

# FLASHING GUIDE

## Heltec MeshPocket

RNode Firmware for Reticulum Network Stack

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Version 1.0 | April 2026

Device	Heltec MeshPocket 5000mAh / 10000mAh
Chip	nRF52840 + SX1262
Firmware	RNode Firmware CE v1.75 (liberatedsystems fork)
Frequency band	868 MHz (EU) / 915 MHz (US) / 433 MHz
Operating System	Windows 10/11
Estimated time	~30-60 minutes

## 1. Required Software

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### 1.1 Python

Python 3.12 or higher is required.

- <https://python.org/downloads>
- "Add Python to PATH"
- Verify installation:

```
python --version  
pip --version
```

## 1.2 Arduino CLI

- **1.4.1 or higher**
- **[https://downloads.arduino.cc/arduino-cli/arduino-cli\\_latest\\_Windows\\_64bit.zip](https://downloads.arduino.cc/arduino-cli/arduino-cli_latest_Windows_64bit.zip)**
- **C:\arduino-cli\**
- Add C:\arduino-cli\ to the system PATH environment variable
- Verify:

```
arduino-cli version
```

## 1.3 Python Packages

Install the following packages via pip:

```
pip install rns --upgrade  
pip install adafruit-nrfutil
```

Package versions verified with this guide:

Package	Version	Purpose
rns	1.1.4	Contains nodeconf utility
adafruit-nrfutil	0.5.3.post16	nRF52840 firmware flashing
pyserial	3.5	Serial port communication

## 1.4 Heltec nRF52 Arduino Platform

Add the board manager URL and install the platform:

```
arduino-cli config add board_manager.additional_urls  
https://github.com/HelTecAutomation/Heltec_nRF52/releases/download/1.7.  
0/package_heltec_nrf_index.json  
arduino-cli core update-index  
arduino-cli core install Heltec_nRF52:Heltec_nRF52
```

Platform version: Heltec\_nRF52:Heltec\_nRF52@1.7.0

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## 2. Required Firmware Files

### 2.1 RNode Firmware for MeshPocket

Obtain the compiled firmware file from the developer:

- **[https://github.com/TheBeadster/RNode\\_Firmware\\_CE](https://github.com/TheBeadster/RNode_Firmware_CE)**
- **#87 in [liberatedsystems/RNode\\_Firmware\\_CE](#)**
- **RNode\_Firmware\_CE.ino.zip (DFU package for nRF52840)**

- **manifest.json, RNode\_Firmware\_CE.ino.bin, RNode\_Firmware\_CE.ino.dat**

**WARNING:** The firmware file must be obtained from the developer (TheBeadster). The official liberatedystems release v1.75 does NOT include MeshPocket support — you need the custom build specifically.

## 2.2 Factory Erase Files

Required to wipe the device memory before flashing RNode:

- Download from the Meshtastic website:  
`https://meshtastic.org/docs/getting-started/flashing-firmware/nrf52/nrf52-erase/`
- **Meshtastic\_nRF52\_factory\_erase\_v3\_S140\_7.3.0.uf2**
- **Meshtastic\_nRF52\_factory\_erase\_v3\_S140\_6.1.0.uf2**

**NOTE:** To check the SoftDevice version, open the INFO\_UF2.TXT file on the HT-n5262 drive while in DFU mode.

## 3. Connecting the Device

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**WARNING:** The USB-C port on the MeshPocket is for CHARGING ONLY! For flashing, always use the magnetic pogo-pin cable included in the box.

### 3.1 Normal Operating Mode

1. Connect the magnetic cable to the side port of the MeshPocket
2. Plug the USB end into the computer
3. The device will appear as a COM port (e.g. COM7 or COM8)
4. Check the port with:

```
mode
```

### 3.2 DFU Mode (for flashing)

5. Connect the device via the magnetic cable
6. Quickly double-press the RST button on the device
7. The device enters DFU mode — the COM port number will change
8. Check the new port:

```
mode
```

**NOTE:** After entering DFU mode, act quickly — the device may exit DFU mode after a few seconds if flashing does not begin.

## 4. Flashing Process

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### 4.1 Step 1 — Restore Meshtastic (if needed)

If Meshtastic is not currently on the device, install it first to confirm the device is working:

9. Download the Meshtastic UF2 file for MeshPocket:

```
https://resource.heltec.cn/download/MeshPocket/firmware
```

10. Enter DFU mode (double-press RST)
11. Copy the UF2 file onto the HT-n5262 drive in Windows Explorer
12. Confirm that the display shows the Meshtastic interface

### 4.2 Step 2 — Factory Erase the Device

**WARNING:** This step is REQUIRED before installing RNode firmware. Without erasing memory first, the firmware will not start!

13. Enter DFU mode (double-press RST)
14. Open the HT-n5262 drive in Explorer and open INFO\_UF2.TXT
15. Note the SoftDevice version (6.x or 7.x)
16. Copy the matching factory erase UF2 file onto the HT-n5262 drive
17. Wait for the device to reboot

### 4.3 Step 3 — Flash the RNode Firmware

18. Connect the device in normal mode
19. Check the COM port:

```
mode
```

20. Flash the firmware using Arduino CLI:

```
arduino-cli upload -p COM8 --fqbn Heltec_nRF52:Heltec_nRF52:HT-n5262 --input-file "C:\path\to\RNode_Firmware_CE.ino.zip"
```

**NOTE:** Replace COM8 with your actual port from the mode command. After a successful flash you will see "Device programmed" and "New upload port".

21. The display should show text such as "RNode" or "Missing config"

#### 4.4 Step 4 — Write EEPROM

After flashing, the device EEPROM must be initialised. First verify the connection:

```
rnodeconf COM8 -i
```

Expected output: "Current firmware version: 1.75" and "EEPROM is invalid"

Wipe the EEPROM (press Enter when prompted):

```
rnodeconf COM8 --eeprom-wipe
```

Write the device parameters:

```
rnodeconf COM8 -r --platform NRF52 --product c2 --model c7 --hwrev 1
```

Bootstrap parameters explained:

Parameter	Value	Description
--platform	NRF52	Microcontroller platform
--product	c2	Heltec Mesh Node T114 (hex)
--model	c7	850-950 MHz with SX1262 (hex)
--hwrev	1	Hardware revision

**NOTE:** The product and model values are passed as HEX strings WITHOUT the 0x prefix — use "c2" not "0xc2" and not "194".

#### 4.5 Step 5 — Configure Radio Parameters

Set the operating radio parameters and switch to TNC mode:

```
rnodeconf COM8 -T --freq 868000000 --bw 125000 --txp 14 --sf 7 --cr 5
```

Radio parameter reference:

Parameter	Value	Description
--freq	868000000	Frequency 868 MHz (Europe / Russia)
--bw	125000	Bandwidth 125 KHz
--txp	14	TX power 14 dBm
--sf	7	Spreading Factor 7

Parameter	Value	Description
--cr	5	Coding Rate 4/5

**NOTE:** For the USA use --freq 915000000. For the 433 MHz band use --freq 433000000 and change --model to c6.

## 5. Verifying the Result

### 5.1 Checking with rnodeconf

After successful configuration, the command should return full device information:

```
rnodeconf COM8 -i
```

Expected output:

```
Device info:
  Product           : Heltec Mesh Node T114 850 - 950 MHz (c2:c7:46)
  Device signature  : Validated - Local signature
  Firmware version  : 1.75
  Hardware revision : 1
  Modem chip        : SX1262
  Frequency range   : 850.0 MHz - 950.0 MHz
  Max TX power      : 22 dBm
  Device mode       : TNC
  Frequency         : 868.0 MHz
  Bandwidth         : 125.0 KHz
  TX power          : 14 dBm
  Spreading factor  : 7
  Coding rate       : 5
```

**SUCCESS:** If all fields are populated and Device mode shows TNC — the device is successfully configured!

### 5.2 Reticulum Configuration

Add the interface to the Reticulum configuration file (~/.reticulum/config):

```
[[MeshPocket RNode]]
  type = RNodeInterface
  interface_enabled = True
  port = COM8
```

```
frequency = 868000000
bandwidth = 125000
txpower = 14
spreadingfactor = 7
codingrate = 5
```

**NOTE:** Replace COM8 with the actual COM port of your device.

## 6. Troubleshooting

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### 6.1 Device not appearing as a COM port

- Check the magnetic cable connection — it must be firmly attached
- Try a different USB port on the computer
- Make sure you are NOT using the USB-C port for flashing
- Check Device Manager for yellow exclamation marks

### 6.2 Error: "No module named rnodeconf"

- An old standalone rnodeconf package is installed — remove it:

```
pip uninstall rnodeconf
```

- Install the current rns package:

```
pip install rns --upgrade
```

### 6.3 rnodeconf not found after installation

- Locate the file:  

```
where /r C:\Users\%USERNAME% rnodeconf.exe
```
- Add the found Scripts folder to PATH via:
- Win+R -> sysdm.cpl -> Advanced -> Environment Variables -> Path -> New

### 6.4 Error: "Invalid data specified"

- The product and model values must be passed as hex WITHOUT the 0x prefix
- **--product c2 --model c7**
- **--product 0xc2 --model 0xce**

## 6.5 Error: "EEPROM checksum mismatch"

- Wipe the EEPROM and try again:

```
rnodeconf COM8 --eeprom-wipe
```

- Use the correct combination: `--product c2 --model c7`

## 6.6 Firmware flashes but device is silent

- Factory Erase **MUST** be performed before flashing RNode firmware
- Use `arduino-cli` with FQBN `Heltec_nRF52:Heltec_nRF52:HT-n5262`
- Do **NOT** use `adafruit-nrfutil` directly without `arduino-cli`

## 6.7 COM port changes after every operation

- This is normal behaviour for the nRF52840 — the port changes on reboot
- Always check the current port with the `mode` command before each operation
- Typical pattern: COM7 (normal mode) <-> COM8 (after flashing)

## 7. Quick Reference — All Commands

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Purpose	Command
Check COM port	<code>mode</code>
Install <code>rns/rnodeconf</code>	<code>pip install rns --upgrade</code>
Install <code>adafruit-nrfutil</code>	<code>pip install adafruit-nrfutil</code>
Install Heltec platform	<code>arduino-cli core install Heltec_nRF52:Heltec_nRF52</code>
Flash firmware	<code>arduino-cli upload -p COM8 --fqbn Heltec_nRF52:Heltec_nRF52:HT-n5262 --input-file firmware.zip</code>
Check device info	<code>rnodeconf COM8 -i</code>
Wipe EEPROM	<code>rnodeconf COM8 --eeprom-wipe</code>
Write EEPROM	<code>rnodeconf COM8 -r --platform NRF52 --product c2 --model c7 --hwrev 1</code>
Configure radio 868MHz	<code>rnodeconf COM8 -T --freq 868000000 --bw 125000 --txp 14 --sf 7 --cr 5</code>
Generate signing key	<code>rnodeconf --key</code>

## 8. Resources and Links

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Resource	URL
RNode Firmware CE (liberatedsystems)	<a href="https://github.com/liberatedsystems/RNode_Firmware_CE">https://github.com/liberatedsystems/RNode_Firmware_CE</a>
MeshPocket fork by TheBeadster	<a href="https://github.com/TheBeadster/RNode_Firmware_CE">https://github.com/TheBeadster/RNode_Firmware_CE</a>
MeshPocket support PR #87	<a href="https://github.com/liberatedsystems/RNode_Firmware_CE/pull/87">https://github.com/liberatedsystems/RNode_Firmware_CE/pull/87</a>
Reticulum Network Stack	<a href="https://github.com/markqvist/Reticulum">https://github.com/markqvist/Reticulum</a>
Reticulum documentation	<a href="https://reticulum.network">https://reticulum.network</a>
Meshtastic Factory Erase guide	<a href="https://meshtastic.org/docs/getting-started/flashing-firmware/nrf52/nrf52-erase/">https://meshtastic.org/docs/getting-started/flashing-firmware/nrf52/nrf52-erase/</a>
MeshPocket Meshtastic firmware	<a href="https://resource.heltec.cn/download/MeshPocket/firmware">https://resource.heltec.cn/download/MeshPocket/firmware</a>
Heltec MeshPocket docs	<a href="https://docs.heltec.org/en/ready_to_use/meshpocket/">https://docs.heltec.org/en/ready_to_use/meshpocket/</a>
Arduino CLI	<a href="https://arduino.github.io/arduino-cli/">https://arduino.github.io/arduino-cli/</a>

*This guide was written based on a successful installation completed in April 2026.  
Confirmed working: Firmware v1.75, SX1262, 868 MHz, 22 dBm.*