NAME

mbrtowc − convert a multibyte sequence to a wide character

LIBRARY

Standard C library (*libc*, *−lc*)

SYNOPSIS

#include <wchar.h>

size_t mbrtowc(wchar_t *restrict *pwc***, const char** *s***[restrict .***n***],**
size_t *n***, mbstate_t *restrict** *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 >= 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
mbrtowc()	Thread safety	MT-Unsafe race:mbrtowc/!ps

STANDARDS

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)