



Red Hat Enterprise Linux Release 9.2 Manual Pages on 'forkpty.3' command

\$ man forkpty.3

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

NAME

openpty, login_tty, forkpty - terminal utility functions

SYNOPSIS

```
#include <pty.h>

int openpty(int *amaster, int *aslave, char *name,
            const struct termios *termp,
            const struct winsize *winp);

pid_t forkpty(int *amaster, char *name,
              const struct termios *termp,
              const struct winsize *winp);

#include <utmp.h>

int login_tty(int fd);

Link with -lutil.
```

DESCRIPTION

The `openpty()` function finds an available pseudoterminal and returns file descriptors for the master and slave in `amaster` and `aslave`. If `name` is not `NULL`, the filename of the slave is returned in `name`. If `termp` is not `NULL`, the terminal parameters of the slave will be set to the values in `termp`. If `winp` is not `NULL`, the window size of the slave will be set to the values in `winp`.

The `login_tty()` function prepares for a login on the terminal referred to by the file descriptor `fd` (which may be a real terminal device, or

the slave of a pseudoterminal as returned by `openpty()` by creating a new session, making `fd` the controlling terminal for the calling process, setting `fd` to be the standard input, output, and error streams of the current process, and closing `fd`.

The `forkpty()` function combines `openpty()`, `fork(2)`, and `login_tty()` to create a new process operating in a pseudoterminal. A file descriptor referring to master side of the pseudoterminal is returned in `amaster`.

If `name` is not `NULL`, the buffer it points to is used to return the filename of the slave. The `term` and `winp` arguments, if not `NULL`, will determine the terminal attributes and window size of the slave side of the pseudoterminal.

RETURN VALUE

If a call to `openpty()`, `login_tty()`, or `forkpty()` is not successful, `-1` is returned and `errno` is set to indicate the error. Otherwise, `openpty()`, `login_tty()`, and the child process of `forkpty()` return `0`, and the parent process of `forkpty()` returns the process ID of the child process.

ERRORS

`openpty()` fails if:

`ENOENT` There are no available terminals.

`login_tty()` fails if `ioctl(2)` fails to set `fd` to the controlling terminal of the calling process.

`forkpty()` fails if either `openpty()` or `fork(2)` fails.

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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?forkpty(), openpty() ? Thread safety ? MT-Safe locale ?

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?login_tty() ? Thread safety ? MT-Unsafe race:ttyname ?

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CONFORMING TO

These are BSD functions, present in glibc. They are not standardized in POSIX.

NOTES

The `const` modifiers were added to the structure pointer arguments of `openpty()` and `forkpty()` in glibc 2.8.

In versions of glibc before 2.0.92, `openpty()` returns file descriptors for a BSD pseudoterminal pair; since glibc 2.0.92, it first attempts to open a UNIX 98 pseudoterminal pair, and falls back to opening a BSD pseudoterminal pair if that fails.

BUGS

Nobody knows how much space should be reserved for `name`. So, calling `openpty()` or `forkpty()` with non-NULL `name` may not be secure.

SEE ALSO

`fork(2)`, `ttyname(3)`, `pty(7)`

COLOPHON

This page is part of release 5.10 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/>.

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