Radio Settings and Presets

Correct radio settings are essential for your repeater to interoperate with other nodes. The simplest and most reliable approach is to use the built-in preset.

Use the USA/Canada preset

In the MeshCore app, navigate to **Choose Preset** and select **USA/Canada (Recommended)**. This preset automatically applies the correct frequency plan, bandwidth, spreading factor, and coding rate for the North American MeshCore network.

> **Do not manually set individual radio parameters unless you understand their effects and have a specific reason to deviate.** Incorrect settings will make your repeater invisible to the rest of the network.

What the preset sets

For reference, the USA/Canada preset resolves to settings within the 902 - 928 MHz band (commonly referred to as "915 MHz hardware"). As of the October 2025 "narrow" migration the US/Canada default preset is **910.525 MHz / SF7 / BW 62.5 kHz / CR 5**. These values can change with firmware updates, so the authoritative step is to read the actual values from the app or via the serial CLI (`get radio`) and match the network you intend to join.

Selecting the correct US/Canada region preset is also a compliance control: it confines the radio to the 902 - 928 MHz ISM band authorized under 47 CFR 15.247. Running a non-US preset (for example the EU 868 MHz default) on US hardware can place transmissions outside the authorized band.

Individual parameter reference

Parameter	Recommended	Notes

Frequency	Set by preset	902 - 928 MHz (US ISM band). Do not use EU 868 MHz hardware on the US network.
Bandwidth (BW)	Preset default	Narrower BW = longer range, slower speed. Leave at preset default for network compatibility.
Spreading Factor (SF)	Preset default	Higher SF = better range, lower throughput. Keep at preset default.
Coding Rate (CR)	Preset default	Higher CR = better error correction, more overhead. Keep at preset default.
Flood hop maximum	Default (64)	MeshCore uses path-based routing, not a per-message hop-limit. The firmware flood hop maximum (`flood.max`) defaults to 64; you can cap flood propagation lower with `set flood.max <0-64>`. In practice 3 - 5 hops spans substantial distances and delivery reliability falls off beyond that. The default is sufficient for most deployments.

Public vs. private channel

Configure your repeater on the **Public channel** so all network participants can read messages relayed through it. A repeater relays mesh traffic (flood adverts, public-channel messages, and routed direct messages) regardless of channel — it forwards packets without decrypting them. Private or custom channel keys only determine which nodes can decrypt those messages, not which repeaters forward them.

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