

# What is a Meshtastic Repeater?

A Meshtastic repeater is a dedicated node whose purpose is to receive and retransmit messages, extending the reach of the mesh network beyond what any single device can achieve on its own.

In a Meshtastic network, every node participates in relaying messages to some degree - this is the nature of a mesh. But dedicated repeater nodes are optimized specifically for relaying: they run continuously and are placed at elevation for maximum coverage. Depending on the role chosen, an infrastructure node can either rebroadcast with higher priority (without deferring to neighbors) or be configured to stay silent on the mesh. Note that "repeater" is used here as a general concept: in practice these nodes use either the **ROUTER** role (which still broadcasts its own NodeInfo and position) or the **REPEATER** role (which relays silently without broadcasting its own data). These roles are covered in detail on the device-role pages.

## Why repeaters matter

In real-world conditions, LoRa range is often limited by terrain, buildings, and vegetation. Range figures are highly variable and depend on preset, antenna, height, TX power, and obstructions. With stock antennas at Long Fast, urban non-line-of-sight range is often well under 1 km up to a few km; rural line-of-sight can be tens of km, and elevated sites with clear line-of-sight have achieved 100+ km. A repeater at elevation with a clear view can bridge gaps that would otherwise isolate parts of the network.

## The Meshtastic relay model

Meshtastic uses a **managed flooding** approach: when a message is sent, nearby nodes rebroadcast it, and those nodes rebroadcast to others. A hop counter (default 3, maximum 7) limits how many times a message can be relayed before it is discarded. Dedicated repeaters - placed at strategic high points - maximize the effective reach of each hop.

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Revision #3

Created 2026-05-03 02:06:44 UTC by Mesh America Admin

Updated 2026-06-09 00:21:14 UTC by Mesh America Admin