

Termios



Termios stands for TERMinal Input/Output System.

Termios is a POSIX API for controlling the behavior of the terminal at the input/output level.

Its purpose is to control how input/output behaves in a terminal session. This includes:

- Turning Canonical Mode on/off
- Enabling/disabling echo
- Managing signal generation on special key presses (e.g. Ctrl+C)

Termios can be used with `"tcgetattr()"` (get settings), `"tcsetattr()"` (apply settings), and `"struct termios"` (store settings).

Example Use Case

When typing into a terminal, the input is usually line-buffered and echoed. But programs like Vim disable Canonical Mode and "echo" so they can read one character at a time and control what gets displayed.

Canonical Mode

Canonical Mode is a setting in terminal I/O that controls how input is read from the terminal. It's a mode of operation in the terminal driver, configured using the Termios API.

In Canonical Mode:

- Input is line-buffered: the terminal buffers everything until the user presses Enter
- The user can edit the line before submitting it (e.g. with backspace)
- The application doesn't receive any input until the newline character is sent
- Special characters like "Ctrl+C", "Ctrl+D", and "Backspace" are handled by the terminal driver automatically

In Non-Canonical Mode:

- Input is immediately available, character by character
- The user must handle line editing and special characters manually
- No buffering or line-editing by the terminal driver