label5.TabIndex = 8;
```

```
224         this.label5.Text = "StartY:";
225         this.label5.TextAlign =
System.Drawing.ContentAlignment.MiddleLeft;
226         //
227         // textStartX
228         //
229         this.textStartX.Location = new
System.Drawing.Point(64, 104);
230         this.textStartX.Name = "textStartX";
231         this.textStartX.Size = new System.Drawing.Size(40,
22);
232         this.textStartX.TabIndex = 7;
233         //
234         // label4
235         //
236         this.label4.AutoSize = true;
237         this.label4.Location = new System.Drawing.Point(16,
104);
238         this.label4.Name = "label4";
239         this.label4.Size = new System.Drawing.Size(46, 16);
240         this.label4.TabIndex = 6;
241         this.label4.Text = "StartX:";
242         this.label4.TextAlign =
System.Drawing.ContentAlignment.MiddleLeft;
243         //
244         // checkBox1
245         //
246         this.checkBox1.Location = new System.Drawing.Point(16,
72);
247         this.checkBox1.Name = "checkBox1";
248         this.checkBox1.Size = new System.Drawing.Size(272,
24);
249         this.checkBox1.TabIndex = 5;
250         this.checkBox1.Text = "Perform OCR on part of the
image only";
251         this.checkBox1.CheckStateChanged += new
System.EventHandler(this.checkBox1_CheckedChanged);
252         //
253         // buttonBarCode
254         //
255         this.buttonBarCode.Location = new
System.Drawing.Point(560, 30);
256         this.buttonBarCode.Name = "buttonBarCode";
257         this.buttonBarCode.Size = new System.Drawing.Size(88,
23);
258         this.buttonBarCode.TabIndex = 4;
259         this.buttonBarCode.Text = "Bar codes";
260         this.buttonBarCode.Click += new
System.EventHandler(this.buttonBarCode_Click);
261         //
262         // buttonOCR
263         //
264         this.buttonOCR.Location = new
System.Drawing.Point(392, 30);
265         this.buttonOCR.Name = "buttonOCR";
266         this.buttonOCR.Size = new System.Drawing.Size(160,
23);
267         this.buttonOCR.TabIndex = 3;
```

```
268         this.buttonOCR.Text = "OCR";
269         this.buttonOCR.Click += new
System.EventHandler(this.buttonOCR_Click);
270         //
271         // buttonBrowse
272         //
273         this.buttonBrowse.Location = new
System.Drawing.Point(304, 30);
274         this.buttonBrowse.Name = "buttonBrowse";
275         this.buttonBrowse.Size = new System.Drawing.Size(75,
23);
276         this.buttonBrowse.TabIndex = 2;
277         this.buttonBrowse.Text = "Browse ...";
278         this.buttonBrowse.Click += new
System.EventHandler(this.buttonBrowse_Click);
279         //
280         // textImage
281         //
282         this.textImage.Location = new System.Drawing.Point(72,
30);
283         this.textImage.Name = "textImage";
284         this.textImage.Size = new System.Drawing.Size(224,
22);
285         this.textImage.TabIndex = 1;
286         this.textImage.Text = "sample-images\\ocr.gif";
287         //
288         // label3
289         //
290         this.label3.AutoSize = true;
291         this.label3.Location = new System.Drawing.Point(16,
32);
292         this.label3.Name = "label3";
293         this.label3.Size = new System.Drawing.Size(49, 16);
294         this.label3.TabIndex = 0;
295         this.label3.Text = "Image:";
296         this.label3.TextAlign =
System.Drawing.ContentAlignment.MiddleLeft;
297         //
298         // label9
299         //
300         this.label9.AutoSize = true;
301         this.label9.Location = new System.Drawing.Point(16,
34);
302         this.label9.Name = "label9";
303         this.label9.Size = new System.Drawing.Size(49, 16);
304         this.label9.TabIndex = 0;
305         this.label9.Text = "Image:";
306         this.label9.TextAlign =
System.Drawing.ContentAlignment.MiddleLeft;
307         //
308         // label8
309         //
310         this.label8.AutoSize = true;
311         this.label8.Location = new System.Drawing.Point(8,
224);
312         this.label8.Name = "label8";
313         this.label8.Size = new System.Drawing.Size(56, 16);
314         this.label8.TabIndex = 7;
```

```
315         this.label8.Text = "Results:";
316         this.label8.TextAlign =
System.Drawing.ContentAlignment.MiddleLeft;
317         //
318         // textResults
319         //
320         this.textResults.Location = new
System.Drawing.Point(8, 248);
321         this.textResults.Multiline = true;
322         this.textResults.Name = "textResults";
323         this.textResults.ScrollBars =
System.Windows.Forms.ScrollBars.Both;
324         this.textResults.Size = new System.Drawing.Size(656,
184);
325         this.textResults.TabIndex = 8;
326         //
327         // linkLabel1
328         //
329         this.linkLabel1.Font = new
System.Drawing.Font("Microsoft Sans Serif", 8.25F,
System.Drawing.FontStyle.Regular,
System.Drawing.GraphicsUnit.Point, ((byte)0));
330         this.linkLabel1.Location = new System.Drawing.Point(0,
440);
331         this.linkLabel1.Name = "linkLabel1";
332         this.linkLabel1.Size = new System.Drawing.Size(672,
24);
333         this.linkLabel1.TabIndex = 9;
334         this.linkLabel1.TabStop = true;
335         this.linkLabel1.Text = "Thank you for your interest
in Asprise OCR. Click here to visit http://asprise.c +
336             "om/product/ocr for more details.";
337         this.linkLabel1.TextAlign =
System.Drawing.ContentAlignment.TopCenter;
338         this.linkLabel1.LinkClicked += new
System.Windows.Forms.LinkLabelLinkClickedEventHandler(this.link
Label1_LinkClicked);
339         //
340         // Form1
341         //
342         this.AutoScaleBaseSize = new System.Drawing.Size(6,
15);
343         this.ClientSize = new System.Drawing.Size(672, 461);
344         this.Controls.Add(this.linkLabel1);
345         this.Controls.Add(this.textResults);
346         this.Controls.Add(this.label8);
347         this.Controls.Add(this.groupBox1);
348         this.Controls.Add(this.label2);
349         this.Controls.Add(this.label1);
350         this.Font = new System.Drawing.Font("Microsoft Sans
Serif", 9.75F, System.Drawing.FontStyle.Regular,
System.Drawing.GraphicsUnit.Point, ((byte)0));
351         this.Name = "Form1";
352         this.Text = "Form1";
353         this.Load += new System.EventHandler(this.Form1_Load);
354         this.groupBox1.ResumeLayout(false);
355         this.groupBox1.PerformLayout();
356         this.ResumeLayout(false);
```

```
357         this.PerformLayout();
358     }
359 }
360 #endregion
361
362     /// <summary>
363     /// The main entry point for the application.
364     /// </summary>
365     [STAThread]
366     static void Main()
367     {
368         Application.Run(new Form1());
369     }
370
371     private void buttonBrowse_Click(object sender, EventArgs
e)
372     {
373         DialogResult dr = openFileDialog1.ShowDialog(this);
374         textImage.Text = openFileDialog1.FileName;
375     }
376
377     private void checkBox1_CheckedChanged(object sender,
EventArgs e)
378     {
379         if (checkBox1.Checked)
380         {
381             buttonOCRPart.Enabled = true;
382         }
383         else
384         {
385             buttonOCRPart.Enabled = false;
386         }
387     }
388
389     private void Form1_Load(object sender, EventArgs e)
390     {
391         buttonOCRPart.Enabled = false;
392     }
393
394     private void buttonOCR_Click(object sender, EventArgs e)
395     {
396         textResults.Text =
Marshal.PtrToStringAnsi(OCR(textImage.Text, -1));
397     }
398
399     private void buttonBarCode_Click(object sender, EventArgs
e)
400     {
401         string result =
Marshal.PtrToStringAnsi(OCRBarCodes(textImage.Text, -1));
402         textResults.Text = result;
403     }
404
405     private void buttonOCRPart_Click(object sender, EventArgs
e)
406     {
407         int startX = 0;
```

```
408         int startY = 0;
409         int width = -1;
410         int height = -1;
411         try
412         {
413             startX = Convert.ToInt32(textStartX.Text);
414             startY = Convert.ToInt32(textStartY.Text);
415             width = Convert.ToInt32(textWidth.Text);
416             height = Convert.ToInt32(textHeight.Text);
417         }
418         catch (Exception ex)
419         {
420             Console.WriteLine(ex.StackTrace);
421         }
422         String result =
Marshal.PtrToStringAnsi(OCRpart(textImage.Text, -1, startX,
startY, width, height));
423         textResults.Text = result;
424     }
425
426     private void linkLabel1_LinkClicked(object sender,
LinkLabelLinkClickedEventArgs e)
427     {
428         System.Diagnostics.Process.Start("http://asprise.com/prod
uct/ocr");
429     }
430
431 }
432 }
```

The complete C# project is available at `OCR_ROOT\sample-project`.

## Resource Management

Internally, Asprise OCR provides a “smart” cache for OCR results to avoid memory leak.

## 9 Application Packaging and Distribution

**WARNING:** Before you can distribute your Asprise OCR based programs to your clients/end users, you need to purchase a license from LAB Asprise! first. Visit this page to find how to order: <http://asprise.com/product/ocr>.

So you have successfully developed your applications with Asprise OCR. It's time to distribute your programs to the end users. Distributing Asprise OCR based applications is very easy.

You simply distribute the dll files for Asprise OCR along with your own program files.

## 10 Support and Professional Services

### 10.1 Support Web Site

<http://www.asprise.com/product/ocr>

### 10.2 Basic Support

Our team provides basic support for general Asprise OCR developers. Email your technical questions to [support@asprise.com](mailto:support@asprise.com)

Advice: You are strongly recommended to subscribe our premium support service in order to get your problems solved quickly.

### 10.3 Premium Support Services + Updates

For premium support service subscribers: your requests will be of our top priority and your email will be replied within 24 business hours. You entitle to source code/binary update.

### 10.4 Sales Related, Business Opportunities

Please direct your email to [sales@asprise.com](mailto:sales@asprise.com).