

Network Documentation Standards

A community mesh network that isn't documented is one resignation or one hardware failure away from being unrecoverable. Documentation is not overhead - it's the infrastructure that makes the physical infrastructure maintainable.

What to Document

For every permanent repeater, record:

- **Location** - Address or GPS coordinates, plus a plain-language description (e.g., "roof of First Baptist Church, southwest corner")
- **Hardware** - Device model, enclosure type, antenna type and gain
- **Firmware version** - Current version and date of last update
- **Channel configuration** - Channel name, modem preset, and whether a custom PSK is in use (do not record the PSK in shared documentation)
- **Power system** - Solar + battery, wall power, PoE. Battery capacity if applicable.
- **Maintainer contact** - Name and contact method for the person responsible for this node

Beyond individual nodes, document:

- **Network topology** - Which repeaters link to which under typical conditions. A simple diagram is worth pages of prose.
- **Channel settings** - The canonical record of your community's channel name and modem preset. This is what you share with newcomers.
- **Coverage map** - Based on tested range, not theoretical propagation. Mark areas where coverage has been verified by walking tests or field days.

Using the Library

Keeping node information in a shared wiki rather than a single operator's notes means the network survives personnel changes. Maintain a repeater reference entry for every permanent node in your network, capturing the fields listed above.

Update the library entry whenever hardware changes, firmware is updated, or maintainer contact information changes. Stale documentation is worse than no documentation because it misleads the next person who needs to act on it.

Repeater Naming Conventions

Choose a consistent naming scheme before you deploy your first permanent repeater. Changing it later is painful - nodes appear on maps and in message logs, and inconsistency creates confusion. Common options:

- **Location-based:** `MeshAmerica-WestHills-1` - Human-readable, easy to orient on a map
- **Callsign-based:** `KD9XYZ-SiteA` - Ties a node to a licensed amateur. Use this **ONLY** if the node operates under amateur (Part 97) rules, which means open, unencrypted operation with no obscured content. Do **NOT** put a callsign on a node running a private/PSK-encrypted channel, or on a default Part 15 node on 915 MHz ISM - mislabeling such a node with a callsign can imply unlawful amateur operation. Callsign-as-identity only provides "EmComm accountability" in unencrypted Part 97 mode.
- **Sequential:** `PDX-Repeater-01` - Simple, scales cleanly

Pick one scheme and document it. New nodes added by new community members should follow the same convention.

Channel Documentation

Publish your channel name and modem preset publicly - on your Discord, website, or wiki. New participants need this information to join the network.

Do **not** publish the PSK publicly if your community uses a private channel for security. Share the PSK via QR code (or channel URL) to verified participants only - the QR/URL carries the PSK, which is why it must be shared carefully. The QR code / channel URL encodes the shared channel(s) you choose to include plus the LoRa/modem-preset settings - it is the standard mechanism for onboarding new nodes. Review which channels are included before sharing it.

Firmware Version Tracking

Maintain a log of when each node was last updated. Meshtastic firmware is actively developed; nodes running outdated versions may miss bug fixes, compatibility improvements, or security patches.

Schedule a quarterly firmware review: check each node's current version, identify which nodes need updates, and coordinate with site maintainers to get access for updates. A node that hasn't been updated in over a year should be treated as a maintenance priority.

Incident Log

When a node goes offline - whether due to weather, power failure, hardware failure, or vandalism - document:

- What happened
- When it was detected
- What was done to restore service
- What (if anything) changed to prevent recurrence

This institutional knowledge prevents repeat failures. The second time a solar controller fails in a cold snap, the person responding should be able to find a record of what worked last time.

Succession Planning

Community networks outlast individual operators. Plan for turnover:

- Ensure at least two people have physical and administrative access to every critical node.
- Document access procedures (who has the key to the rooftop, who has the admin channel QR code).
- Store admin channel QR codes securely, with a trusted backup outside your own household. A fireproof envelope with a co-maintainer is a reasonable standard.
- Review the succession plan annually. People move, change jobs, and lose interest. The plan is only useful if it's current.

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