35.8. `pty` — Pseudo-terminal utilities

Source code: Lib/pty.py

The `pty` module defines operations for handling the pseudo-terminal concept: starting another process and being able to write to and read from its controlling terminal programmatically.

Because pseudo-terminal handling is highly platform dependent, there is code to do it only for Linux. (The Linux code is supposed to work on other platforms, but hasn't been tested yet.)

The `pty` module defines the following functions:

`pty.`**`fork`**()

Fork. Connect the child's controlling terminal to a pseudo-terminal. Return value is `(pid, fd)`. Note that the child gets *pid* 0, and the *fd* is *invalid*. The parent's return value is the *pid* of the child, and *fd* is a file descriptor connected to the child's controlling terminal (and also to the child's standard input and output).

`pty.`**`openpty`**()

Open a new pseudo-terminal pair, using `os.openpty()` if possible, or emulation code for generic Unix systems. Return a pair of file descriptors `(master, slave)`, for the master and the slave end, respectively.

`pty.`**`spawn`**(*argv*[, *master_read*[, *stdin_read*]])

Spawn a process, and connect its controlling terminal with the current process's standard io. This is often used to baffle programs which insist on reading from the controlling terminal.

The functions *master_read* and *stdin_read* should be functions which read from a file descriptor. The defaults try to read 1024 bytes each time they are called.

Changed in version 3.4: `spawn()` now returns the status value from `os.waitpid()` on the child process.

35.8.1. Example

The following program acts like the Unix command *script(1)*, using a pseudo-terminal to record all input and output of a terminal session in a "typescript".

```
import argparse
import os
import pty
import sys
import time

parser = argparse.ArgumentParser()
parser.add_argument('-a', dest='append', action='store_true')
parser.add_argument('-p', dest='use_python', action='store_true')
parser.add_argument('filename', nargs='?', default='typescript')
options = parser.parse_args()

shell = sys.executable if options.use_python else os.environ.get('SHEL
filename = options.filename
mode = 'ab' if options.append else 'wb'

with open(filename, mode) as script:
    def read(fd):
        data = os.read(fd, 1024)
        script.write(data)
        return data

    print('Script started, file is', filename)
    script.write(('Script started on %s\n' % time.asctime()).encode()

    pty.spawn(shell, read)

    script.write(('Script done on %s\n' % time.asctime()).encode())
    print('Script done, file is', filename)
```