



Rocky Enterprise Linux 9.2 Manual Pages on command 'sem_init.3'

C:\>man sem_init.3

SEM_INIT(3) Linux Programmer's Manual SEM_INIT(3)

NAME

sem_init - initialize an unnamed semaphore

SYNOPSIS

```
#include <semaphore.h>
```

```
int sem_init(sem_t *sem, int pshared, unsigned int value);
```

Link with `-pthread`.

DESCRIPTION

`sem_init()` initializes the unnamed semaphore at the address pointed to by `sem`. The `value` argument specifies the initial value for the semaphore.

The `pshared` argument indicates whether this semaphore is to be shared between the threads of a process, or between processes.

If `pshared` has the value 0, then the semaphore is shared between the threads of a process, and should be located at some address that is visible to all threads (e.g., a global variable, or a variable allocated dynamically on the heap).

If `pshared` is nonzero, then the semaphore is shared between processes, and should be located in a region of shared memory (see `shm_open(3)`, `mmap(2)`, and `shmget(2)`). (Since a child created by `fork(2)` inherits its parent's memory mappings, it can also access the semaphore.) Any process that can access the shared memory region can operate on the semaphore using `sem_post(3)`, `sem_wait(3)`, and so on.

Initializing a semaphore that has already been initialized results in undefined behavior.

RETURN VALUE

sem_init() returns 0 on success; on error, -1 is returned, and errno is set to indicate the error.

ERRORS

EINVAL value exceeds SEM_VALUE_MAX.

ENOSYS pshared is nonzero, but the system does not support process-shared semaphores (see sem_overview(7)).

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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?sem_init() ? Thread safety ? MT-Safe ?

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CONFORMING TO

POSIX.1-2001.

NOTES

Bizarrely, POSIX.1-2001 does not specify the value that should be returned by a successful call to sem_init(). POSIX.1-2008 rectifies this, specifying the zero return on success.

SEE ALSO

sem_destroy(3), sem_post(3), sem_wait(3), sem_overview(7)

COLOPHON

This page is part of release 5.05 of the Linux man-pages project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <https://www.kernel.org/doc/man-pages/>.