MESHTASTIC · QUICK REFERENCE

First setup

1. Flash: web flasher in a Chromium browser (Web Serial), pick your board, stable build
2. Connect: phone app (Bluetooth) or web client
3. LoRa > Region: US. A new node is UNSET and won't transmit until you pick one
4. Role: CLIENT (see below)
5. Give it a name you'll recognize
6. Preset: leave it on LongFast

No license needed: US 915 MHz ISM band.

Must match on every node

Region	US here, and 915 MHz hardware to match; 868 and 915 can't hear each other
Preset	LongFast unless the whole mesh agreed to change it
Channel	same name and same key (PSK)

Get one wrong and you're on your own private, silent network.

Roles

CLIENT	default, rebroadcasts. Almost every node should be this
CLIENT_MUTE	joins in, doesn't rebroadcast: a leaf sitting next to a router
ROUTER	real high sites only: roof, tower, peak. Never a mobile node
ROUTER_LATE	backup relay, rebroadcasts after the primary routers
REPEATER	relay only, no client UI
TRACKER	beacons its position, little else

Everything on ROUTER floods the airtime and shrinks the mesh.

CLI: pip install --upgrade meshtastic

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meshtastic --set lora.region US
meshtastic --set device.role CLIENT
meshtastic --set-owner "ridge-relay-01"
meshtastic --info     # dump the config
```

Channels and privacy

- Up to 8 channels: 0 primary, 1-7 secondary.
- The default LongFast key is public: anyone in range can read it, and so can MQTT.
- Private group: new channel, random 256-bit key, share the QR code in person before you lose cell coverage.
- DMs (firmware 2.5+) are encrypted to the recipient's key; channel posts aren't.
- Encryption hides content, not that you sent, your position beacons or the metadata.

Antenna and placement

- Never power it up without an antenna.
- SMA and RP-SMA look alike and don't mate.
- Use an antenna tuned for your band (915).
- Height beats power. Keep coax short: thin RG174 eats dB fast at 900 MHz.
- High gain = flatter pattern: great on flat ground, can overshoot a valley from a peak.

Solar relay starter

- nRF52 board (RAK4631): sleeps at microamps
- 3000-3500 mAh 18650, a quality cell
- 5-6 W / 6 V panel + a real charge controller
- Size the battery for the darkest week.
- Check JST battery polarity before plugging.
- IP65 box, vented, antenna on a bulkhead.

Group on the move

- Same region, preset, channel and key on all
- GPS locked before you leave (cold start can take minutes)
- Everything charged, antennas on
- Range-test a few hundred meters apart
- Position: smart or every few minutes, not seconds. Lower the precision if it matters
- Decide who carries the high relay

Hears nothing? Work down the list

Region UNSET	set LoRa > Region
Wrong band	915 vs 868 hardware
Preset mismatch	everyone on LongFast
Channel or key	same name, same key
Antenna	loose, wrong band, or SMA vs RP-SMA
Sited too low	get it up high
Nobody in range	test with a second node a few meters away

Hawaii mesh

- US region + LongFast + the default channel and you're on the mesh.
- Lines between islands on the map are MQTT (internet), not radio. Each island runs its own RF mesh: O‘ahu, Maui, Big Island.
- Optional: a Wi-Fi node bridged to MQTT topic msh/US/HI puts you on the shared map.
- In an outage the local RF mesh keeps going; the island-to-island links don't.