



MeshCore for Emergency Communication

Tom Bruegge
September 2, 2026

MeshCore basics

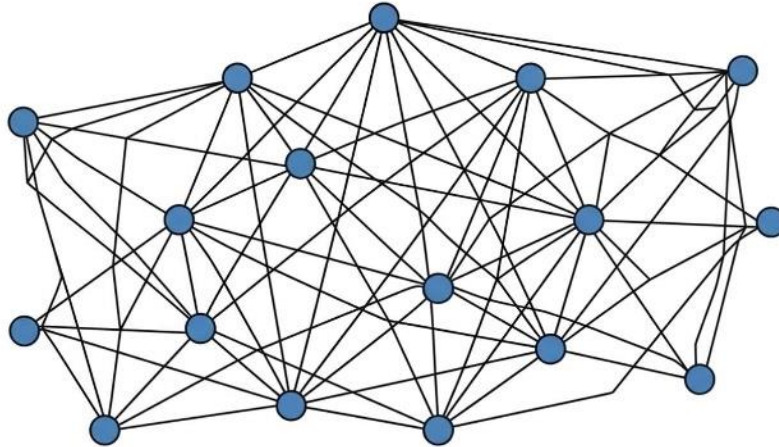


- Long range off-grid communication
 - No cell towers, Wi-Fi, or internet needed
- For emergency, hiking, private comms, events
- Short, text messages (roughly 200 characters or less) get broadcast by a node, and then retransmitted by other nodes
- Offers the promise of low-power, regional (~50-100 miles)
- Messages are encrypted to ensure privacy (by default, except for public channel messages)
- It does not require a license
- Uses inexpensive hardware
 - Uses the 902-928 MHz ISM (Industrial Scientific Medical) band

What is a mesh network?



- A network consisting of nodes that pass traffic from one node to another.
 - Messages travel from originator to recipient via intermediate nodes
 - When radio is the transport mechanism, this allows messages to travel farther than a simplex connection from originator to recipient.



How it works



- Your MeshCore device connects to your phone (or tablet) via Bluetooth. The user-interface (UI) resides in an app on your phone
 - Some devices have a built-in UI, but this is not common
- Messages entered into your phone are sent to your device, and then the MeshCore device broadcasts the message
- Other nodes on the net will rebroadcast that message, and hopefully, it will get to its intended destination.
- There are 2 types of messages:
 - Direct Messages (DM) – messages sent to a specific client device
 - Channel Messages – messages that can be decrypted by any device that has been given access
 - Channels can be setup for neighborhood groups, families, etc.

Search 6 Channels...

- Public 12:40PM 186
- #test 12:40PM 328
- #socialsota 12:40PM
- LC_Ward_EmComm 30/Aug 9:32PM
- LCF_EmComm 24/Jul 4:53PM
- LCR_Stake_EMComm 23/Jul 10:54PM

K KN6YKN
Heard your 2M cw for a second in Temecula but not enough to copy

31/Aug 2:57PM • 4 Hops

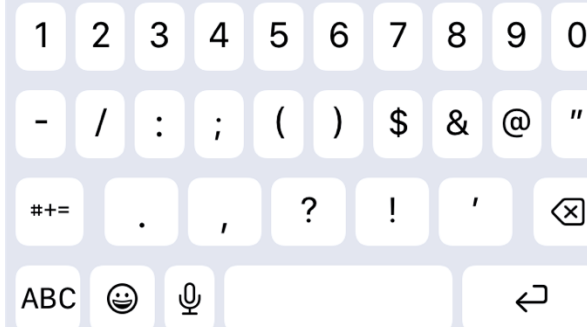
02 September 2026

6 6CR-Office
Anybody activating today??

11:44AM • 1 Hop

+ Not aware of any alerts...

26/139



Low-cost hardware



- Handheld devices can be bought for \$45-\$100
- Available from various vendors
 - Amazon
 - Seeed Studios
 - Muzi-works
 - RAK Wireless

Wio tracker L1 Pro
\$53
Seed Studios



LILYGO T-Deck Portable
\$110

Setup options



- Roles are Repeater, Companion and Room Server
 - Companion – originates and receives messages but does not retransmit
 - Repeater – retransmits messages.
 - Room Server – a “bulletin board”. It stays connected to the Mesh and stores messages for later retrieval.
 - A fixed location, not carried with you.

MeshCore philosophy



- Repeaters should be fixed infrastructure
 - Having mobile units serve as repeaters reduces predictability, reliability of the mesh.
- Passing messages between companion nodes is the most important job of the mesh.
 - Information on node health, location etc. is less important
- Users should not have to remain continually connected to the network to get messages.
- High message hop limit to allow more distant communications

Does it work?



- There are widespread deployments in Europe.
- There are well-developed Meshcore meshes in the Pacific northwest and Austin that have gotten positive reviews from users.
- There is an alternate protocol called “Meshtastic”.
 - There is plenty of anecdotal evidence that MeshCore is more robust than Meshtastic.