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How To Use Windows BitBlt Function in Visual Basic Application

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SUMMARY

Windows GDI.EXE has a function called BitBlt that will move the source device given by the hSrcDC parameter to the destination device given by the hDestDC parameter. This article explains in detail the arguments of the Windows BitBlt function call.

MORE INFORMATION

To use BitBlt within a Visual Basic application:

Use the following Declare statement to declare the Function in 16-bit Visual Basic. (If the declaration is placed in the General Declarations section of a Form, the keyword Private must be placed at the beginning of the declaration.)

```
Declare Function BitBlt Lib "GDI" (ByVal hDestDC%, ByVal X%, _ ByVal Y%, ByVal nWidth%, ByVal
nHeight%, ByVal hSrcDC%, _ ByVal XSrc%, ByVal YSrc%, ByVal dwRop&amp;amp;) As Integer
```

If you are using the 32-bit version of Visual Basic use the following Declare statement. (If the declaration is placed in the General Declarations section of a Form, the keyword Private must be placed at the beginning of the declaration.)

```
Declare Function BitBlt Lib "gdi32" (ByVal hDestDC As Long, _ ByVal x As Long, ByVal y As Long,
ByVal nWidth As Long, _ ByVal nHeight As Long, ByVal hSrcDC As Long, ByVal xSrc As Long, _ ByVal
ySrc As Long, ByVal dwRop As Long) As Long
```

The following defines each of the formal parameters used in the Declare:

```
Parameter Definition ------------------------------------------------------------------------
hDestDC Specifies the device context that is to receive the bitmap. X,Y Specifies the logical x-
coordinate and y-coordinate of the upper-left corner of the destination rectangle. nWidth Specifies
the width (in logical units) of the destination rectangle and the source bitmap. nHeight Specifies
the height (in logical units) of the destination rectangle and the source bitmap. hSrcDC Identifies
the device context from which the bitmap will be copied. It must be NULL(zero) if the dwRop&amp;amp;
parameter specifies a raster operation that does not include a source. XSrc Specifies the logical x
-coordinate and the y-coordinate of the upper- left corner of the source bitmap. dwRop Specifies
the raster operation to be performed as defined below.
```

The following Raster operations are defined using the predefined constants found in the WINDOWS.H file supplied with the Microsoft Windows Software Development Kit (SDK). The value in the parentheses () is the value to assign to the dwRop& variable.

```
Code/Value (hex) Description ------------------------------------------------------------------------
---- BLACKNESS (42) Turn output black. DSINVERT(550009) Inverts the destination bitmap. MERGECOPY
(C000CA) Combines the pattern and the source bitmap using the Boolean AND operation. MERGEPAINT
(BB0226) Combines the inverted source bitmap with the destination bitmap using the Boolean OR
operator. NOTSRCCOPY(330008) Copies the inverted source bitmap to the destination. NOTSRCERASE
(1100A6) Inverts the result of combining the destination and source bitmap using the Boolean OR
operator. PATCOPY(F00021) Copies the pattern to the destination bitmap. PATINVERT(5A0049) Combines
the destination bitmap with the pattern using the Boolean XOR operator. PATPAINT(FB0A09) Combines
the inverted source bitmap with the pattern using the Boolean OR operator. Combines the result of
this operation with the destination bitmap using the Boolean OR operator. SRCAND(8800C6) Combines
pixels of the destination and source bitmap using the Boolean AND operator. SRCCOPY(CC0020) Copies
the source bitmap to destination bitmap. SRCERASE(4400328) Inverts the destination bitmap and
combines the results with the source bitmap using the Boolean AND operator. SRCINVERT(660046)
Combines pixels of the destination and source bitmap using the Boolean XOR operator. SRCPAINT
(EE0086) Combines pixels of the destination and source bitmap using the Boolean OR operator.
WHITENESS(FF0062) Turns all output white.
```

Step-by-Step Example

Here is an example showing how to copy the contents of a picture control to the contents of another picture control.

1. Start a new project in Visual Basic. Form1 is created by default. Place two picture controls (Picture1 and Picture2) on Form1.
2. Add a BAS module to the project.

3. In the General Declarations section of the module place the following code to declare the BitBlt API:

```
#If Win32 Then Declare Function BitBlt Lib "gdi32" (ByVal hDestDC As Long, ByVal x _ As Long, ByVal y As Long, ByVal nWidth As Long, ByVal nHeight As _ Long, ByVal hSrcDC As Long, ByVal xSrc As Long, ByVal ySrc As _ Long, ByVal dwRop As Long) As Long #Else Declare Function BitBlt Lib "GDI" (ByVal hDestDC%, ByVal X%, ByVal _ Y%, ByVal nWidth%, ByVal nHeight%, ByVal hSrcDC%, ByVal XSrc%, _ ByVal YSrc%, ByVal dwRop&amp;amp;) As Integer #End If
```

4. Display some graphics on Picture1 by loading from a picture file or by pasting from the clipboard at design time. You can load a picture from a file as follows:

   - Select Picture from the Properties list box and click the button with three dots to the right of the Settings box.
   - Then select the desired picture file such as a .BMP or .ICO file supplied with Microsoft Windows from the dialog box.

5. Add the following code to the Form_Click procedure:

```
Private Sub Form_Click () #If Win32 Then Const PIXEL = 3 Picture1.ScaleMode = PIXEL Picture2.ScaleMode = PIXEL hDestDC& = Picture2.hDC x& = 0: y& = 0 nWidth& = Picture2.ScaleWidth nHeight& = Picture2.ScaleHeight ' Assign information of the source bitmap. hSrcDC& = Picture1.hDC xSrc& = 0: ySrc& = 0 ' Assign the SRCCOPY constant to the Raster operation. dwRop& = &HCC0020 Suc& = BitBlt(hDestDC&, x&, y&, nWidth&, nHeight&, hSrcDC&, _ xSrc&, ySrc&, dwRop&) #Else ' Assign information of the destination bitmap. Note that Bitblt ' requires coordinates in pixels. Const PIXEL = 3 Picture1.ScaleMode = PIXEL Picture2.ScaleMode = PIXEL hDestDC% = Picture2.hDC x% = 0: y% = 0 nWidth% = Picture2.ScaleWidth nHeight% = Picture2.ScaleHeight ' Assign information of the source bitmap. hSrcDC% = Picture1.hDC xSrc% = 0: ySrc% = 0 ' Assign the SRCCOPY constant to the Raster operation. dwRop& = &HCC0020 Suc% = BitBlt(hDestDC%, x%, y%, nWidth%, nHeight%, hSrcDC%, _ xSrc%, ySrc%, dwRop&) #End If End Sub
```

6. Run the program. Click the form. The contents of the first picture will be displayed on the se cond picture.

APPLIES TO

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