The evolution of dialog templates – 32-bit Extended Templates

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At last we reach our goal, the 32-bit extended dialog template, known in resource files as DIALOGEX. I will celebrate this with a gratuitous commutative diagram:

16-bit DIALOG	→ 32	32-bit DIALOG
↓ EX		↓ EX
16-bit DIALOGEX	→ 32	32-bit DIALOGEX

Isn't that special.

Okay, so let's get going. The 32-bit extended dialog template is the 32-bit version of the 16-bit extended dialog template, so you won't see any real surprises if you've been following along.

Once again, we start with a header, this time the 32-bit extended header.

```
WORD  wDlgVer;      // version number - always 1
WORD  wSignature;   // always 0xFFFF
DWORD dwHelpID;     // help ID
DWORD dwExStyle;    // window extended style
DWORD dwStyle;      // dialog style
WORD  cItems;       // number of controls in this dialog
WORD  x;            // x-coordinate
WORD  y;            // y-coordinate
WORD  cx;           // width
WORD  cy;           // height
```

The first two fields serve exactly the same purpose as the 16-bit extended template: They identify this header as an extended dialog template.

As before, the next two fields are new. The help identifier is attached to the dialog via the SetWindowContextHelpId function, and the extended dialog style shouldn't be a surprise.

You know the drill: Next come the three strings for the menu, class, and dialog title. Since this is the 32-bit template, the strings are Unicode.

As with the 16-bit extended template, the optional custom font consists of a little more information than the non-extended template:

```
WORD wPoint;        // point size
WORD wWeight;       // font weight
BYTE bItalic;       // 1 if italic, 0 if not
BYTE bCharSet;      // character set
WCHAR szFontName[]; // variable-length
```

As before, the point, weight, italic and character set are all passed to the CreateFont function.

After the header come the dialog item templates, each of which must be aligned on a DWORD boundary.

```
DWORD dwHelpID;     // help identifier
DWORD dwExStyle;    // window extended style
DWORD dwStyle;      // window style
WORD  x;            // x-coordinate (DLUs)
WORD  y;            // y-coordinate (DLUs)
WORD  cx;           // width (DLUs)
WORD  cy;           // height (DLUs)
DWORD dwID;         // control ID
WCHAR szClassName[];// variable-length (possibly ordinal)
WCHAR szText[];     // variable-length (possibly ordinal)
WORD  cbExtra;      // amount of extra data
BYTE  rgbExtra[cbExtra]; // extra data follows (usually none)
```

The changes here:

- New dwHelpID and dwExStyle fields.
- The dwStyle field has moved.
- The control ID has grown to a 32-bit value.

Not that expanding the control ID to a 32-bit value helps any, because WM_COMMAND and similar messages still use a 16-bit value to pass the control ID. So in practice, you can't use a value greater than 16 bits. (Well, you can always ignore the control ID field and retrieve the full 32-bit control ID via the GetDlgCtrlID function, assuming you have the window handle of the control available.)

And that's all there is to it.

Here's the customary annotated hex dump.

```
0000  01 00 FF FF 00 00 00 00-00 00 00 00 C4 00 C8 80  ................
0010  0B 00 24 00 2C 00 E6 00-5E 00 00 00 00 00 52 00  ..$.,...^.....R.
0020  65 00 70 00 6C 00 61 00-63 00 65 00 00 00 08 00  e.p.l.a.c.e.....
0030  00 00 00 01 4D 00 53 00-20 00 53 00 68 00 65 00  ....M.S. .S.h.e.
0040  6C 00 6C 00 20 00 44 00-6C 00 67 00 00 00 00 00  l.l. .D.l.g.....
0050  00 00 00 00 00 00 00 00-00 00 02 50 04 00 09 00  ...........P....
0060  30 00 08 00 FF FF FF FF-FF FF 82 00 46 00 69 00  0...........F.i.
0070  26 00 6E 00 64 00 20 00-57 00 68 00 61 00 74 00  &.n.d. .W.h.a.t.
0080  3A 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00  :...............
0090  80 00 83 50 36 00 07 00-72 00 0C 00 80 04 00 00  ...P6...r.......
00A0  FF FF 81 00 00 00 00 00-00 00 00 00 00 00 00 00  ................
00B0  00 00 02 50 04 00 1A 00-30 00 08 00 FF FF FF FF  ...P....0.......
00C0  FF FF 82 00 52 00 65 00-26 00 70 00 6C 00 61 00  ....R.e.&.p.l.a.
00D0  63 00 65 00 20 00 77 00-69 00 74 00 68 00 3A 00  c.e. .w.i.t.h.:.
00E0  00 00 00 00 00 00 00 00-00 00 00 00 80 00 83 50  ...............P
00F0  36 00 18 00 72 00 0C 00-81 04 00 00 FF FF 81 00  6...r...........
0100  00 00 00 00 00 00 00 00-00 00 00 00 03 00 03 50  ...............P
0110  05 00 2E 00 68 00 0C 00-10 04 00 00 FF FF 80 00  ....h...........
0120  4D 00 61 00 74 00 63 00-68 00 20 00 26 00 77 00  M.a.t.c.h. .&.w.
0130  68 00 6F 00 6C 00 65 00-20 00 77 00 6F 00 72 00  h.o.l.e. .w.o.r.
0140  64 00 20 00 6F 00 6E 00-6C 00 79 00 00 00 00 00  d. .o.n.l.y.....
0150  00 00 00 00 00 00 00 00-03 00 01 50 05 00 3E 00  ...........P..>.
0160  3B 00 0C 00 11 04 00 00-FF FF 80 00 4D 00 61 00  ;...........M.a.
0170  74 00 63 00 68 00 20 00-26 00 63 00 61 00 73 00  t.c.h. .&.c.a.s.
0180  65 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00  e...............
0190  01 00 03 50 AE 00 04 00-32 00 0E 00 01 00 00 00  ...P....2.......
01A0  FF FF 80 00 26 00 46 00-69 00 6E 00 64 00 20 00  ....&.F.i.n.d. .
01B0  4E 00 65 00 78 00 74 00-00 00 00 00 00 00 00 00  N.e.x.t.........
01C0  00 00 00 00 00 00 01 50-AE 00 15 00 32 00 0E 00  .......P....2...
01D0  00 04 00 00 FF FF 80 00-26 00 52 00 65 00 70 00  ........&.R.e.p.
01E0  6C 00 61 00 63 00 65 00-00 00 00 00 00 00 00 00  l.a.c.e.........
01F0  00 00 00 00 00 00 01 50-AE 00 26 00 32 00 0E 00  .......P..&.2...
0200  01 04 00 00 FF FF 80 00-52 00 65 00 70 00 6C 00  ........R.e.p.l.
0210  61 00 63 00 65 00 20 00-26 00 41 00 6C 00 6C 00  a.c.e. .&.A.l.l.
0220  00 00 00 00 00 00 00 00-00 00 00 00 00 00 01 50  ...............P
0230  AE 00 37 00 32 00 0E 00-02 00 00 00 FF FF 80 00  ..7.2...........
0240  43 00 61 00 6E 00 63 00-65 00 6C 00 00 00 00 00  C.a.n.c.e.l.....
0250  00 00 00 00 00 00 00 00-00 00 01 50 AE 00 4B 00  ...........P..K.
0260  32 00 0E 00 0E 04 00 00-FF FF 80 00 26 00 48 00  2...........&.H.
0270  65 00 6C 00 70 00 00 00-00 00                    e.l.p.....
```

As always, the header comes first.

```
0000  01 00         // wVersion
0002  FF FF         // wSignature
0004  00 00 00 00   // dwHelpID
0008  00 00 00 00   // dwExStyle
000C  C4 00 C8 80   // dwStyle
0010  0B 00         // cItems
0012  24 00 2C 00   // x, y
0016  E6 00 5E 00   // cx, cy
```

Nothing surprising here; you've seen it before.

wVersion	= 0x0001	= 1
wSignature	= 0xFFFF	
dwHelpID	= 0x00000000	= 0
dwExStyle	= 0x00000000	= 0
dwStyle	= 0x80C800C4	= WS_POPUP | WS_CAPTION | WS_SYSMENU | DS_SETFONT | DS_MODALFRAME | DS_3DLOOK
cItems	= 0x000B	= 11
x	= 0x0024	= 36
y	= 0x002C	= 44
cx	= 0x00E6	= 230
cy	= 0x005E	= 94

After the header come the menu name, class name, and dialog title:

```
001A  00 00         // no menu
001C  00 00         // default dialog class
001E  52 00 65 00 70 00 6C 00 61 00 63 00
      65 00 00 00   // "Replace"
```

And since DS_SETFONT is set in the dialog style, font information comes next. Notice that the additional font characteristics are included in the extended template.

```
002E  08 00         // wSize = 8
0030  00 00         // wWeight = 0x0000 = FW_DONTCARE
0032  00            // Italic
0033  01            // Character set = 0x01 = DEFAULT_CHARSET
0034  4D 00 53 00 20 00 53 00 68 00 65 00 6C 00
      6C 00 20 00 44 00 6C 00 67 00 00 00
                    // "MS Shell Dlg"
```

You've seen this all before. Here come the extended dialog item templates. Remember, these must be DWORD-aligned.

```
004E  00 00         // padding to achieve DWORD alignment
// First control
0050  00 00 00 00   // dwHelpID
0054  00 00 00 00   // dwExStyle
0058  00 00 02 50   // dwStyle
005C  04 00 09 00   // x, y
0060  30 00 08 00   // cx, cy
0064  FF FF FF FF   // wID
0068  FF FF 82 00   // szClass = ordinal 0x0082 = "static"
006C  46 00 69 00
0070  26 00 6E 00 64 00 20 00 77 00 68 00 61 00 74 00
0080  3A 00 00 00   // "Fi&nd what:"
0084  00 00         // no extra data
0086  00 00         // padding to achieve DWORD alignment
// Second control
0088  00 00 00 00   // dwHelpID
008C  00 00 00 00   // dwExStyle
0090  80 00 83 50   // dwStyle
0094  36 00 07 00   // x, y
0098  72 00 0C 00   // cx, cy
009C  80 04 00 00   // wID
00A0  FF FF 81 00   // "edit"
00A4  00 00         // ""
00A6  00 00         // no extra data
// Third control
00A8  00 00 00 00   // dwHelpID
00AC  00 00 00 00   // dwExStyle
00B0  00 00 02 50   // dwStyle
00B4  04 00 1A 00   // x, y
00B8  30 00 08 00   // cx, cy
00BC  FF FF FF FF   // wID
00C0  FF FF 82 00   // "static"
00C4  52 00 65 00 26 00 70 00 6C 00 61 00
00D0  63 00 65 00 20 00 77 00 69 00 74 00 68 00 3A 00
00E0  00 00         // "Re&place with:"
00E2  00 00         // no extra data
// Fourth control
00E4  00 00 00 00   // dwHelpID
00E8  00 00 00 00   // dwExStyle
00EC  80 00 83 50   // dwStyle
00F0  36 00 18 00   // x, y
00F4  72 00 0C 00   // cx, cy
00F8  81 04 00 00   // wID
00FC  FF FF 81 00   // "edit"
0100  00 00         // ""
0102  00 00         // no extra data
// Fifth control
0104  00 00 00 00   // dwHelpID
0108  00 00 00 00   // dwExStyle
010C  03 00 03 50   // dwStyle
0110  05 00 2E 00   // x, y
0114  68 00 0C 00   // cx, cy
```

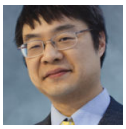
```
0118  10 04 00 00   // wID
011C  FF FF 80 00   // "button"
0120  4D 00 61 00 74 00 63 00 68 00 20 00 26 00 77 00
0130  68 00 6F 00 6C 00 65 00 20 00 77 00 6F 00 72 00
0140  64 00 20 00 6F 00 6E 00 6C 00 79 00 00 00
                    // "Match &whole word only"
014E  00 00         // no extra data
// Sixth control
0150  00 00 00 00   // dwHelpID
0154  00 00 00 00   // dwExStyle
0158  03 00 01 50   // dwStyle
015C  05 00 3E 00   // x, y
0160  3B 00 0C 00   // cx, cy
0164  11 04 00 00   // wID
0168  FF FF 80 00   // "button"
016C  4D 00 61 00
0170  74 00 63 00 68 00 20 00 26 00 63 00 61 00 73 00
0180  65 00 00 00   // "Match &case"
0184  00 00         // no extra data
0186  00 00         // padding to achieve DWORD alignment
// Seventh control
0188  00 00 00 00   // dwHelpID
018C  00 00 00 00   // dwExStyle
0190  01 00 03 50   // dwStyle
0194  AE 00 04 00   // x, y
0198  32 00 0E 00   // cx, cy
019C  01 00 00 00   // wID
01A0  FF FF 80 00   // "button"
01A4  26 00 46 00 69 00 6E 00 64 00 20 00
01B0  4E 00 65 00 78 00 74 00 00 00
                    // "&Find Next"
01BA  00 00         // no extra data
// Eighth control
01BC  00 00 00 00   // dwHelpID
01C0  00 00 00 00   // dwExStyle
01C4  00 00 03 50   // dwStyle
01C8  AE 00 15 00   // x, y
01CC  32 00 0E 00   // cx, cy
01D0  00 04 00 00   // wID
01D4  FF FF 80 00   // "button"
01D8  26 00 52 00 65 00 70 00
                    // "&Replace"
01E0  6C 00 61 00 63 00 65 00 00 00
01EA  00 00         // no extra data
// Ninth control
01EC  00 00 00 00   // dwHelpID
01F0  00 00 00 00   // dwExStyle
01F4  00 00 03 50   // dwStyle
01F8  AE 00 26 00   // x, y
01FC  32 00 0E 00   // cx, cy
0200  01 04 00 00   // wID
0204  FF FF 80 00   // "button"
```

```
0208  52 00 65 00 70 00 6C 00
0210  61 00 63 00 65 00 20 00 26 00 41 00 6C 00 6C 00
0220  00 00         // "Replace &All"
0222  00 00         // no extra data
// Tenth control
0224  00 00 00 00   // dwHelpID
0228  00 00 00 00   // dwExStyle
022C  00 00 01 50   // dwStyle
0230  AE 00 37 00   // x, y
0234  32 00 0E 00   // cx, cy
0238  02 00 00 00   // wID
023C  FF FF 80 00   // "button"
0240  43 00 61 00 6E 00 63 00 65 00 6C 00 00 00
                    // "Cancel"
024E  00 00         // no extra data
// Eleventh control
0250  00 00 00 00   // dwHelpID
0254  00 00 00 00   // dwExStyle
0258  00 00 03 50   // dwStyle
025C  AE 00 4B 00   // x, y
0260  32 00 0E 00   // cx, cy
0264  0E 04 00 00   // wID
0268  FF FF 80 00   // "button"
026C  26 00 48 00
0270  65 00 6C 00 70 00 00 00
                    // "&Help"
0278  00 00         // no extra data
```

The original dialog template is, of course, the one you're probably sick of by now. The only change is that the DIALOG keyword has been changed to DIALOGEX.

```
DIALOGEX 36, 44, 230, 94
...
```

So that's the last of the dialog template formats. Tomrrow, a chart that tries to summarize everything at a glance.



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