

The Toolbar Library

Stephen Chung
stephenc@cunixf.cc.columbia.edu
Tim Liddelow
tim@kimba.catt.citri.edu.au

This set of C and C++ routines implement the slick "toolbar" found in Microsoft Word for Windows, Excel etc. They have been written and compiled using Borland C++ 2.0 and 3.0. They should however work fine with other compilers. Provided are C routines and a small C++ class.

Using the Toolbar library

Look at the sample program TBTEST.C for an example. That toolbar is part of a Japanese word processor. The icons have not been included because they are embedded in a large resource file with everything else. If you want some of them, send Stephen Chung email.

First of all, the toolbar is a 3-dimensional, horizontal bar containing **toolbar buttons**. You can add other kinds of child window controls onto the toolbar as well, such as combo boxes etc.

Before you do anything, you must define an array of TOOLBARICON. Each element in that array corresponds to one toolbar button. The fields should be set according to the following:

```
int id          /* The numeric ID of the button (0-255) */
int x, y       /* The X,Y position of the button, in pixels */
int width,
    height     /* The width/height of the button, in pixels */
int state      /* The initial state of the button:
                -1 = Disabled
                 0 = Off
                 1 = On
                 2 = Grayed
                */
int cycle      /* The mode of that button, upon a mouse click:
                0 = Leave the state alone
                  (Set it with a BM_SETSTATE message)
                 1 = Always undepressed, but flashed once
                 2 = Toggle On --> Off --> On
                 3 = Toggle On --> Off --> Gray --> On
```

```

        */

char *disabled      /* The name for the DISABLED bitmap */
char *undepressed  /* The name for the OFF bitmap */
char *depressed    /* The name for the ON bitmap */
char *grayed       /* The name for the GRAYED bitmap */
char *pressing     /* The name for the PRESSING bitmap */

```

You should leave the rest of the fields alone. They are used internally by the library routines.

Creating the Toolbar

In the C version, to create the toolbar, call `CreateToolbar`. This routine has the following parameters:

```

HWND CreateToolbar (HWND      parent,
                   int       x,
                   int       y,
                   int       width,
                   int       height,
                   int       thickness,
                   int       id,
                   int       nr_buttons,
                   HANDLE    hInstance,
                   TOOLBARICON *icons,
                   char      *xcursor)

```

| | |
|----------------------|---|
| <i>parent</i> | Parent window handle |
| <i>x, y</i> | (<i>x, y</i>) position of toolbar in pixels relative to parent window |
| <i>width, height</i> | Width and height of toolbar in pixels |
| <i>thickness</i> | Thickness or fatness of the toolbar |
| <i>id</i> | The id of the toolbar |
| <i>nr_buttons</i> | The number of buttons on the toolbar |
| <i>hInstance</i> | Instance handle of the application |
| <i>icons</i> | Points to a TOOLBARICON array |
| <i>xcursor</i> | The name of a cursor for a disabled toolbar button |

The above routine will return the handle for the toolbar. You can use this handle to add more child controls (see `TBTEST.C`).

If you are using C++, the prototype for the constructor is

```

void ToolBar::ToolBar (HWND parent,
                      int x,
                      int y,
                      int width,

```

```

int height,
int thickness,
int id,
int n,
HANDLE hInstance,
TOOLBARICON *icons,
char *xcursor)

```

To obtain the window handle using C++, simply use the member function Window().

Notes

The toolbar will send a **WM_COMMAND** message to its parent when one of its buttons is clicked. The following parameters are passed:

| | |
|----------------|---|
| <i>message</i> | WM_COMMAND |
| <i>wParam</i> | Low Byte = Toolbar ID High Byte = Toolbar button ID |
| <i>lParam</i> | Low Word = Toolbar button window handle High Word = BN_CLICKED |

REMEMBER that even other child controls that you define (such as list boxes) will return with *wParam* = (Child ID << 8) | (Toolbar ID). This means that you are restricted to having 256 toolbars and 256 toolbar buttons and child controls on each toolbar. Well, life is tough, isn't it?

Support routines

These routines are listed in prototype format and their parameters are explained. Note that the C++ equivalent class member functions do not always required all the parameters of the corresponding C one.

You enable and disable toolbar buttons by calling **EnableToolbarButton** with the following parameters:

```

void ToolBar::EnableToolbarButton (int    child,
                                   BOOL   Enabled)

```

```

void EnableToolbarButton (HWND    hwnd,
                          int     child,
                          BOOL    Enabled)

```

| | |
|----------------|---------------------------------------|
| <i>hwnd</i> | Toolbar window handle |
| <i>child</i> | Id of the toolbar button |
| <i>Enabled</i> | Nonzero enables button, zero disables |

You can also set or query the state of a toolbar button by sending the TOOLBAR BUTTON a **BM_GETSTATE** or **BM_SETSTATE** message, just as you would for a normal push button. You can also send the **BM_GETSTATE** and **BM_SETSTATE** messages to the toolbar's window procedure, with the toolbar button's ID passed in lParam.

If, for some twisted reason, you want to modify the characteristics of the toolbar button dynamically, you can first call `GetToolbarButton` to fill in a **TOOLBARICON** structure:

```
HWND ToolBar::GetToolbarButton (int          child,
                                TOOLBARICON *icon)
```

```
HWND GetToolbarButton (HWND    hwnd,
                      int      child,
                      TOOLBARICON *icon)
```

| | |
|--------------|---|
| <i>hwnd</i> | Toolbar window handle |
| <i>child</i> | Id of the toolbar button |
| <i>icon</i> | Pointer to a TOOLBARICON structure to store the button information |

This routine will return the window handle of the toolbar button. Now you can change the settings and then call **ModifyToolbarButton**:

```
void ToolBar::ModifyToolbarButton (HWND    hwndButton,
                                   TOOLBARICON *icon)
```

```
void ModifyToolbarButton (HWND    hwndButton,
                         TOOLBARICON *icon)
```

| | |
|-------------------|--|
| <i>hwndButton</i> | Toolbar button window handle |
| <i>icon</i> | The TOOLBARICON structure containing the new settings |

There is also a neat little routine called `Create3DEffect` which will make any rectangle within any window look like a 3-dimensional bar:

```
void Create3DEffect (HDC    hdc,
                    RECT    *rect,
                    int     thickness,
                    int     style)
```

| | |
|-------------|---|
| <i>hdc</i> | Handle to some device context to draw on |
| <i>rect</i> | Pointer to a rectangle defining the area to make 3D. If <i>rect</i> is NULL, the entire window is used. |

C++ Example

```

foo()
{
    TOOLBARICON Icons[] = { ..... };
    TOOLBARICON IconInfo;

    ToolBar t(hParent, 10, 10, TOOLBAR_WIDTH, TOOLBAR_HEIGHT,
              TOOLBAR_THICKNESS, TOOLBAR_1, NICKONS,
hInstance,
              Icons, NULL);
    ...
    ...
    t.Hide();
    ...
    ...
    t.EnableToolBarButton(2, FALSE);
    ToolbarIconWindowHandle = t.GetToolBarButton(2, &IconInfo);
    ToolbarWindowHandle = t.Window();
    ...
    ...
}

```

If you want to change the name of the toolbar window classes, they are defined in **toolbar.h**.

Remember to export `ToolBarProc` and `ToolBarButtonProc` in your `.def` file of course.

Afterwords

These routines are copyright © 1991, 1992 Stephen Chung and Tim Liddelow. This copyright message should be retained in the source code at all times.

For individual, non-commercial, non-shareware use these routines can be used without approval. Otherwise approval should be sought from either author.

Any questions and/or bug fixes, please send email to:

 Stephen Chung stephenc@cunixf.cc.columbia.edu
or Tim Liddelow tim@kimba.catt.citri.edu.au

If it bounces, then try chung@cogsci.Berkeley.EDU

Have fun!