# Rescue your **FM-1**

Find what you see and follow only that part.

## Before you start

- Charge the FM-1 to 100%.
- Plug it in directly, with a data cable.
- Never format the disk that shows up.
- If a step does not work, stop and ask before trying another tool.

## Get the firmware

Every route needs a file named `FM-1.fwsc`.

### V15

It works on every route. M-VAVE no longer offers it. The community has published a copy.

### V16

It is the one on M-VAVE's page. It works on the Mac route.

## Black screen, with a UBOOT disk

That disk is the chip's rescue mode. It can be rewritten over USB, without buying anything.

### Windows

1. **Install Python**

   Get it from python.org, not from the Microsoft Store.

2. **Download the tool**

   Download the MvaveFM1Unbricker ZIP and unzip it.

3. **Put the firmware in that folder**

   The file must be named `FM-1.fwsc`.

### 4 Open the terminal as administrator

Right-click Start and choose Terminal (Admin). Then go to the folder, using your own path.

```
cd C:\ruta\MvaveFM1Unbricker-main
```

### 5 Set up the tool

It needs internet only this once.

```
py fm1_unbrick.py setup
```

### 6 Confirm it sees your FM-1

It must say `0x980F` and chip `0x856014` or `0xB36014`.

```
py fm1_unbrick.py info
```

### 7 Restore the firmware

It first backs up the whole memory twice and compares. Type `WRITE` when it asks.

```
py fm1_unbrick.py restore FM-1.fwsc
```

> ⚠ **If Windows offers to format a disk, cancel.** If verification fails, do not switch it off, and run the command again.

### 8 Switch it on

Unplug the cable, switch the FM-1 off, wait 5 seconds and switch it on without holding any key. Keep the `backups` folder: your projects are in it.

## Mac

### 1 Download the tool

Download the fm1-mac-recovery ZIP and unzip it. Rename the folder to `fm1-mac-recovery` and move it to your home folder.

### 2 Put the firmware in that folder

The file must be named `FM-1.fwsc`. V15 and V16 both work here.

### 3 Install Apple's tools

Open Terminal. If you do not have Homebrew, install it too.

```
xcode-select --install
```

### 4 Set up the tool

```
cd ~/fm1-mac-recovery
```

```
sh setup.sh
```

### 5 Confirm it is in rescue mode

You should see a line with UBOOT. If macOS says it cannot read the disk, choose Ignore, never Initialize.

```
ioreg -p IOUSB | grep -i uboot
```

### 6 Check the plan without writing

It backs up, compares and stops before changing anything.

```
sudo caffeinate -i .venv/bin/python fm1_recover.py install FM-1.fwsc --check
```

### 7 Install

It asks for your password and then for you to type `BOOT`. It takes 5 to 10 minutes.

```
sudo caffeinate -i .venv/bin/python fm1_recover.py install FM-1.fwsc
```

> ⚠ **This is the delicate moment.** This route also rewrites the boot area, which takes less than a second. If power fails right then, rescue over USB may stop working. Plug the FM-1 in directly, keep the Mac on its charger and do not touch the cable.

### 8 Switch it on

Unplug the cable, switch the FM-1 off, wait 5 seconds and switch it on without holding any key. Copy the `backups` folder somewhere safe.

## Linux

### 1

### Download the tool

Download the MvaveFM1Unbricker ZIP and unzip it. It also works on a Raspberry Pi.

### 2 Put the firmware in that folder

The file must be named `FM-1.fwsc`.

### 3 Set up the tool

It needs Python 3.9 or newer, and internet only this once.

```
cd MvaveFM1Unbricker-main
```

```
python3 -m venv .venv
```

```
.venv/bin/python fm1_unbrick.py setup
```

### 4 Load the driver

```
sudo modprobe sg
```

### 5 Confirm it sees your FM-1

It must say `0x980F` and chip `0x856014` or `0xB36014`.

```
sudo .venv/bin/python fm1_unbrick.py info
```

### 6 Restore the firmware

It first backs up the whole memory twice and compares. Type `WRITE` when it asks.

```
sudo .venv/bin/python fm1_unbrick.py restore FM-1.fwsc
```

> ⚠ If verification fails, do not switch it off, and run the command again.

### 7 Switch it on

Unplug the cable, switch the FM-1 off, wait 5 seconds and switch it on without holding any key. Keep the `backups` folder: your projects are in it.

M-Flasher does the same with buttons, on all three systems.

# Black screen, and the computer shows nothing

Look after each try. If a line with UBOOT appears, follow the previous part. If nothing appears, your computer does not see it.

### Windows

```
Get-PnpDevice | Where-Object { $_.InstanceId -like '*VID_4C4A*' } | Format-Table Status, Class, FriendlyName
```

### Mac

```
ioreg -p IOUSB | grep -iE "uboot|fm-1|fntsmg|composite"
```

### Linux

```
lsusb | grep -i 4c4a
```

### Tries, in this order

1. **Rule out the cable and the port**

   Many USB-C cables only charge.

2. **Leave it on for 2 minutes**

   When the firmware fails to start, some enter rescue mode on their own.

3. **Hold OCT − and OCT + while switching on**

   With the FM-1 off, hold both keys, switch it on and keep holding for 10 seconds.

4. **Restart it three times**

   Switch on, wait 10 seconds and switch off. Repeat once more, then switch it on again.

5. **Hold REC while switching on**

   Only if you installed m-bootloader. Let go after 2 seconds. If you did not install it, skip this try.

6. **Hold OCT − while switching on**

   It works with SLOOP and similar firmwares, if the firmware is not damaged.

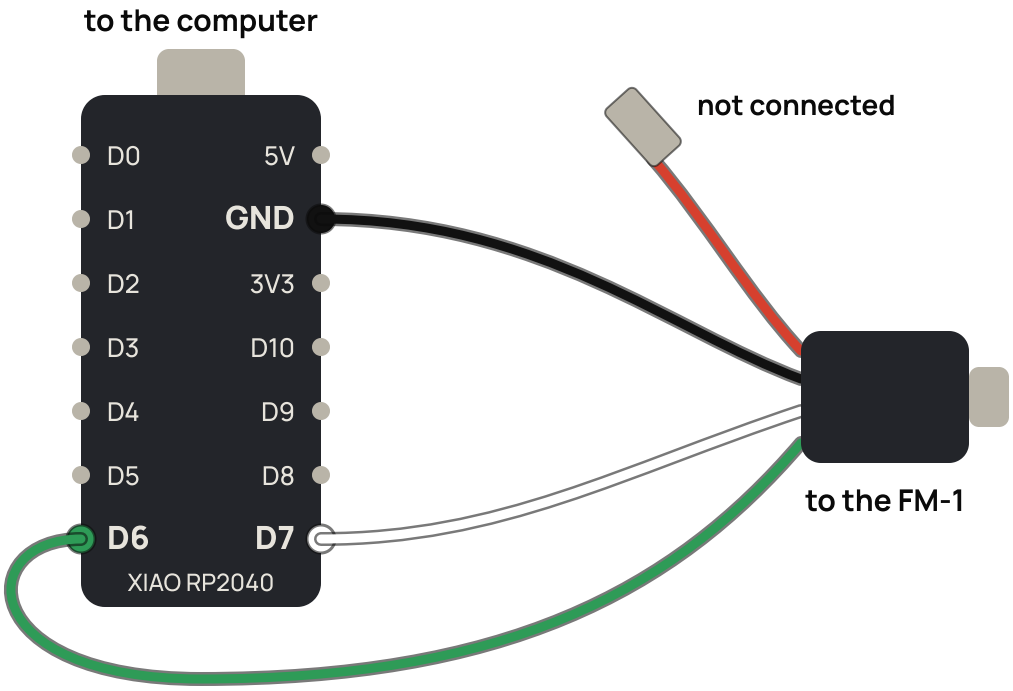
# The FM-1 Transporter board

You need it if no try worked. It costs about 8 dollars and needs no soldering. It never touches the boot area, so it does not fix damage there.

— Seeed XIAO RP2040 with pre-soldered pins. It must be the RP2040: see an example.

— USB-C male cable with 4 loose wires: see an example.

— USB-C data cable, from the board to the computer.




| | |
|---|---|
| **Green** | D6 to D+ on the FM-1 |
| **White** | D7 to D− on the FM-1 |
| **Black** | GND to GND on the FM-1 |
| **Red** | Not connected, cover it with tape |

### 1 Charge the FM-1 to 100%

It runs on its battery during the whole process. Leave it off.

### 2 Prepare the folder

Install Python and download the Unbricker ZIP. Put `FM-1.fwsc` inside; here it must be V15.

3 **Make the three connections**

Use the diagram above. The red wire stays unconnected.

4 **Set up the tool**

On Windows, change `python3` to `py`. Open the terminal in that folder.

```
python3 fm1_transporter_recover.py setup
```

5 **Follow the wizard**

It tells you when to connect each thing. You do not need to compile anything.

```
python3 fm1_transporter_recover.py wizard --v15 FM-1.fwsc
```

⚠ **Switch the FM-1 on only when the wizard asks.** If you switch it on earlier, the connection fails and you see `uboot=0`.

6 **Confirm the write**

Before writing, it saves a backup read twice. Then it asks you to type `WRITE`. Keep that backup.

7 **Switch it on without the board**

Switch the FM-1 off, remove the three wires and switch it on. It should start V15.

8 **Install your firmware**

Do it with a full battery and with the computer kept awake. On a Mac, use `caffeinate -dimsu`.

## Black screen, but it waits for an update with OCT –

Hold OCT – while switching on and use an installer in Chrome or Edge: fantasmogenesis.art/fm1/instalar or thefirmwarehub.com.

## It starts fine, but the installer cannot find it

Close anything that uses MIDI, use Chrome or Edge on a computer and change the cable.

## It starts, but it does not save or update

It has the new chip (`0xB36014`). It is not broken. Do not reinstall over and over. Choose a firmware that saves on that chip and install it with M-Flasher. The FNTSMG-1 version of November 5, 2026

recognizes this chip. We have not tested it on an FM-1 with this chip yet. If you installed FNTSMG-1 before that date, the web installer cannot update it: use M-Flasher.

## I went back to V15 and the sounds are wrong

On the FM-1, go to System and choose Reset Patches. It erases your saved sounds.

## After the rescue

Keep the backups folder and do not share it. Charge the battery to 100% and install your firmware with the computer kept awake.

## If you get a message

**`You need to format the disk`**

Windows wants to format the rescue mode disk. Always cancel.

**`The disk you attached was not readable`**

macOS cannot read the rescue mode disk. Choose Ignore, never Initialize.

**`FM-1 not found`**

The installer cannot find it. Close other music apps, change the cable and use Chrome or Edge. If the screen is black, choose that case on the start page.

**`No WL82 UBOOT1.00 device found`**

The tool does not see rescue mode. Switch the FM-1 on and plug it in directly with a data cable. On Windows, use the administrator terminal. On Linux, run `sudo modprobe sg` and use `sudo`.

**`Access is denied`**

Windows is blocking access. Use the administrator terminal. If nothing changes, try slipway with Python from python.org.

**`The two backup reads differ`**

The connection is failing, and nothing was written. Change the cable or the port, with no hub.

**`already holds exactly this firmware`**

The firmware is already written correctly and it still does not start. Rewriting it does not help. Ask before going further, because it may be old data from another firmware.

**`boot head DIFFERS`**

Your boot area is not the original one, and this tool does not touch it. Restoring V15 is still the first thing to try. If it stays black after a verified write, ask before going further.

**`Do NOT power off`**

Do not switch it off or unplug it. Run the same command again. If it fails again, change the cable or the port.

**`No FM-1 in download mode`**

It is not in rescue mode, or its time ran out. Put it in that mode again, check with `ioreg` and try another cable, straight into the Mac.

**`macOS did not release the FM-1`**

Run it in Terminal with `sudo`. If asked, allow access to removable volumes in System Settings, Privacy & Security.

**`loader/wl82loader.bin is missing`**

A file is missing. Run `sh setup.sh` again.

**`NOT a known official package`**

That file is not the original V15 or V16. Download it again and check it with the firmware box on this page.

**`has not been confirmed with this tool yet`**

That firmware or chip is untested. Use a tested one before forcing it.

**`looks like it comes from another FM-1`**

That image contains factory data from another unit. Build the image from your own backup.

**`the flash no longer equals`**

The memory changed since the backup, and nothing was written. Run `install` again.

**`Firmware readback differs: boot area NOT written`**

The boot area was not touched, so rescue still works. Put the FM-1 in rescue mode again and repeat the install.

**`USB error`**

The connection dropped outside a write. Leave it on and plugged in, put it in rescue mode again and repeat the command.

**`pyusb is missing`**

You used the Mac's own Python. Use `.venv/bin/python`, as in the guide, after `sh setup.sh`.

**`libusb was not found`**

Run `sh setup.sh` again, or `brew install libusb`.

**`Unexpected chip key or flash size`**

The tool does not know that chip, and it stopped before touching anything. Ask before going further.

**`uboot=0`**

You switched the FM-1 on too early, or nothing is reading the board's console. Switch it off, run the wizard and switch it on when it asks.

**`D+ released after`**

The connection drops after answering. Repeat with the wizard, and switch the FM-1 on only when it asks.

`Not detected`

Swap the green and white wires: nothing gets damaged. Shorten them, check the charge and run `rekey`. Then switch the FM-1 off and on.

# If you get stuck

Ask on The Firmware Hub or on r/MVaveFM1. Say what you see, which firmware it has and what you did.

These tools come from the community, not from M-VAVE: Unbricker by Quixotic7, fm1-mac-recovery by HuskiePJN, FM-1 Transporter by Leo Kuroshita and M-Flasher by jvitkauskas.

We have not tested them on an FM-1 of our own. You use them at your own risk.