



Linux Ubuntu 26.04 Manual Pages on command 'pthread_attr_setstack.3'

\$ man pthread_attr_setstack.3

pthread_attr_setstack(3) Library Functions Manual pthread_attr_setstack(3)

NAME

pthread_attr_setstack, pthread_attr_getstack - set/get stack attributes in thread attributes object

LIBRARY

POSIX threads library (libpthread, -lpthread)

SYNOPSIS

```
#include <pthread.h>

int pthread_attr_setstack(size_t stacksize;
                          pthread_attr_t *attr,
                          void stackaddr[stacksize],
                          size_t stacksize);

int pthread_attr_getstack(const pthread_attr_t *restrict attr,
                          void **restrict stackaddr,
                          size_t *restrict stacksize);
```

Feature Test Macro Requirements for glibc (see feature_test_macros(7)):

```
pthread_attr_getstack(), pthread_attr_setstack():
    _POSIX_C_SOURCE >= 200112L
```

DESCRIPTION

The pthread_attr_setstack() function sets the stack address and stack size attributes of the thread attributes object referred to by attr to the values specified in stackaddr and stacksize, respectively. These attributes specify the location and size of the stack that should be used by a thread that is created using the thread attributes object attr.

stackaddr should point to the lowest addressable byte of a buffer of stacksize bytes that was allocated by the caller. The pages of the allocated buffer should be both readable and writable.

The pthread_attr_getstack() function returns the stack address and stack size attributes of the thread attributes object referred to by attr in the buffers pointed to by stackaddr and stacksize, respectively.

RETURN VALUE

On success, these functions return 0; on error, they return a nonzero error number.

ERRORS

pthread_attr_setstack() can fail with the following error:

EINVAL stacksize is less than PTHREAD_STACK_MIN (16384) bytes. On some systems, this error may also occur if stackaddr or stackaddr + stacksize is not suitably aligned.

POSIX.1 also documents an EACCES error if the stack area described by stackaddr and stacksize is not both readable and writable by the caller.

ATTRIBUTES

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

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? Interface ? Attribute ? Value ?

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? pthread_attr_setstack(), pthread_attr_getstack() ? Thread safety ? MT-Safe ?

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STANDARDS

POSIX.1-2008.

HISTORY

glibc 2.2. POSIX.1-2001.

NOTES

These functions are provided for applications that must ensure that a thread's stack is placed in a particular location. For most applications, this is not necessary, and the use of these functions should be avoided. (Use pthread_attr_setstacksize(3) if an application simply requires a stack size other than the default.)

When an application employs pthread_attr_setstack(), it takes over the responsibility of allocating the stack. Any guard size value that was set using pthread_attr_setguardsize(3) is ignored. If deemed necessary, it is the application's responsibility to allocate a guard

area (one or more pages protected against reading and writing) to handle the possibility of stack overflow.

The address specified in `stackaddr` should be suitably aligned: for full portability, align it on a page boundary (`sysconf(_SC_PAGESIZE)`). `posix_memalign(3)` may be useful for allocation. Probably, `stacksize` should also be a multiple of the system page size.

If `attr` is used to create multiple threads, then the caller must change the `stack` address attribute between calls to `pthread_create(3)`; otherwise, the threads will attempt to use the same memory area for their stacks, and chaos will ensue.

EXAMPLES

See `pthread_attr_init(3)`.

SEE ALSO

`mmap(2)`, `mprotect(2)`, `posix_memalign(3)`, `pthread_attr_init(3)`, `pthread_attr_setguardsize(3)`, `pthread_attr_setstackaddr(3)`, `pthread_attr_setstacksize(3)`, `pthread_create(3)`, `pthreads(7)`

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`pthread_attr_setstack(3)`