Marie's LFO
Firmware update procedure

Updating Marie's LFO is not extremely complicated, but there are a few prerequisites that need to be installed on your computer (yes you'll need a computer, whether it's a Windows, Mac or Linux). No stress, this document will guide you through the whole process !

To perform the update, you will need to use the terminal and write a few commands. This is not a big thing, you'll see :)

Overview

Just to summarize the process, we have a binary file on our computer that we want to upload (via USB) to the microcontroller (ESP32) that lives behind your module.

The piece of software that makes this upload possible is called ***esptool***. This is a program written in ***Python***, a relatively cool programming language. So let's install these two things !

Prepare your computer

First, to install Python 3, let's go there: https://www.python.org/downloads/
Select your platform, download the latest release and install it. On Windows, make sure you check the box "Add Python to path".

Second, we have to install esptool, which is the program that will perform the actual firmware update. To install it, open a terminal (or command line prompt in Windows), and type :

`pip3 install esptool` and press [enter]. Visual bleeps & bloops will show up for a few seconds in the terminal as the installation progresses.

If the above command doesn't work, `python3 -m pip install esptool` should do the job!

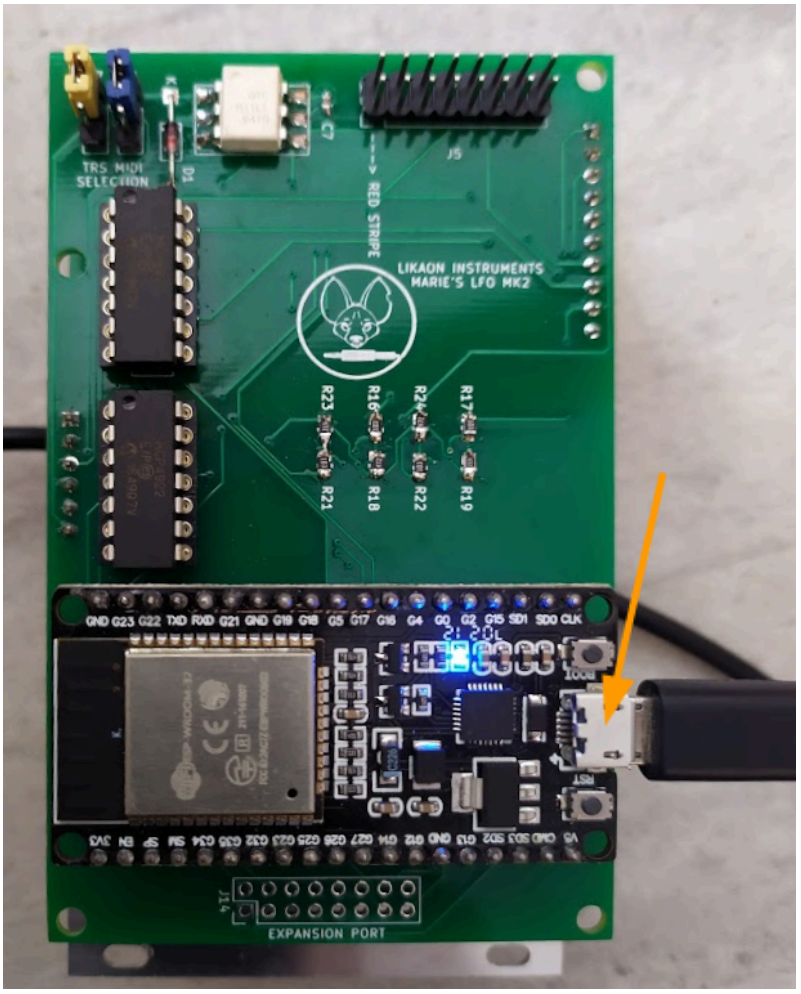
Note: on a Mac, you may be asked to download and install the command line developer tools before you can execute this command. It can take a little while depending on your internet connection speed.

Congratulations, your computer is now equipped to perform the actual update !
Next time you want to update your firmware, you can skip this step !

Prepare your hardware

It is recommended to remove your Marie's LFO from the rack and unplug its power connector before proceeding.

Connect a micro-usb cable (relatively short to avoid noise and communication breakdowns on the line; 1m is fine) between your computer and the microcontroller behind the module:



Note: your PCB may look different, depending on your hardware version.
This is a pre-MK2 :)

Upload the new firmware

Download your update zip file at this page: https://likaoninstruments.com/firmware-updates/

Unzip it, so you get a folder with 5 files (no need to unzip on a Mac, it should be automatic):

- `update-linux.sh`
- `update-mac.sh`
- `update-win.bat`
- `list-serial-ports.py`
- `firmware.bin`

Linux

Execute the update-linux-mac.sh (make it executable beforehand if needed). And congratulations for running Linux :)

Mac

Mac is not my thing but if it's yours, here is the process:
In your downloads directory, go to maries-lfo-mk1-1.3 (or any version you want to install). You will see the 5 files mentioned above.

Open a terminal.
In the terminal, type `bash ` followed by a space. Then, drag-drop the file `update-mac.sh` from the finder into the terminal. It will add some text, and you should see something resembling to:

Press Enter on your keyboard. You'll see dots appear in the terminal. While the dots are printing, press the BOOT button on the board, near the USB port, for two seconds.
The upload progress will show up, simply wait until it's finished.

Windows

Execute update-win.bat

An LED should blink for a few seconds during the update process, and that's all you have to do!

Unplug and replug the USB cable from the PC, and ensure the version number on the splash screen was updated. If so, you can close this document and replug the module in your case !

If not, let's do a little…

Troubleshooting

If you get a message telling you that it could not open port xxxx, then you will have to use a small utility provided in the package, in order to **get a list of the available serial ports** on your computer.

On Linux or Mac, open a terminal in the folder containing the update files, and type: python3 list-serial-ports.py. A list of your serial ports names will show up.

Open the update script file in a text editor (update-linux.sh or update-mac.sh), and replace the default port name (/dev/ttyUSB0 on Linux, /dev/cu.usbserial-0001 on Mac) with the first name of the list. Save the script file and run the upload script again. Try this for every port until it works.

Driver installation may be needed on Windows

On Windows, ensure in the device manager if the serial port is detected, by unplugging/replugging the USB to see what happens.

If a device like USB-UART appears, this is your module. But it may need to install drivers, that you can find here (choose CP210x or FTDI according to what you see in the device manager):
https://docs.espressif.com/projects/esp-idf/en/latest/esp32/get-started/establish-serial-connection.html#connect-esp32-to-pc

Then adjust the COM port in the update script, and re-run the update.

Anyways, if you struggle to perform the update, don't hesitate to drop a message at support@likaoninstruments.com and we're gonna make it happen together!

Encoders reversed after update?

Depending on the generation of your module (due to the use of different encoder models), you may have the encoders reversed after the update. If this is the case, go to the menu and click the offset button 4.

This will show the system menu. Just toggle the “INV ENCODERS” value and everything’s gonna be fine :)