

NAME

`mbrtowc` – convert a multibyte sequence to a wide character

SYNOPSIS

```
#include <wchar.h>
```

```
size_t mbrtowc(wchar_t *pwc, const char *s, size_t n, mbstate_t *ps);
```

DESCRIPTION

The main case for this function is when *s* is not NULL and *pwc* is not NULL. In this case, the `mbrtowc()` function inspects at most *n* bytes of the multibyte string starting at *s*, extracts the next complete multibyte character, converts it to a wide character and stores it at **pwc*. It updates the shift state **ps*. If the converted wide character is not L'\0' (the null wide character), it returns the number of bytes that were consumed from *s*. If the converted wide character is L'\0', it resets the shift state **ps* to the initial state and returns 0.

If the *n* bytes starting at *s* do not contain a complete multibyte character, `mbrtowc()` returns $(size_t) - 2$. This can happen even if $n \geq MB_CUR_MAX$, if the multibyte string contains redundant shift sequences.

If the multibyte string starting at *s* contains an invalid multibyte sequence before the next complete character, `mbrtowc()` returns $(size_t) - 1$ and sets *errno* to **EILSEQ**. In this case, the effects on **ps* are undefined.

A different case is when *s* is not NULL but *pwc* is NULL. In this case, the `mbrtowc()` function behaves as above, except that it does not store the converted wide character in memory.

A third case is when *s* is NULL. In this case, *pwc* and *n* are ignored. If the conversion state represented by **ps* denotes an incomplete multibyte character conversion, the `mbrtowc()` function returns $(size_t) - 1$, sets *errno* to **EILSEQ**, and leaves **ps* in an undefined state. Otherwise, the `mbrtowc()` function puts **ps* in the initial state and returns 0.

In all of the above cases, if *ps* is NULL, a static anonymous state known only to the `mbrtowc()` function is used instead. Otherwise, **ps* must be a valid *mbstate_t* object. An *mbstate_t* object *a* can be initialized to the initial state by zeroing it, for example using

```
memset(&a, 0, sizeof(a));
```

RETURN VALUE

The `mbrtowc()` function returns the number of bytes parsed from the multibyte sequence starting at *s*, if a non-L'\0' wide character was recognized. It returns 0, if a L'\0' wide character was recognized. It returns $(size_t) - 1$ and sets *errno* to **EILSEQ**, if an invalid multibyte sequence was encountered. It returns $(size_t) - 2$ if it couldn't parse a complete multibyte character, meaning that *n* should be increased.

ATTRIBUTES

For an explanation of the terms used in this section, see `attributes(7)`.

Interface	Attribute	Value
<code>mbrtowc()</code>	Thread safety	MT-Unsafe race:mbrtowc/!ps

CONFORMING TO

POSIX.1-2001, POSIX.1-2008, C99.

NOTES

The behavior of `mbrtowc()` depends on the **LC_CTYPE** category of the current locale.

SEE ALSO

`mbsinit(3)`, `mbsrtowcs(3)`

COLOPHON

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