

## System Calls

kill(2)

## NAME

kill - send a signal to a process or a group of processes

## SYNOPSIS

```
#include <sys/types.h>
#include <signal.h>
```

```
int kill(pid_t pid, int sig);
```

## DESCRIPTION

The kill() function sends a signal to a process or a group of processes. The process or group of processes to which the signal is to be sent is specified by pid. The signal that is to be sent is specified by sig and is either one from the list given in signal(3HEAD), or 0. If sig is 0 (the null signal), error checking is performed but no signal is actually sent. This can be used to check the validity of pid.

The real or effective user ID of the sending process must match the real or saved (from one of functions in the exec family, see exec(2)) user ID of the receiving process unless the effective user ID of the sending process is superuser, (see intro(2)), or sig is SIGCONT and the sending process has the same session ID as the receiving process.

If pid is greater than 0, sig will be sent to the process whose process ID is equal to pid.

If pid is negative but not (pid\_t)-1, sig will be sent to all processes whose process group ID is equal to the absolute value of pid and for which the process has permission to send a signal.

If pid is 0, sig will be sent to all processes excluding special processes (see intro(2)) whose process group ID is equal to the process group ID of the sender.

If pid is (pid\_t)-1 and the effective user ID of the sender is not super-user, sig will be sent to all processes excluding special processes whose real user ID is equal to the effective user ID of the sender.

If pid is (pid\_t)-1 and the effective user ID of the sender is super-user, sig will be sent to all processes excluding special processes.

## RETURN VALUES

Upon successful completion, 0 is returned. Otherwise, -1 is returned, no signal is sent, and errno is set to indicate the error.

## ERRORS

The kill() function will fail if:

## EINVAL

The sig argument is not a valid signal number.

EPERM The sig argument is SIGKILL and the pid argument is (pid\_t)1 (that is, the calling process does not have permission to send the signal to any of the processes specified by pid); or the effective user of the calling process does not match the real or saved user and is not super-user, and the calling process is not sending SIGCONT to a process that shares the same session ID.

ESRCH No process or process group can be found corresponding to that specified by pid.

## USAGE

The sigsend(2) function provides a more versatile way to send signals to processes.

## ATTRIBUTES

See attributes(5) for descriptions of the following attributes:

| ATTRIBUTE TYPE | ATTRIBUTE VALUE   |
|----------------|-------------------|
| MT-Level       | Async-Signal-Safe |

## SEE ALSO

kill(1), intro(2), exec(2), getpid(2), getsid(2), setpgrp(2), sigaction(2), sigsend(2), signal(3C), attributes(5), signal(3HEAD)

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