

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] *fildev* is not a valid open file descriptor.

[EINVAL] *fildev* 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 *fildev* 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.