

## NAME

ptmx and pts – pseudo-terminal master and slave

## DESCRIPTION

The file `/dev/ptmx` is a character file with major number 5 and minor number 2, usually of mode 0666 and owner.group of root.root. It is used to create a pseudo-terminal master and slave pair.

When a process opens `/dev/ptmx`, it gets a file descriptor for a pseudo-terminal master (PTM), and a pseudo-terminal slave (PTS) device is created in the `/dev/pts` directory. Each file descriptor obtained by opening `/dev/ptmx` is an independent PTM with its own associated PTS, whose path can be found by passing the descriptor to **ptsname(3)**.

Before opening the pseudo-terminal slave, you must pass the master's file descriptor to **grantpt(3)** and **unlockpt(3)**.

Once both the pseudo-terminal master and slave are open, the slave provides processes with an interface that is identical to that of a real terminal.

Data written to the slave is presented on the master descriptor as input. Data written to the master is presented to the slave as input.

In practice, pseudo-terminals are used for implementing terminal emulators such as **xterm(1)**, in which data read from the pseudo-terminal master is interpreted by the application in the same way a real terminal would interpret the data, and for implementing remote-login programs such as **sshd(8)**, in which data read from the pseudo-terminal master is sent across the network to a client program that is connected to a terminal or terminal emulator.

Pseudo-terminals can also be used to send input to programs that normally refuse to read input from pipes (such as **su(1)**, and **passwd(1)**).

## FILES

`/dev/ptmx`, `/dev/pts/*`

## NOTES

The Linux support for the above (known as Unix98 pty naming) is done using the *devpts* file system, that should be mounted on `/dev/pts`.

Before this Unix98 scheme, master ptys were called `/dev/ptyp0`, ... and slave ptys `/dev/ttyp0`, ... and one needed lots of preallocated device nodes.

## SEE ALSO

**getpt(3)**, **grantpt(3)**, **ptsname(3)**, **unlockpt(3)**, **pty(7)**

## COLOPHON

This page is part of release 3.22 of the Linux *man-pages* project. A description of the project, and information about reporting bugs, can be found at <http://www.kernel.org/doc/man-pages/>.