

FAQ: 7. Other Questions:

7.1. Q: How to update nRF (RAK, T114, Seed XIAO) companion, repeater and room server firmware over the air using the new simpler DFU app?

A: The steps below work on both Android and iOS as nRF has made both apps' user interface the same on both platforms:

1. Download nRF's DFU app from iOS App Store or Android's Play Store, you can find the app by searching for `nrf dfu`, the app's full name is `nRF Device Firmware Update`
2. On <https://flasher.meshcore.io>, download the **ZIP** version of the firmware for your nRF device (e.g. RAK or Heltec T114 or Seeed Studio's Xiao)
3. From the MeshCore app, login remotely to the repeater you want to update with admin privilege
4. Go to the Command Line tab, type `start ota` and hit enter.
5. you should see `OK` to confirm the repeater device is now in OTA mode
6. Run the DFU app, tab `Settings` on the top right corner
7. Enable `Packet receipt notifications`, and change `Number of Packets` to 10 for RAK, 8 for T114. 8 also works for RAK.
8. Select the firmware zip file you downloaded
9. Select the device you want to update. If the device you want to update is not on the list, try enabling `OTA` on the device again
10. If the device is not found, enable `Force Scanning` in the DFU app
11. Tab the `Upload` to begin OTA update
12. If it fails, try turning off and on Bluetooth on your phone. If that doesn't work, try rebooting your phone. If you keep getting failures at the "Enabling Bootloader" step, try forgetting the NRF board in your IOS or Andriod device's bluetooth settings and re-pair it through the DFU app.
13. Wait for the update to complete. It can take a few minutes.
14. It is strongly recommended that you install and use the OTAFIX bootloader at https://github.com/oltaco/Adafruit_nRF52_Bootloader_OTAFIX.
15. To update a companion node over OTA, it must be running companion firmware v1.15 or greater.
16. Please see the Meshcore Blog for additional information on OTA firmware flashing:
 - <https://blog.meshcore.io/2026/04/06/otafix-bootloader>
 - <https://blog.meshcore.io/2026/04/02/nrf-ota-update>

7.1.1 Q: Can I update Seeed Studio Wio Tracker L1 Pro using OTA?

A: You can flash this safer bootloader to the Wio Tracker L1 Pro

https://github.com/oltaco/Adafruit_nRF52_Bootloader_OTAFIX

After this bootloader is flashed onto the device, you can trigger over the air update using bluetooth by holding the button next to the D-Pad and then click the reset button. Then follow the same OTA update instructions above. You can skip pass the `start ota` instruction and start the update using the DFU app.

7.2. Q: How to update ESP32-based devices over the air?

A: For ESP32-based devices (e.g. Heltec V3):

1. On <https://flasher.meshcore.io>, download the **non-merged** version of the firmware for your ESP32 device (e.g. `Heltec_v3_repeater-v1.6.2-4449fd3.bin`, no `"merged"` in the file name)
2. From the MeshCore app, login remotely to the repeater you want to update with admin privilege
3. Go to the Command Line tab, type `start ota` and hit enter.
4. you should see `OK` to confirm the repeater device is now in OTA mode
5. The command `start ota` on an ESP32-based device starts a wifi hotspot named `MeshCore OTA`
6. From your phone or computer connect to the 'MeshCore OTA' hotspot
7. From a browser, go to <http://192.168.4.1/update> and upload the non-merged bin from the flasher

7.3. Q: Is there a way to lower the chance of a failed OTA device firmware update (DFU)?

A: Yes, developer `oltaco` has an enhanced OTA DFU bootloader for nRF52 based devices. With this bootloader, if it detects that the application firmware is invalid, it falls back to OTA DFU mode so you can attempt to flash again to recover. This bootloader has other changes to make the OTA DFU process more fault tolerant.

Refer to https://github.com/oltaco/Adafruit_nRF52_Bootloader_OTAFIX for the latest information.

Currently, the following boards are supported:

- Heltec Automation Mesh Node T114 / HT-nRF5262
- Nologo ProMicro NRF52840 (aka SuperMini NRF52840)
- Seeed Studio SenseCAP Card Tracker T1000-E
- Seeed Studio Wio Tracker L1
- Seeed Studio XIAO nRF52840 BLE
- Seeed Studio XIAO nRF52840 BLE SENSE
- RAK 4631
- RAK WisMesh Tag (new 28/11/2025)

7.4. Q: are the MeshCore logo and font available?

A: Yes, it is on the MeshCore github repo here:

<https://github.com/meshcore-dev/MeshCore/tree/main/logo>

7.5. Q: What is the format of a contact or channel QR code?

A:

Channel:

```
meshcore://channel/add?name=&secret=
```

Contact:

```
meshcore://contact/add?name=&public_key=&type=
```

where `&type` is:

```
chat = 1
```

```
repeater = 2
```

```
room = 3
```

```
sensor = 4
```

7.6. Q: How do I connect to the companion via WIFI, e.g. using a heltec v3?

A:

WiFi firmware requires you to compile it yourself, as you need to set the wifi ssid and password.

Edit WIFI_SSID and WIFI_PWD in `./variants/heltec_v3/platformio.ini` and then flash it to your device.

7.7. Q: I have a Station G2, or a Heltec V4, or an [Ikoka Stick](#), or a radio with a EByte E22-900M30S or a E22-900M33S module, what should their transmit power be set to?

A:

For companion radios, you can set these radios' transmit power in the smartphone app. For repeater and room server radios, you can set their transmit power using the command line command `set tx`. You can get their current value using command line comand `get tx`

⚠ WARNING: Set these values at your own risk. Incorrect power settings can permanently damage your radio hardware.

⚠ US FCC compliance — read before setting power: In the United States, FCC Part 15.247 caps the conducted output of unlicensed 902–928 MHz LoRa devices at **1 W (30 dBm)** and effective isotropic radiated power (EIRP) at **4 W (36 dBm)** (the 1 W conducted limit assumes an antenna of up to 6 dBi gain; gain above 6 dBi requires a dB-for-dB reduction in conducted power). **Any setting above 30 dBm conducted is not legal for unlicensed US operation**, and pushing the radio's power amplifier to its hardware maximum can also damage the PA. Keep US settings at or below 30 dBm conducted (1 W), minus any antenna gain over 6 dBi. The rows in the table below that exceed 30 dBm are marked accordingly. Outside the US, follow your own region's limits — note that EU868 limits are far lower (typically 25 mW / 14 dBm ERP on most sub-bands), so the high-output figures shown for EU868 below are well above what EU rules permit and are listed only to document the hardware's capability.

Note on the "In-App Setting" column: The value you enter in the app or via `set tx` is a module-internal index, *not* the actual emitted power. It maps to the real radio output in a non-obvious, non-linear way (for example, an in-app value of 19 dBm on a Station G2 produces about 36.5 dBm of actual output, while 22 dBm in-app on a Heltec V4 produces only about 28 dBm). Always judge legality and safety by the **Target Radio Output** column, not the in-app number. The actual-output figures below come from community/vendor measurements; confirm against your specific board's datasheet before relying on them.

Device / Model	Region / Description	In-App Setting (dBm)	Target Radio Output	Notes
Station G2 Reference	US915 Max Output	19 dBm	36.5 dBm (4.46W) — EXCEEDS US FCC Part 15 limit (not legal for unlicensed US use)	
	US915 Max at 1dB compression point	16 dBm	35 dBm (3.16W) — EXCEEDS US FCC Part 15 limit (not legal for unlicensed US use)	1dB compression point
	EU868 Max at 1dB compression point	15 dBm	34.5 dBm (2.82W) — exceeds the US FCC Part 15 conducted limit, and is far above EU868 ERP limits (EU/other regions only — not legal at this level in the EU)	1dB compression point

Device / Model	Region / Description	In-App Setting (dBm)	Target Radio Output	Notes
	US915 1W Output	10 dBm	1W	Refer to your local government's requirements
	EU868 1W Output	9 dBm	1W	Refer to your local government's requirements
Ikoka Stick E22-900M30S	1W Model	19 dBm	1W	DO NOT EXCEED (Risk of burn out) data sheet
Ikoka Stick E22-900M33S	2W Model	9 dBm	2W — EXCEEDS US FCC Part 15 limit (not legal for unlicensed US use)	DO NOT EXCEED (Risk of burn out) data sheet Refer to your local government's requirements
Heltec V4	Standard Output	10 dBm	22 dBm (~0.15W)	
	High Output	22 dBm	28 dBm (~0.5W to 0.6W)	

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