Common Issues and Fixes

Quick Reference Table

Problem	Solution
Repeater goes deaf after nearby RF transmissions	`set agc.reset.interval 4` - resets AGC periodically to recover from desensitization
Heltec V3 Bluetooth dropouts	Replace the stock PCB antenna with a 31 mm wire antenna soldered to the BLE antenna pad
Duplicate public key first bytes	Generate a new keypair at gessaman.com/mc-keygen/
Phone won't connect via Bluetooth	Unpair and re-pair the device; verify you are using the correct MeshCore app (not Meshtastic); PIN is often `123456`
Contacts showing ancient last-seen dates	Clock sync issue - use epochconverter.com to verify and manually set the device RTC
Messages not delivered	Check: matching channels/encryption keys, region set to `us` (or correct region), antenna connected, hop limit sufficient for the path length
Can see nodes but can't message them	Verify matching channel name and PSK on both ends; investigate asymmetric RF link (strong signal one way, weak the other - often a bad antenna on one node)
Battery draining fast on companion node	Enable screen timeout; disable continuous GPS or increase GPS update interval; reduce telemetry broadcast interval

Receiver Desensitization (AGC Issue) - Detailed

This is the most common issue at sites co-located with other radio equipment. Symptoms:

- Repeater was working fine, then a nearby radio (VHF/UHF ham, GMRS, commercial) transmitted
- After that transmission, the MeshCore repeater stops relaying anything
- Rebooting the repeater restores normal operation temporarily

Root cause: The SX1262 LoRa radio's AGC can latch in a high-gain-suppressed state after a strong out-of-band signal. The fix:

```
set agc.reset.interval 4
```

This resets the AGC every 4 minutes. Set it lower (e.g., 2) for sites with very active co-located transmitters. This setting persists across reboots.

Heltec V3 BLE Antenna Upgrade

The Heltec WiFi LoRa 32 V3 ships with a small PCB trace antenna for Bluetooth. This antenna has poor performance, causing:

- Frequent disconnections from the MeshCore app
- Short effective BLE range (sometimes less than 1 metre)

Fix: solder a 31 mm piece of wire to the BLE antenna pad (the small pad labeled "BT" near the SX1262 module). Cut the existing PCB trace if present. The wire acts as a quarter-wave monopole at 2.4 GHz and dramatically improves BLE reliability.

Duplicate Public Key First Bytes

MeshCore uses the first bytes of a node's public key as part of its addressing. In rare cases, two nodes may share the same leading bytes, causing routing confusion. If you suspect this:

1. Visit gessaman.com/mc-keygen/
2. Generate a fresh keypair
3. Load the new keys onto your device via the CLI or app

Asymmetric RF Links

A node can hear another node's transmissions but not successfully send messages back. Common causes:

- One node has a significantly better antenna or elevation
- One node's TX power is set lower
- Obstructions are directional (e.g., a metal roof blocks signal in one direction)

Diagnosis: compare RSSI readings on both nodes. If RSSI is strong in one direction and weak in the other, the link is asymmetric. Fix by improving the weaker node's antenna, increasing its TX power, or repositioning.

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