

Uploading Firefly firmware with esptool (ESP8266)

This guide loads the two Firefly binary images onto a Wemos D1 Mini with the classic `esptool.py` command line. Prefer a browser? The **Firmware Uploader** page (`/upload.html`, Chrome/Edge) does the same job with Connect + Flash buttons.

Memory map (4 MB flash)

- `0x000000` - `firmware.bin` (the firmware).
- `0x300000` - `littlefs.bin` (dashboard files, settings area and log storage).

Flashing only `firmware.bin` keeps the device configuration. Flashing `littlefs.bin` wipes everything (panels, rules, settings) - back up from the dashboard first.

1. Install the tools

- Install Python 3.9+ from python.org (tick Add Python to PATH on Windows).
- Install esptool: `pip install esptool`.
- Copy `firmware.bin` and `littlefs.bin` from a PlatformIO build (`.pio/build/d1_mini/`) into one folder.

2. Connect the board

- Plug Firefly in over USB. Charge-only cables do not work - use a data cable.
- If the port does not appear, install the CH340 driver (Wemos boards use it).
- Find the port: Device Manager under Ports on Windows (COM3...), or `ls /dev/tty*` on Mac/Linux (`/dev/ttyUSB0...`).

3. Flash

Firmware only (config kept):

```
esptool.py --chip esp8266 --port COM3 --baud 460800 write_flash -z 0x0 firmware.bin
```

Firmware + filesystem (config wiped):

```
esptool.py --chip esp8266 --port COM3 --baud 460800 write_flash -z 0x0 firmware.bin  
0x300000 littlefs.bin
```

- Replace COM3 with your port. Drop to `--baud 115200` if the connection is flaky.
- `-z` compresses in transit (faster). Expect `Hash of data verified`, then the board reboots itself.
- Stuck at `Connecting...`? Unplug/replug, check the cable and port, and retry. As a last resort hold GPIO0 (D3) to GND, tap RST to force download mode, flash, then release.