

C++/Win32 References

Win32.chm
 Microsoft Docs (MSDN)
 cppreference

Basic Types

```
typedef unsigned int UINT; // u
typedef INT BOOL; // TRUE or FALSE (or -1?)
typedef char CHAR; typedef uint8_t BYTE;
typedef uint16_t WORD, USHORT; // w
typedef int32_t LONG; // 4-byte
typedef uint32_t ULONG, DWORD; // dw
typedef uint64_t ULONGLONG; // 8-byte
typedef ptrdiff_t LONG_PTR;
typedef size_t ULONG_PTR; // 4- or 8-byte
typedef wchar_t WCHAR; // 2-byte
typedef WCHAR TCHAR; // #ifdef UNICODE
typedef CHAR TCHAR; // Ansi
typedef TCHAR *LPTSTR; // psz for text
typedef const TCHAR *LPCTSTR; // for text
P... and LP... are pointer types.
LPC... is const pointer.
```

Handle Types

HWND --- Window. // hWnd
 HMODULE --- Instance of executable.
 HINSTANCE --- Same as HMODULE. // hInst
 HICON --- Icon. // hIcon
 HCURSOR --- Cursor // hCursor
 HBITMAP --- Bitmap. // hBitmap
 HFONT --- Font. // hFont
 HMENU --- Menu. // hMenu
 HPEN --- Pen. // hPen
 HBRUSH --- Brush. // hbr
 HRGN --- Region. // hRgn
 HDC --- Device Context. // hDC
 HKEY --- Registry key. // hKey
 HACCEL --- Keyboard Accelerators.

Messaging Types

MSG --- Structure for messaging.
 WPARAM --- Used in procedure.
 LPARAM --- Used in procedure.

WinMain (The main function for Windows app)

```
// For Ansi or (MBCS)
INT WINAPI
WinMain(hInst, hInstPrev, lpCmdLine, nCmdShow);

// For Unicode:
INT WINAPI
wWinMain(hInst, hInstPrev, lpCmdLine, nCmdShow);
```

Message Box (as a modal dialog)

```
INT id = MessageBox(HWND, text, title, mb_flags);
id: IDABORT, IDCANCEL, IDIGNORE, IDNO, IDOK,
    IDRETRY, IDYES.
mb_flags: MB_{OK,OKCANCEL,YESNO,YESNOCANCEL,...}
          MB_ICON{INFORMATION,ERROR,WARNING}.
```

Procedures (callback functions)

```
// Window Procedure
// (Register by RegisterClass[Ex] with class name).
// Message loop is needed.
LRESULT CALLBACK
WindowProc(HWND, uMsg, WPARAM, LPARAM);
default: return DefWindowProc(HWND, uMsg, wp, lp);
// Message loop:
MSG msg; while (GetMessage(&msg, NULL, 0, 0))
{ TranslateMessage(&msg); DispatchMessage(&msg); }
```

```
// Dialog Procedure.
INT_PTR CALLBACK
DialogProc(HWND, uMsg, WPARAM, LPARAM); default: return 0;
```

Creating Dialogs

```
// Modal dialog.
id = DialogBox(hInst, name, hWndParent, DialogProc);
//   name is the resource name
//   or MAKEINTRESOURCE(res_id).
// Modal dialog with parameter.
id = DialogBox(hInst, name, hWndParent, DialogProc,
               pData);
// Modeless dialog. Use IsDialogMessage in msg loop.
hWnd = CreateDialog(hInst, name, hWndParent,
                   DialogProc);
// Modeless dialog with parameter
hWnd = CreateDialogParam(hInst, name, hWndParent,
                        DialogProc, pData);
```

Dialog Manipulation

```
INT id = GetDlgCtrlID(hWndCtrl);
HWND hWndCtrl = GetDlgItem(hWnd, ctrl_id);
i = GetDlgItemInt(hWnd, ctrl_id, &bTranslated, bSigned);
GetDlgItemText(hWnd, ctrl_id, pszText, cchText);
SendDlgItemMessage(hWnd, ctrl_id,
                   uMsg, wParam, lParam);
SetDlgItemInt(hWnd, ctrl_id, iValue, bSigned);
SetDlgItemText(hWnd, ctrl_id, text);
EndDialog(hWnd, id); // for modal dialogs
```

Window Manipulation

```
hWnd = CreateWindow(class_name, text, dwStyle,
                   x, y, cx, cy, hWndParent, hMenu, hInst, pData);
hWnd = CreateWindowEx(dwExStyle, (...samely...));
b = IsWindow(hWnd);
DestroyWindow(hWnd); // for window or modeless
```

```
bEnabled = IsWindowEnabled(hWnd);
EnableWindow(hWnd, bEnable);
bVisible = IsWindowVisible(hWnd);
ShowWindow(hWnd, SW_SHOW or SW_HIDE);
b = IsChild(hWndParent, hWnd);
SetParent(hWndChild, hWndNewParent);
bMaximized = IsZoomed(hWnd);
ShowWindow(hWnd, SW_MAXIMIZE);
bMinimized = IsIconic(hWnd);
ShowWindow(hWnd, SW_MINIMIZE);
ShowWindow(hWnd, SW_RESTORE);
```

```
GetWindowText(hWnd, buffer, _countof(buffer));
SetWindowText(hWnd, text);
```

Window Positioning

```
struct POINT { LONG x, y; }; // pt
struct SIZE { LONG cx, cy; }; // size
struct RECT { LONG left, top, right, bottom; }; // rc
GetWindowRect(hWnd, &rc);
GetClientRect(hWnd, &rc);
hWnd = WindowFromPoint(pt);
hWnd = ChildWindowFromPoint(hWndParent, pt);
MapWindowPoints(hWndFrom, hWndTo, ppt, cpt);
MoveWindow(hWnd, x, y, cx, cy, bRedraw);
SetWindowPos(hWnd, child_after, x, y, cx, cy,
             swp_flags);
```