FAQ: 1. Introduction

1.1. Q: What is MeshCore?

A: MeshCore is a multi platform system for enabling secure text based communications utilising LoRa radio hardware. The project lists its intended use cases as Off-Grid Communication, Emergency Response & Disaster Recovery, Outdoor Activities, Tactical Security including law enforcement and private security, and IoT sensor networks. (source) *Editorial note: these are vendor-listed use cases. For emergency, disaster, or tactical use, treat MeshCore as a supplemental best-effort text channel only - it offers no guaranteed delivery or quality-of-service and its channel encryption has known limitations, so it should not be relied on as a primary channel for life-safety traffic.*

MeshCore is free and open source:

- MeshCore is the routing and firmware etc, available on GitHub under MIT license
- There are clients made by the community, such as the web clients, these are free to use, and some are open source too
- The cross platform mobile app developed by Liam Cottle for Android/iOS/PC etc is free to download and use
- The T-Deck firmware is developed by Scott at Ripple Radios, the creator of MeshCore, is also free to flash on your devices and use

Some more advanced, but optional features are available on T-Deck if you register your device for a key to unlock. On the MeshCore smartphone clients for Android and iOS/iPadOS, you can unlock the wait timer for repeater and room server remote management over RF feature.

These features are completely optional and aren't needed for the core messaging experience. They're like super bonus features and to help the developers continue to work on these amazing features, they may charge a small fee for an unlock code to utilise the advanced features.

Anyone is able to build anything they like on top of MeshCore without paying anything.

1.2. Q: What do you need to start using MeshCore?

A: Everything you need for MeshCore is available at:

- Main Website: https://meshcore.io
- Firmware Flasher: https://flasher.meshcore.io
- MeshCore Firmware on GitHub: https://github.com/meshcore-dev/MeshCore

- MeshCore Companion Web App: https://app.meshcore.nz
- MeshCore Map: https://map.meshcore.io
- Liam Cottle's MeshCore Technical Presentation

You need LoRa hardware devices to run MeshCore firmware as clients or server (repeater and room server).

1.2.1. Hardware

MeshCore is available on a variety of 433MHz, 868MHz and 915MHz LoRa devices. For example, Lilygo T-Deck, T-Pager, RAK Wireless WisBlock RAK4631 devices (e.g. 19003, 19007, 19026), Heltec V3, Xiao S3 WIO, Xiao C3, Heltec T114, Station G2, Nano G2 Ultra, Seeed Studio T1000-E. More devices are being added regularly.

For an up-to-date list of supported devices, please go to https://flasher.meshcore.io

To use MeshCore without using a phone as the client interface, you can run MeshCore on a LiLygo's T-Deck, T-Deck Plus, T-Pager, T-Watch, or T-Display Pro. MeshCore Ultra firmware running on these devices are a complete off-grid secure communication solution.

1.2.2. Firmware

MeshCore offers four firmware roles: BLE Companion, USB Serial Companion, Repeater, and Room Server. Each is described below.

1.2.3. Companion Radio Firmware

Companion radios are for connecting to the Android app or web app as a messenger client. There are two different companion radio firmware versions:

1. **BLE Companion**

BLE Companion firmware runs on a supported LoRa device and connects to a smart device running the Android or iOS MeshCore client over BLE

1. **USB Serial Companion**

USB Serial Companion firmware runs on a supported LoRa device and connects to a smart device or a computer over USB Serial running the MeshCore web client

1.2.4. Repeater

Repeaters are used to extend the range of a MeshCore network. Repeater firmware runs on the same devices that run client firmware. A repeater's job is to forward MeshCore packets toward their destination. Unlike a simple flood-everything mesh, MeshCore repeaters follow embedded paths for direct messages once a path is known - but they do still forward flood-routed traffic such as adverts and channel (group) messages that have no specific destination.

A repeater can be remotely administered using a T-Deck running the MeshCore firmware with remote administration features unlocked, or from a BLE Companion client connected to a smartphone running the MeshCore app.

1.2.5. Room Server

A room server is a simple BBS server for sharing posts. T-Deck devices running MeshCore firmware or a BLE Companion client connected to a smartphone running the MeshCore app can connect to a room server.

Room servers store message history on them and push the stored messages to users. Room servers allow roaming users to come back later and retrieve message history. With channels, messages are either received when it's sent, or not received and missed if the channel user is out of range. Room servers are different and more like email servers where you can come back later and get your emails from your mail server.

A room server can be remotely administered using a T-Deck running the MeshCore firmware with remote administration features unlocked, or from a BLE Companion client connected to a smartphone running the MeshCore app.

When a client logs into a room server, the server pushes up to the 32 most recent messages the client has not yet seen.

Although room server can also repeat with the command line command `set repeat on`, it is not recommended nor encouraged. A room server with repeat set to `on` lacks the full set of repeater and remote administration features that are only available in the repeater firmware.

The recommendation is to run repeater and room server on separate devices for the best experience.

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