NAME

grantpt, **ptsname**, **ptsname_r**, **unlockpt** - pseudo-terminal access functions

LIBRARY

Standard C Library (libc, -lc)

SYNOPSIS

#include <stdlib.h>

int
grantpt(*int fildes*);

*char **
ptsname(*int fildes*);

int
ptsname_r(*int fildes*, *char *buffer*, *size_t buflen*);

int
unlockpt(*int fildes*);

DESCRIPTION

The **grantpt**(), **ptsname**(), and **unlockpt**() functions allow access to pseudo-terminal devices. These three functions accept a file descriptor that references the master half of a pseudo-terminal pair. This file descriptor is created with posix_openpt(2).

The **grantpt**() function is used to establish ownership and permissions of the slave device counterpart to the master device specified with *fildes*. The slave device's ownership is set to the real user ID of the calling process, and the permissions are set to user readable-writable and group writable. The group owner of the slave device is also set to the group "tty".

The **ptsname**() function returns the full pathname of the slave device counterpart to the master device specified with *fildes*. This value can be used to subsequently open the appropriate slave after posix_openpt(2) and **grantpt**() have been called.

The **ptsname_r**() function is the thread-safe version of **ptsname**(). The caller must provide storage for the results of the full pathname of the slave device in the *buffer* and *bufsize* arguments.

The **unlockpt**() function clears the lock held on the pseudo-terminal pair for the master device specified with *fildes*.

RETURN VALUES

The **grantpt**(), **ptsname_r**(), and **unlockpt**() functions return the value 0 if successful; otherwise the value -1 is returned and the global variable *errno* is set to indicate the error.

The **ptsname**() function returns a pointer to the name of the slave device on success; otherwise a NULL pointer is returned.

ERRORS

The **grantpt**(), **ptsname**(), **ptsname_r**() and **unlockpt**() functions may fail and set *errno* to:

[EBADF] *fildes* is not a valid open file descriptor.

[EINVAL] *fildes* is not a master pseudo-terminal device.

In addition, the **ptsname_r**() function may set *errno* to:

[ERANGE] The buffer was too small.

In addition, the **grantpt**() function may set *errno* to:

[EACCES] The slave pseudo-terminal device could not be accessed.

SEE ALSO

posix_openpt(2), pts(4), tty(4)

STANDARDS

The **ptsname**() function conforms to IEEE Std 1003.1-2008 ("POSIX.1").

This implementation of **grantpt**() and **unlockpt**() does not conform to IEEE Std 1003.1-2008 ("POSIX.1"), because it depends on posix_openpt(2) to create the pseudo-terminal device with proper permissions in place. It only validates whether *fildes* is a valid pseudo-terminal master device. Future revisions of the specification will likely allow this behaviour, as stated by the Austin Group.

HISTORY

The **grantpt**(), **ptsname**() and **unlockpt**() functions appeared in FreeBSD 5.0.