Reflashing and Factory Reset

When a MeshCore repeater becomes unreachable, misconfigured, or boot-loops, reflashing is the recovery option. This page covers reflash procedures for all common device families.

When to reflash vs. when to reconfigure

Symptom	Try first	If that fails
Node working but wrong settings	Reconfigure via meshcore-cli or the serial CLI	Factory reset + reconfigure
Boot-looping or immediate crash	Power cycle; hold reset during boot	Reflash firmware
BLE not discoverable	Power cycle; V3: check BLE antenna	Reflash
Firmware corruption after interrupted flash	-	Reflash (required)
Unknown configuration state	Factory reset via serial: `erase` (destructive — wipes the device filesystem)	Reflash if serial inaccessible

Before reflashing: document your current config

If the device is still accessible, record its configuration before wiping. There is no single config-dump command in the MeshCore CLI — read each value with its own `get` command (typed into the serial console, or via the `meshcore-cli` host tool) and save the output:

```
# Capture each setting and save to a file
get name
get role
get freq
get radio
get tx
get lat
get lon
get flood.advert.interval
# Copy the console output into node_config_backup.txt
```

Reflash via MeshCore web flasher (recommended)

1. Connect device to PC via USB
2. Open flasher.meshcore.io in Chrome or Edge (WebSerial required)
3. Click "Connect" and select your device's serial port
4. Select device type and firmware variant (Repeater)
5. Click Flash and wait (~2 minutes)
6. Device reboots automatically when complete

Entering bootloader/DFU mode (when auto-detect fails)

ESP32-based devices (Heltec V3, V4, T-Beam)

Hold the BOOT button, press and release RESET, then release BOOT. The device enters download mode and should appear as a serial port. Some devices require the BOOT button held while inserting the USB cable.

nRF52840-based devices (RAK4631, T-Echo, Nano G2 Ultra)

Double-tap the reset button quickly. The device enters DFU mode and appears as a USB drive named "BOOT" or similar. Copy the .uf2 firmware file to this drive to flash.

Alternatively, use the web flasher which handles DFU automatically for most nRF52840 devices.

Station G2

Power requirement: The Station G2 generally expects a higher input than a standard 5V USB cable (commonly a 9–19V DC or USB-C PD source). Confirm the exact input-voltage range against the manufacturer's datasheet for your unit before powering it — feeding the wrong voltage can destroy hardware. If a board fails to flash on a plain 5V cable, an under-powered supply is a likely cause.

Post-reflash configuration

After flashing, the device has factory defaults. Note that the repeater **role is determined by the firmware variant you flashed** (flash the Repeater build) — there is no command to change the role; you can only read it with `get role`. Reconfigure the radio and identity using the serial console (or `meshcore-cli`):

```
# Apply the USA/Canada radio plan (910.525 MHz / BW 62.5 kHz / SF7 / CR5).
# You can select the preset in the MeshCore app, or set the raw params directly:
set radio 910.525,62.5,7,5
reboot

# Confirm the role (set by the flashed firmware, read-only):
get role

# Set name (use your documented name)
set name "REPEATER-NAME"

# Set position (latitude and longitude are separate commands;
# there is no altitude setting in the firmware):
set lat 47.6062
```

```
set lon -122.3321

# Advertisements: send one flood advert now, and set the periodic
# flood advert interval in HOURS (default 12, range 3-168):
advert
set flood.advert.interval 12

# Set TX power in dBm. Real command is "set tx" (documented range 1-22 dBm;
# the SX1262 PA tops out near 22 dBm). 22 matches the build guides.
# Total EIRP = TX power + antenna gain - feedline loss; keep it within the
# FCC 47 CFR 15.247 limits for 902-928 MHz. With an antenna over 6 dBi you
# must reduce conducted power dB-for-dB, so lower this below 22 as gain rises.
set tx 22

# Verify the key settings:
get role
get radio
get freq
get tx
get name

# Reboot
reboot
```

When the device is completely unresponsive

If USB serial doesn't appear and the device shows no activity:

1. **Try a different USB cable.** Many micro-USB and USB-C cables are charge-only and have no data lines. Use a known-good data cable.
2. **Try a different USB port.** USB hubs can cause issues; try a direct port on the computer.
3. **Check the USB driver if needed:** The Heltec V4 (ESP32-S3) uses native USB and does *not* require a CH340/CP210x bridge driver — it enumerates as a standard USB CDC serial device on Windows 10/11. (The V3 used a CP2102 bridge.) RAK4631 and T-Echo also use standard USB CDC. If a unit fails to enumerate, check the cable and DFU/download mode rather than a bridge driver.
4. **Check for physical damage:** Inspect the USB port for bent pins or corrosion. A damaged USB port prevents flashing.

5. **Last resort:** Some boards can be recovered via JTAG/SWD with a debug probe. Consult the manufacturer's documentation.

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