

How do I allow negative numbers with the ES_NUMBER edit control style?

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The `ES_NUMBER` edit control style limits typed input to digits, but what if you also want to accept negative numbers? How can we extend¹ `ES_NUMBER` to accept the minus sign?

The `ES_NUMBER` edit control style works by altering the behavior of the edit control when it receives a `WM_CHAR`. You can do that too!

Subclass the edit control and handle the `WM_CHAR` message by checking whether the character is a digit or a minus sign. If not, then beep and return. Otherwise, let the message through.

```

LRESULT CALLBACK SignedIntegerSubclassProc(
    HWND hwnd,
    UINT uMsg,
    WPARAM wParam,
    LPARAM lParam,
    UINT_PTR uIdSubclass,
    DWORD_PTR dwRefData)
{
    switch (uMsg) {
    case WM_NCDESTROY:
        RemoveWindowSubclass(hwnd, SignedIntegerSubclassProc, uIdSubclass);
        break;

    case WM_CHAR:
        {
            wchar_t ch = (wchar_t)wParam;
            if (ch < L' ') break;           // let control character through
            else if (ch == L' -') break;    // let hyphen-minus through
            else if (ch == L'\x2212') break; // let Unicode minus sign through
            else if (IsUnicodeDigit(ch)) break; // let digit through
            MessageBeep(0);                 // otherwise invalid
            return 0;
        }
    }

    return DefSubclassProc(hwnd, uMsg, wParam, lParam);
}

BOOL EnforceSignedIntegerEdit(HWND hwnd)
{
    return SetWindowSubclass(hwnd, SignedIntegerSubclassProc, 0, 0);
}

```

If the user entered a character, then we let it through if it is one of the following:

- A control character, to permit **Ctrl+A**, **Ctrl+C**, **Bksp**, **Tab**, and so on.
- Unicode character U+002D HYPHEN-MINUS, which is what most people think of as a minus sign.
- Unicode character U+2212 MINUS SIGN, which is a true minus sign.

¹ As noted in the documentation, the `ES_ NUMBER` edit control style doesn't prevent the user from putting non-digits into the edit control by other means, like pasting with **Ctrl+V**. The exercise is to extend the existing behavior of the `ES_ NUMBER` style, not to fix it to cover all the other scenarios. Our technique has the same defects as `ES_ NUMBER`, but at least it's the same defects.

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