

Vancouver Island Amateur Radio Discord Meshcore Tips & Tricks

This guide has some tricks & tips on Meshcore & Setting up repeaters

This is a how to guide, you're going to want to install the bootloader before you do anything, Once the bootloader is installed you can either install the repeater VIA the online flasher (Tethered Install) and or the OTA good way to practice your skills.

[nRF52 Instructions:](#)

Install the new bootloader (Do this first before installing any Meshcore firmware):

-"All (IIRC) nRF52 boards are capable of flashing the OTAFIX Bootloader"

The reason why we need to install this OTA fix is so when we are out in the field we don't need to climb up and reset the repeater if our OTA install fails, This saves you from having to be tethered to the repeater. Below are the steps for installing the new bootloader:

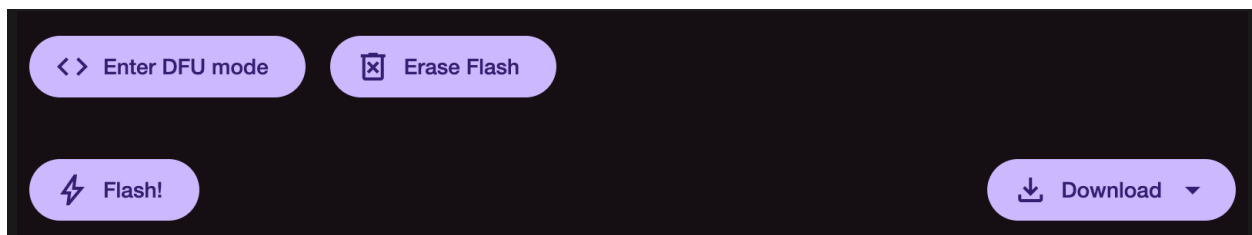
First need to load in bootloader OTAFIX file into the rak board (1 time before 1st OTA attempt), To do this follow the guide before you will require to be tethered to your PC to do this. Download the Bootloader .uf2 file from the link below:

BOOTLOADER DOWNLOAD UF2: https://flasher.meshcore.dev/firmware/wiscore_rak4631_board_bootloader-0.9.2-OTAFIX2.1.uf2

BOOTLOADER GITHUB:

https://github.com/oltaco/Adafruit_nRF52_Bootloader_OTAFIX

To install the bootloader you will be tethered to your PC, You will double click the reset button the RAK it will bring up a folder on your PC you will drag the .uf2 file into the folder hit yes if prompted, You will most likely disconnect and then the device will come back. You then will be required to on the Meshcore flasher website to "Enter DFU" & then click "Erase Flash", Once the Flash is erased you can install the most current firmware.



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

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 flasher.meshcore.co.uk, 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 Packets 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 enablingOTA 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.
13. Wait for the update to complete. It can take a few minutes.

[ESP32 Instructions:](#)

Currently do not have a ESP32 device to do this, If you have any instructions please let us know!

These are the repeater enhancements that we have done to the Vancouver Island Mesh Repeaters, We recommend these following CLI Commands!

Repeater Enhancements (CLI COMMANDS):

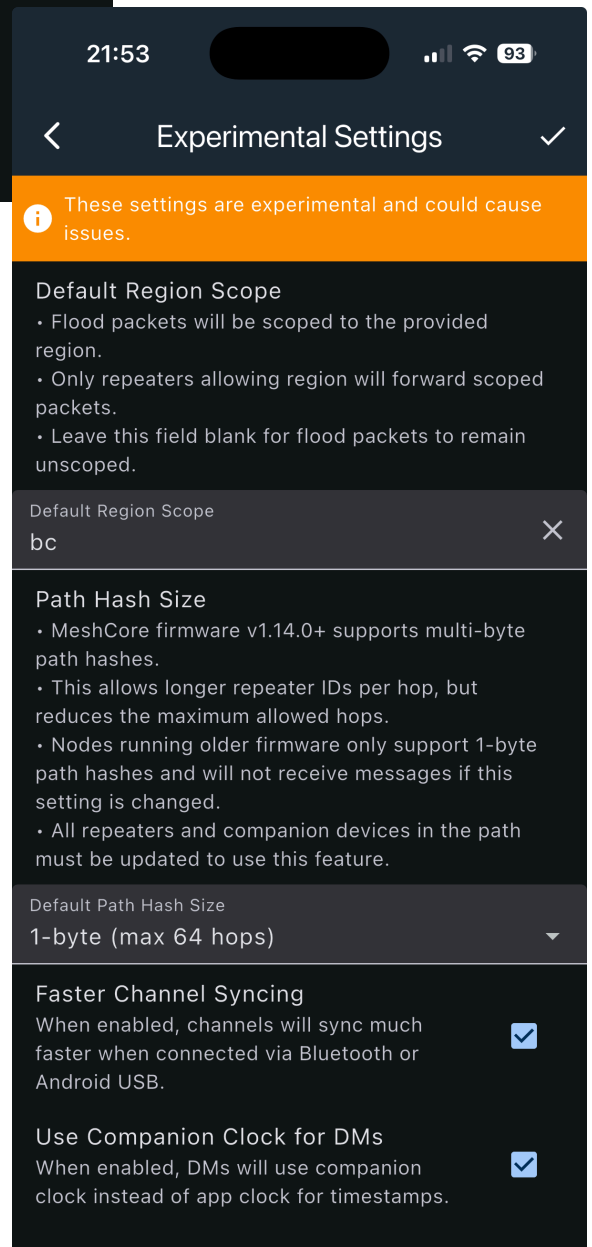
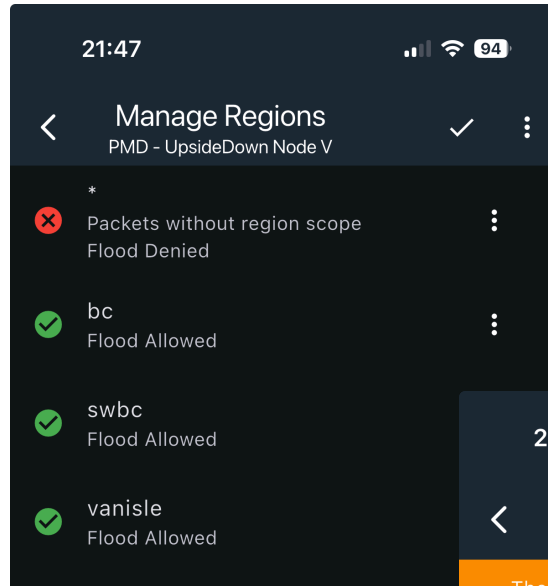
You will want to do these commands after you have a repeater install, Cli command as a Repeater Admin in the command prompt (CLI) mode:

```
set path.hash.mode 2
set loop.detect moderate
set agc.reset.interval 0
```

Repeater Scopes (Meshcore Regions):

Starting in repeater Firmware 1.14.1 there is a new feature called Meshcore Regions, It is a repeater scope which will help shape some of the network to set these in the Meshcore Repeater of your choice you will go into Repeater Contact, Manage, Settings, Manage Regions. We at VIARD have all of our repeaters set up this way. We without packets that are not region scoped will be denying the flood. This will hopefully cut down our channel utilization and keep the mesh working. At any time you can allow flood and everything will go thru your repeater. To get messages out you will be required to place a scope on your companion. That is below the next settings.

- * - Flood Denied
- bc - Flood Allowed
- swbc - Flood Allowed
- vanisle - Flood Allowed



Companion Scopes (Meshcore Regions):

You must have upgraded your Companion Firmware to 1.15 for this to work. You can in previous firmware do this also, but per channel!

Now that you have your repeaters scoping the regions, you will want to ensure your scoping yourself into that region. We will use bc as the example, In your companion node top right hit the gear for settings, then find experimental setting and enter "bc" under default region scope. (See screenshot below)