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

$ man posix_openpt.3p

POSIX_OPENPT(3P) POSIX Programmer's Manual POSIX_OPENPT(3P)

PROLOG

This manual page is part of the POSIX Programmer's Manual. The Linux implementation of this interface may differ (consult the corresponding Linux manual page for details of Linux behavior), or the interface may not be implemented on Linux.

NAME

posix_openpt ? open a pseudo-terminal device

SYNOPSIS

```
#include <stdlib.h>
#include <fcntl.h>
int posix_openpt(int oflag);
```

DESCRIPTION

The posix_openpt() function shall establish a connection between a mas? ter device for a pseudo-terminal and a file descriptor. The file de? scriptor shall be allocated as described in Section 2.14, File Descrip? tor Allocation and can be used by other I/O functions that refer to that pseudo-terminal.

The file status flags and file access modes of the open file descrip? tion shall be set according to the value of oflag.

Values for oflag are constructed by a bitwise-inclusive OR of flags from the following list, defined in <fcntl.h>:

O_RDWR Open for reading and writing.

O_NOCTTY If set posix_openpt() shall not cause the terminal device to become the controlling terminal for the process.

The behavior of other values for the oflag argument is unspecified.

RETURN VALUE

Upon successful completion, the posix_openpt() function shall open a file descriptor for a master pseudo-terminal device and return a non-negative integer representing the file descriptor. Otherwise, -1 shall be returned and errno set to indicate the error.

ERRORS

The posix_openpt() function shall fail if:

EMFILE All file descriptors available to the process are currently open.

ENFILE The maximum allowable number of files is currently open in the system.

The posix_openpt() function may fail if:

EINVAL The value of oflag is not valid.

EAGAIN Out of pseudo-terminal resources.

ENOSR Out of STREAMS resources.

The following sections are informative.

EXAMPLES

Opening a Pseudo-Terminal and Returning the Name of the Slave Device and a File Descriptor

```
#include <fcntl.h>
#include <stdio.h>
int masterfd, slavefd;
char *slavedevice;
masterfd = posix_openpt(O_RDWR|O_NOCTTY);
if (masterfd == -1
    || grantpt (masterfd) == -1
    || unlockpt (masterfd) == -1
    || (slavedevice = ptsname (masterfd)) == NULL)
    return -1;
printf("slave device is: %s\n", slavedevice);
```

```
    slavefd = open(slavedevice, O_RDWR|O_NOCTTY);
    if (slavefd < 0)
        return -1;
```

APPLICATION USAGE

This function is a method for portably obtaining a file descriptor of a master terminal device for a pseudo-terminal. The grantpt() and pt? sname() functions can be used to manipulate mode and ownership permis? sions, and to obtain the name of the slave device, respectively.

RATIONALE

The standard developers considered the matter of adding a special de? vice for cloning master pseudo-terminals: the /dev/ptmx device. How? ever, consensus could not be reached, and it was felt that adding a new function would permit other implementations. The posix_openpt() func? tion is designed to complement the grantpt(), ptsname(), and unlockpt() functions.

On implementations supporting the /dev/ptmx clone device, opening the master device of a pseudo-terminal is simply:

```
    mfdp = open("/dev/ptmx", oflag );
    if (mfdp < 0)
        return -1;
```

FUTURE DIRECTIONS

None.

SEE ALSO

Section 2.14, File Descriptor Allocation, grantpt(), open(), ptsname(), unlockpt()

The Base Definitions volume of POSIX.1?2017, <fcntl.h>, <stdlib.h>

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