

User Guide: Flashing Beat Machine Firmware onto ESP32 (Windows)

Follow these steps to install Python, esptool, and flash the Beat Machine firmware onto your ESP32 using Windows Command Prompt.

Prerequisites

- Windows PC with internet access
- Beat Machine device and USB cable
- Firmware file: Beat_Machine_S3_Code.ino.bin

Steps

1. Install Python if not already installed: Download from <https://www.python.org/downloads> and check 'Add Python to PATH' during installation.
2. Install esptool: Open Command Prompt and run: `pip install esptool`
3. Verify esptool installation: Run the command: `esptool.py version`
4. Copy the Beat_Machine_S3_Code.ino.bin file to your computer.
5. Navigate to the folder containing the .bin file: In Command Prompt, type `cd` followed by the folder path (use quotes if path contains spaces). Example: `cd "C:\path\to\folder"`
6. Connect the Beat Machine to your PC via USB.
7. Find the ESP32 COM port: Open Device Manager → Expand 'Ports (COM & LPT)' and note the COM port (e.g., COM4).
8. Quit Arduino IDE if it is open to free the port.
9. Get the full path to the .bin file: Right-click the file → Properties → Copy the full path (e.g., `C:\Users\Andrew\Beat_Machine_S3_Code.ino.bin`).
10. Flash the firmware: Run the command: `esptool.py --chip esp32s3 --port COM4 --baud 460800 write_flash -z 0x10000 "C:\full\path\to\Beat_Machine_S3_Code.ino.bin"` (replace COM4 with the actual port name and `/full/path/to/` with the path to your binary)
11. Wait for esptool to finish flashing the firmware.
12. Press Reset on the Beat Machine to restart with the new firmware.

Notes

- Always use `esptool.py` for flashing commands.
- Windows uses COM# for ports (e.g., COM4).
- Use quotes around paths if they contain spaces.
- If you encounter permissions errors, run Command Prompt as Administrator.