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1  ' PicInfo bitmap file information class
2  ' @2006 Aivosto Oy (www.aivosto.com)
3  '
4  ' This file is part of a sample project for Project Analyzer.
5  ' Distribution of this file is only allowed along with Project Analyzer
6  ' according to the Project Analyzer license terms.
7
8  Option Explicit
9
10 Implements IPicInfo
11
12 Private Enum EBMPType
13     bmpUnknown
14     bmpInfoHeader
15     bmpCoreHeader
16 End Enum
17 Private BMPType As EBMPType
18
19 Private Type BITMAPFILEHEADER
20     bfType As Integer ' Specifies the file type, must be BM.
21     bfSize As Long ' Specifies the size, in bytes, of the bitmap file.
22     bfReserved1 As Integer ' Reserved; must be zero.
23     bfReserved2 As Integer ' Reserved; must be zero.
24     bfOffBits As Long ' Specifies the offset, in bytes, from the beginning of
        the BITMAPFILEHEADER structure to the bitmap bits.
25 End Type
26 Private Type BITMAPINFOHEADER
27     biSize As Long
28     biWidth As Long
29     biHeight As Long
30     biPlanes As Integer
31     biBitCount As Integer
32     biCompression As Long
33     biSizeImage As Long
34     biXPelsPerMeter As Long
35     biYPelsPerMeter As Long
36     biClrUsed As Long
37     biClrImportant As Long
38 End Type
39 Private Type BITMAPCOREHEADER
40     bcSize As Long
41     bcWidth As Integer
42     bcHeight As Integer
43     bcPlanes As Integer
44     bcBitCount As Integer
45 End Type
46 Private InfoHeader As BITMAPINFOHEADER
47 Private CoreHeader As BITMAPCOREHEADER
48
49 Private Const BI_RGB = 0&
50 Private Const BI_RLE4 = 2&
51 Private Const BI_RLE8 = 1&
52 Private Const BI_bitfields = 3&
53
54 ' IsRLE indicates whether the bitmap is RLE compressed (True) or not (False)
55 ' This variable is written but not read
56 ' It might well be removed without affecting the functionality of the program
57 Private IsRLE As Boolean
58
59 ' Filename used in the previous call to ReadFile
60 Private StoredFilename As String
61
62
63 Private Function ReadBitmapFile(ByVal Filename As String) As Boolean
64 ' Read picture information from a bitmap file of type BMP/DIB/RLE
65 ' [Filename] Name of picture file
66 ' Return value:
67 ' True - Picture information retrieved
68 ' False - Not a valid bitmap file
69
70 Dim BMPFileHeader As BITMAPFILEHEADER ' Main BM file header
71 Dim FileNr As Integer ' Number of open file
72 Dim Headersize As Long ' Size of header data in bytes
73
74 IsRLE = False ' Clear the IsRLE flag. We will set it below to True if required.

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75 BMPType = bmpUnknown ' Set file type to bmpUnknown until we can verify the real type
76
77 ' Open the file for binary read access
78 FileNr = FreeFile
79 Open Filename For Binary Access Read Lock Write As #FileNr
80
81 If LOF(FileNr) > Len(BMPFileHeader) Then
82 ' File length is "enough", read main BM file header header
83 Get #FileNr, 1, BMPFileHeader
84 If BMPFileHeader.bfType = &H4D42 Then ' BM
85     If BMPFileHeader.bfReserved1 = 0 And BMPFileHeader.bfReserved2 = 0 Then
86         ' Signature OK
87
88         ' Retrieve size of following header
89         Get #FileNr, , Headersize
90         Seek #FileNr, Seek(FileNr) - 4 ' Rewind to start of header
91
92         Select Case Headersize
93             Case Len(CoreHeader)
94                 Get #FileNr, , CoreHeader
95                 BMPType = bmpCoreHeader
96                 ReadBitmapFile = True ' File valid
97             Case Len(InfoHeader)
98                 Get #FileNr, , InfoHeader
99                 BMPType = bmpInfoHeader
100
101                 ' Determine bitmap compression
102                 Select Case InfoHeader.biCompression
103                     Case BI_RLE8, BI_RLE4
104                         ' The bitmap is RLE compressed
105                         IsRLE = True
106                 End Select
107                 ReadBitmapFile = True ' File valid
108             Case Else
109                 ReadBitmapFile = False ' Invalid/unsupported file type
110         End Select
111     End If
112 End If
113 Close FileNr
114
115 End Function
116
117
118 Private Property Get IPicInfo_Filename() As String
119 ' Returns the filename used in the previous call to ReadFile
120
121 IPicInfo_Filename = StoredFilename
122
123 End Property
124
125
126 Private Property Get IPicInfo_MaxColors() As Variant
127
128 Select Case BMPType
129     Case bmpCoreHeader
130         IPicInfo_MaxColors = 2 ^ CoreHeader.bcBitCount
131     Case bmpInfoHeader
132         IPicInfo_MaxColors = 2 ^ InfoHeader.biBitCount
133 End Select
134
135 End Property
136
137
138 Private Function IPicInfo_ReadFile(ByVal Filename As String) As Boolean
139 ' Read a picture file to retrieve picture information
140 ' [Filename] File to read
141 ' Return value:
142 ' True - Picture information retrieved
143 ' False - Error, information not retrieved
144
145 IPicInfo_ReadFile = ReadBitmapFile(Filename)
146
147 End Function
148
149

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```
150 Private Property Get IPicInfo_Size() As TPicSize
151 ' Returns picture width and height in pixels
152
153 Select Case BMPType
154     Case bmpCoreHeader
155         IPicInfo_Size.Width = CoreHeader.bcwidth
156         IPicInfo_Size.Height = CoreHeader.bcHeight
157     Case bmpInfoHeader
158         IPicInfo_Size.Width = InfoHeader.biwidth
159         IPicInfo_Size.Height = InfoHeader.biHeight
160 End Select
161
162 End Property
163
164
```