

# How can I check in Win32 whether a Unicode character is any kind of digit?

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Suppose you have a Unicode code unit `wchar_t` and you want to know whether it represents a numeric digit. If you have [the ICU library](#), you can check if its code point's `u_charType` is `U_DECIMAL_DIGIT_NUMBER`. But what about plain Win32?

For Win32, you can use the `GetStringTypeW` function to obtain properties for each code unit.

```
bool IsUnicodeDigit(wchar_t ch)
{
    WORD type;
    return GetStringTypeW(CT_CTYPE1, &ch, 1, &type) &&
        (type & C1_DIGIT);
}
```

We ask the `GetStringTypeW` function for the `CT_CTYPE1` value for one character, passing an output buffer of size 1. We then check whether the result says that it is a digit.

The `GetStringTypeW` function produces a 16-bit value for each provided code unit. There are more than 16 things you can ask about, so they are broken into groups, and you specify which group you want. Group 1 contains the basic classifications that support POSIX functions like `isdigit` and `isalnum`.

Here's one way it could be done. (I'm not saying this is how it actually is done.)

C runtime	Category flags	Win32 function
<code>isalnum</code>	<code>C1_ALPHA   C1_UPPER   C1_LOWER   C1_DIGIT</code>	<code>IsCharAlphaNumeric</code> <u>sort of</u>
<code>isalpha</code>	<code>C1_ALPHA   C1_UPPER   C1_LOWER</code>	<code>IsCharAlpha</code> <u>sort of</u>
<code>isblank</code>	<code>C1_BLANK</code>	
<code>iscntrl</code>	<code>C1_CNTRL</code>	

<code>isdigit</code>	<code>C1_DIGIT</code>	
<code>isgraph</code>	<code>C1_ALPHA   C1_UPPER   C1_LOWER   C1_DIGIT   C1_PUNCT</code>	
<code>islower</code>	<code>C1_LOWER</code>	<code>IsCharLower</code>
<code>isprint</code>	<code>C1_ALPHA   C1_UPPER   C1_LOWER   C1_DIGIT   C1_PUNCT   C1_BLANK</code>	
<code>ispunct</code>	<code>C1_PUNCT</code>	
<code>isspace</code>	<code>C1_SPACE</code>	
<code>isupper</code>	<code>C1_UPPER</code>	<code>IsCharUpper</code>
<code>isxdigit</code>	<code>C1_XDIGIT</code>	

**Bonus reading:** The difference between C1 SPACE-ing out and drawing a C1 BLANK.

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