What’s the difference between HWND_TOP and HWND_TOPMOST?

devblogs.microsoft.com/oldnewthing/20051121-10

November 21, 2005

Raymond Chen

The special values `HWND_TOP` and `HWND_TOPMOST` have similar names but do completely different things when passed as the `hWndInsertAfter` parameter to the `DeferWindowPos` function (or its moral equivalents such as `SetWindowPos`). As a backgrounder, you should start off by reading the MSDN discussion, which is perfectly accurate as far as it goes. Here, I’ll discuss the issue from a historical perspective in the hopes that looking at it from a different direction may improve understanding.

Sibling windows are maintained in an order called the Z-order. (For the purpose of this discussion, top-level windows are also treated as siblings. In fact, it is the Z-order of top-level windows that most people think of when they say “Z-order”.)

The Z-order should be visualized as a vertical stack, with windows “above” or “below” siblings.

Before Windows 3.0, the behavior was simple: `HWND_TOP` brings the window to the top of the Z-order.

Windows 3.0 added the concept of “topmost” windows. These are top-level windows that always remain “above” non-topmost windows. To make a window topmost, call `DeferWindowPos` (or one of its moral equivalents) with `HWND_TOPMOST` as the `hWndInsertAfter`. To make a window non-topmost, use `HWND_NOTOPMOST`.

As a result of the introduction of “topmost” windows, `HWND_TOP` now brings the window “as high in the Z-order as possible without violating the rule that topmost windows always appear above non-topmost windows”. What does this mean in practice?

- If a window is topmost, then `HWND_TOP` puts it at the very top of the Z-order.
- If a window is not topmost, then `HWND_TOP` puts it at the top of all non-topmost windows (i.e., just below the lowest topmost window, if any).

Note: The above discussion completely ignores the issue of owner and owned windows. I left them out because they would add a layer of complication that distracts from the main topic.

Raymond Chen

Follow