MeshCom 4.0 App Manual (Version 4.23 iOS)

Thanks to Rainer, OE1KFR, there is an app for iOS and Android that allows us to conveniently "operate" the MeshCom nodes. Primarily for receiving and sending messages, but also for configuring and adjusting the nodes. With the map feature, you can get an overview of nearby MeshCom participants, whom you can reach either directly or via the mesh network, even without the internet.

Below, the individual functions and features of the app are described. Since Rainer continuously works on improving and modifying the app to keep up with the features and capabilities of the firmware of the nodes, this manual will also be updated regularly.

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1. Download and Installation of the App

The download and installation process is already described on the project pages. You can find more information at:
https://icssw.org/meshcom-app/

2. connect-Tab: Pairing Nodes with a Smartphone/Tablet

After launching the app, a Bluetooth scan is performed first. By default, only MeshCom nodes are displayed. Optionally, you can show all detected BLE devices.
Tapping on the desired node starts the pairing process. When pairing for the first time, the BT code must be entered. The default code is "000000." This code can be changed via the app (see 3.5), the web interface, or the serial console.
After verifying the code, the app loads the settings of the connected node and displays the message view. In the "connect" tab, the connected node will now be shown in green.

3. Settings-Tab

In the "settings" tab, information about the node (Call, APRS settings, country settings, call groups, network, etc.) is displayed, and the node can be configured.
When setting up for the first time, the node's call sign should be entered first and then saved with the "Save Settings to Node" button. After a few seconds, the node reboots, causing the app to lose the BT connection. After reconnecting (without re-entering the BT code), configuration can continue. The "connect" tab may still display an old node name until a new pairing updates it.

3.1 WiFi Settings

In the WiFi settings section, you can configure WiFi connections for nodes with a WiFi module. After saving, these settings are permanently stored in the node.
A WiFi connection is only established when the node operates as a gateway or the web server is activated.

3.2 APRS Settings

These settings define how the node appears on the map, dashboard, and aprs.fi. A short description of the node can be entered in the "APRS-Comment" field.

3.3 Onewire Pin

Specifies the GPIO for connecting an optional OneWire temperature sensor. The corresponding temperature value appears in the "Info" tab as TOUT.

3.4 Userbutton Pin

Defines the GPIO for connecting a button as a "Userbutton." When activated, pressing it scrolls through received text messages on the node’s display.

3.5 Custom BLE PIN (6 Digits)

Allows changing the 6-digit BLE PIN for security. Only numbers 0-9 are allowed.

3.6 Node UTC Time Offset

Defines the local time offset from UTC (default: 1 for CET). Use 2 for daylight saving time (CEST).

3.7 Country Setting

Selecting the region sets the RX/TX parameters for the LoRa module according to local regulations.

3.8 Group Subscription

Allows subscribing to up to 6 group numbers (1-5 digits) in MeshCom. This information is passed to the next gateway, ensuring relevant messages are received. With the “Reset Groups” Button all groups are resetted to 0 which means no group subscription.

3.9 User Buttons

User buttons allow sending configuration commands to the node to enable or disable functions. It is important to note that pressing the buttons sends the command to the node. Only after processing the command and receiving feedback does the button's status update, which may take a few seconds.

Available commands:

- **Gateway** (Activates the node as a gateway)
- **Mesh** (Enables/disables forwarding of received messages on RF)
- **Display** (Enables/disables an available display)
- **No ALL Msg RX** (Hides/displays messages addressed to * or all)
- **GPS** (Enables/disables an optional GPS module)
- **Button** (Activates/deactivates an optional user button)
- **RX Gain Boost** (Enables/disables RX Gain Boost on ESP32-based nodes with SX1262 LoRa chip)
- **Track** (Enables/disables tracking function: Smart-Beaconing via LoRa-APRS 433.775MHz)
- **Send POS** (Sends the position once via MeshCom, max. every 15 sec.)
- **Send TRACK** (Sends the position once via LoRa-APRS if TRACK is active)
- **BME280, BMP280, BME680, MCU-811** (Activates/deactivates optional environmental sensors on the I2C bus)
- **One Wire** (Activates/deactivates a OneWire temperature sensor)
- **LPS33** (Activates an optional LPS33 board for weather data on RAK4631)
- **WX-Info** (Switches to the Info tab and displays sensor data)
- **Pos-Info** (Switches to the Info tab and displays GPS data)
- **Webserver** (Enables/disables the web server)
- **WiFi AP** (Enables/disables the WiFi access point, creating a separate network if no router is available)
- **Scan I2C** (Displays devices connected to the I2C bus, such as sensors or displays)
- **Reboot** (Restarts the node)
- **OTA Update** (Reboots the node and starts the OTA update function)

More details on OTA updates:
https://icssw.org/meshcom-ota-update/

3.10 TX Power

Sets the transmission power of the node. The default is maximum, varying between 17dB and 22dB depending on hardware. Ebyte E22 modules with builtin PA adding extra 8 or 11dB.

3.11 Advanced Settings

- Clear received Nodes: Deletes list of directly/indirectly received nodes in the "Map" tab.
- Clear Text Messages: Deletes chat history in the "chat" tab.
- Clear Mheard Entries: Deletes entries in the "Mheard" tab.

4. Info-Tab

Displays general node information:

- Battery level, hardware details
- Position data (pre-configured or via GPS module)
- Data from optional sensors
- Software and firmware versions

The "Log" button at the bottom displays or deletes the app's internal log.

5. Chat-Tab (Message Window)

The message window displays incoming messages and allows users to compose and send messages via the node. If the “DM” button is enabled, an additional field appears where the target call sign (always including the suffix) or the target group can be entered.

By tapping the gear icon in the top right corner, users can filter which messages are displayed. Available filters include:

- **DM** (Direct Messages only)
- **DM and GRP** (Direct and Group Messages)
- **GRP** (Group Messages only)

When sending messages, different icons indicate their status:

- A **green checkmark** confirms that the message was successfully transmitted to the user's own node.
- A **cloud icon** appears when the message has been received by another node and retransmitted.
- A **checkmark inside a cloud** indicates that the message has reached a gateway and has been forwarded to the MeshCom server.

For Direct Messages (DM) sent to a specific call sign, the checkmark inside the cloud also confirms that the recipient has successfully received the message.
If you longer press on a message you can choose to send a DM to the sender or copy the text of the message.

See also:
https://icssw.org/en/grc-gruppen-call/
https://icssw.org/en/meshcom-4-0-faq/

6. Map-Tab (Overview Map)

Displays nodes received directly and via mesh, with different colors:

- Violet: Own node
- Green: Directly received nodes
- Blue: Indirectly received nodes

Additional map functions include node search, centering on location, and enabling/disabling GPS tracking.

 This Button opens a menu, where you have more options

 Displays red lines to the direct heard nodes

 Opens a search bar to search for callsigns

 Centers the map

 Activates / deactivates the map tracking if a GPS is connected and activated. In this case it is by default activated and updates if new positions are coming in.

Clicking on a node shows additional info.

7. Mheard-Tab

Lists all nodes received directly via RF.