



## ***Red Hat Enterprise Linux Release 9.2 Manual Pages on 'sigprocmask.2' command***

### ***\$ man sigprocmask.2***

SIGPROCMAK(2)      Linux Programmer's Manual      SIGPROCMAK(2)

#### NAME

sigprocmask, rt\_sigprocmask - examine and change blocked signals

#### SYNOPSIS

```
#include <signal.h>

/* Prototype for the glibc wrapper function */
int sigprocmask(int how, const sigset_t *set, sigset_t *oldset);

/* Prototype for the underlying system call */
int rt_sigprocmask(int how, const kernel_sigset_t *set,
                   kernel_sigset_t *oldset, size_t sigsetsize);

/* Prototype for the legacy system call (deprecated) */
int sigprocmask(int how, const old_kernel_sigset_t *set,
               old_kernel_sigset_t *oldset);
```

Feature Test Macro Requirements for glibc (see feature\_test\_macros(7)):

sigprocmask(): \_POSIX\_C\_SOURCE

#### DESCRIPTION

sigprocmask() is used to fetch and/or change the signal mask of the calling thread. The signal mask is the set of signals whose delivery is currently blocked for the caller (see also signal(7) for more details).

The behavior of the call is dependent on the value of how, as follows.

#### SIG\_BLOCK

The set of blocked signals is the union of the current set and

the set argument.

## SIG\_UNBLOCK

The signals in set are removed from the current set of blocked signals. It is permissible to attempt to unblock a signal which is not blocked.

## SIG\_SETMASK

The set of blocked signals is set to the argument set.

If oldset is non-NULL, the previous value of the signal mask is stored in oldset.

If set is NULL, then the signal mask is unchanged (i.e., how is ignored), but the current value of the signal mask is nevertheless returned in oldset (if it is not NULL).

A set of functions for modifying and inspecting variables of type sigset\_t ("signal sets") is described in sigsetops(3).

The use of sigprocmask() is unspecified in a multithreaded process; see pthread\_sigmask(3).

## RETURN VALUE

sigprocmask() returns 0 on success and -1 on error. In the event of an error, errno is set to indicate the cause.

## ERRORS

EFAULT The set or oldset argument points outside the process's allocated address space.

EINVAL Either the value specified in how was invalid or the kernel does not support the size passed in sigsetsize.

## CONFORMING TO

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

## NOTES

It is not possible to block SIGKILL or SIGSTOP. Attempts to do so are silently ignored.

Each of the threads in a process has its own signal mask.

A child created via fork(2) inherits a copy of its parent's signal mask; the signal mask is preserved across execve(2).

If SIGBUS, SIGFPE, SIGILL, or SIGSEGV are generated while they are

blocked, the result is undefined, unless the signal was generated by `kill(2)`, `sigqueue(3)`, or `raise(3)`.

See `sigsetops(3)` for details on manipulating signal sets.

Note that it is permissible (although not very useful) to specify both `set` and `oldset` as `NULL`.

## C library/kernel differences

The kernel's definition of `sigset_t` differs in size from that used by the C library. In this manual page, the former is referred to as `kernel_sigset_t` (it is nevertheless named `sigset_t` in the kernel sources).

The glibc wrapper function for `sigprocmask()` silently ignores attempts to block the two real-time signals that are used internally by the NPTL threading implementation. See `nptl(7)` for details.

The original Linux system call was named `sigprocmask()`. However, with the addition of real-time signals in Linux 2.2, the fixed-size, 32-bit `sigset_t` (referred to as `old_kernel_sigset_t` in this manual page) type supported by that system call was no longer fit for purpose. Consequently, a new system call, `rt_sigprocmask()`, was added to support an enlarged `sigset_t` type (referred to as `kernel_sigset_t` in this manual page). The new system call takes a fourth argument, `size_t sigsetsize`, which specifies the size in bytes of the signal sets in `set` and `oldset`. This argument is currently required to have a fixed architecture specific value (equal to `sizeof(kernel_sigset_t)`).

The glibc `sigprocmask()` wrapper function hides these details from us, transparently calling `rt_sigprocmask()` when the kernel provides it.

## SEE ALSO

`kill(2)`, `pause(2)`, `sigaction(2)`, `signal(2)`, `sigpending(2)`, `sigsuspend(2)`, `pthread_sigmask(3)`, `sigqueue(3)`, `sigsetops(3)`, `signal(7)`

## COLOPHON

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