NAME

open_memstream, **open_wmemstream** - dynamic memory buffer stream open functions

LIBRARY

Standard C Library (libc, -lc)

SYNOPSIS

#include <stdio.h>

FILE *
open_memstream(*char **bufp*, *size_t *sizep*);

#include <wchar.h>

FILE *
open_wmemstream(*wchar_t **bufp*, *size_t *sizep*);

DESCRIPTION

The **open_memstream**() and **open_wmemstream**() functions create a write-only, seekable stream backed by a dynamically allocated memory buffer. The **open_memstream**() function creates a byte-oriented stream, while the **open_wmemstream**() function creates a wide-oriented stream.

Each stream maintains a current position and size. Initially, the position and size are set to zero. Each write begins at the current position and advances it the number of successfully written bytes for **open_memstream**() or wide characters for **open_wmemstream**(). If a write moves the current position beyond the length of the buffer, the length of the buffer is extended and a null character is appended to the buffer.

A stream's buffer always contains a null character at the end of the buffer that is not included in the current length.

If a stream's current position is moved beyond the current length via a seek operation and a write is performed, the characters between the current length and the current position are filled with null characters before the write is performed.

After a successful call to fclose(3) or fflush(3), the pointer referenced by *bufp* will contain the start of the memory buffer and the variable referenced by *sizep* will contain the smaller of the current position and the current buffer length.

After a successful call to fflush(3), the pointer referenced by *bufp* and the variable referenced by *sizep*

are only valid until the next write operation or a call to fclose(3).

Once a stream is closed, the allocated buffer referenced by *bufp* should be released via a call to free(3) when it is no longer needed.

IMPLEMENTATION NOTES

Internally all I/O streams are effectively byte-oriented, so using wide-oriented operations to write to a stream opened via **open_wmemstream**() results in wide characters being expanded to a stream of multibyte characters in stdio's internal buffers. These multibyte characters are then converted back to wide characters when written into the stream. As a result, the wide-oriented streams maintain an internal multibyte character conversion state that is cleared on any seek operation that changes the current position. This should have no effect as long as wide-oriented output operations are used on a wide-oriented stream.

RETURN VALUES

Upon successful completion, **open_memstream**() and **open_wmemstream**() return a *FILE* pointer. Otherwise, NULL is returned and the global variable *errno* is set to indicate the error.

ERRORS

[EINVAL]   The *bufp* or *sizep* argument was NULL.

[ENOMEM]   Memory for the stream or buffer could not be allocated.

SEE ALSO

fclose(3), fflush(3), fopen(3), free(3), fseek(3), stdio(3), sbuf(9)

STANDARDS

The **open_memstream**() and **open_wmemstream**() functions conform to IEEE Std 1003.1-2008 ("POSIX.1").