



**PWCARES**

*November 2025*

---

# Agenda

- Introductions
- Upcoming Events
- Turkey Trot Action Plan
- An Introduction to Meshtastic
- Workshop: We have to deploy. Now what?

---

# Introductions

---

# Upcoming Events

- Turkey Trot, 2025. MCB Quantico 22 November 2025
- PWC Tabletop 3 December 2025
- January Training, 17 January 2026
- 17.75, 2026. Prince William Forest Park. 21 March 2026
- Historic Half, 2026, Fredericksburg, VA. 17 May 2026

# Turkey Trot 2025



---

# Introduction to Meshtastic

/^ESH^ST/C

---

# Meshtastic – What is it?

- Meshtastic® is a project that enables you to use inexpensive LoRa (Long Range) radios as a long-range off-grid communication platform in areas without existing or reliable communications infrastructure.
- This project is 100% community-driven and open source, radios are closed source
- Utilizes 915 MHz
- No license required
- Inexpensive hardware
- Self-configuring node network (mesh)

---

# Hardware – LoRa ESP32



- ESP32 LoRa v3 Development Board
- Includes a case
- Includes 1100 mAh battery
- No GPS
- \$63/pair on Amazon



---

# Hardware – LillyGo T-Echo



- LillyGo T-Echo
- Fully built
- GPS
- Pressure sensor
- 1100 mAh battery
- \$90/each on Amazon

---

# Hardware - SenseCAP Card Tracker T1000-E



- SenseCAP Card Tracker T1000-E
- Sealed device
- No external antenna
- GPS
- Proprietary charger
- \$50/each on Amazon

---

# Hardware – LillyGo T-Deck Plus



- LillyGo T-Deck Plus
- Fully built
- Integrated keyboard
- GPS
- Comes with a decent antenna
- \$109/each at Amazon

---

# Hardware - RAKwireless Wismesh Repeater Mini



- RAKwireless Wismesh Repeater Mini
- Complete system
- 3200 mAh battery
- GPS
- Solar power support
- Comes with a good antenna
- Various pole mounts available
- Solution is suggested at a Repeater/Router
- \$109/each at [Rokland.com](http://Rokland.com)

---

# Hardware

- Always make sure to check the hardware page at <https://meshtastic.org/docs/hardware/devices/> for current device support

---

# Basic Configuration

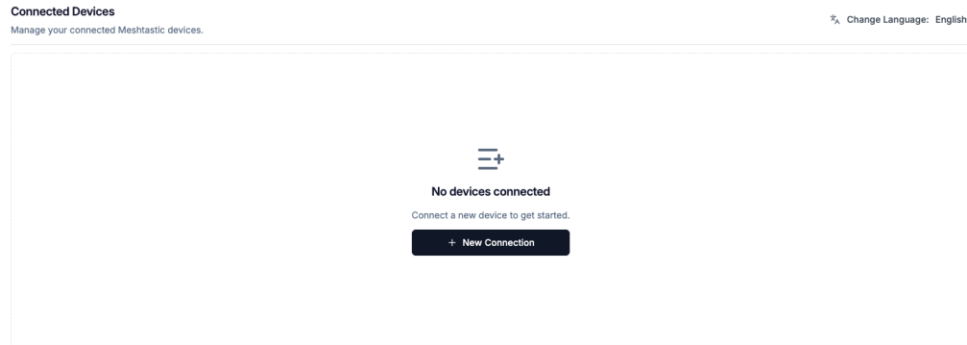
- Out of the box, attach the antenna **BEFORE** you apply power, or you will let the smoke out (and smoke the board)
- You must configure your LoRa Region: Set it to US
- If you want to join the NoVA Mesh network, you also need to set:
  - Hop Limit: 5
  - Frequency Slot: 9
- You should start seeing nodes, depending on height, location, and antenna type

---

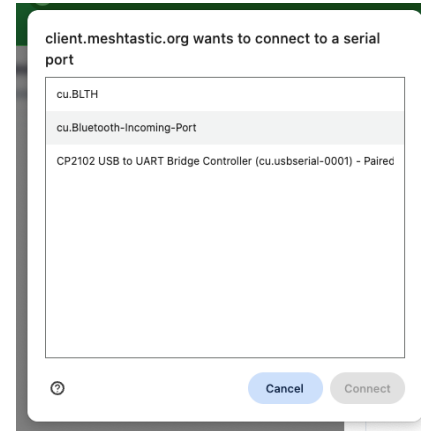
# In depth Configuration with the Client

- Make sure your device is powered on
- Make sure you have a Chrome browser
- Grab a USB-C cable
- Connect your node to the PC
- Open Chrome to: <https://client.meshtastic.org/messages/broadcast/0>

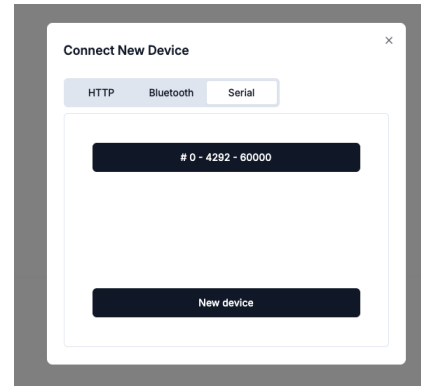
# In Depth - Connecting



Open the browser, then click on New Device,  
select Serial



Click the serial (UART)  
connection



Click the new connection



# Configuring the big stuff - LoRa

 Meshtastic

**NAVIGATION**

- Messages
- Map
- Config
- Nodes (5)

**MODULES**

- Radio Config
- Module Config
- Channel Config

B95C kg4giy-b95c

Plugged in

Voltage: 4.32 V

Firmware: 2.6.11.60ec05e

Change Color Scheme

Change Device Name

Command Menu

Change Language: English

Radio Config

Device

Position

Power

Network

Display

LoRa

Bluetooth

Security

**Mesh Settings**

Settings for the LoRa mesh

Region

Sets the region for your node

US

Hop Limit

Maximum number of hops

5

Frequency Slot

LoRa frequency channel number

9

Ignore MQTT

Don't forward MQTT messages over the mesh

☐

OK to MQTT

When set to true, this configuration indicates that the user approves the packet to be uploaded to MQTT. If set to false, remote nodes are requested not to forward packets to MQTT

☐

# Configure the small stuff - PWCARES

 Meshtastic

Channel Config

NAVIGATION

Messages

Map

Config

Nodes (5)

MODULES

Radio Config

Module Config

Channel Config

kg4gly-b95c

Plugged in

Voltage: 4.32 V

Firmware: 2.6.11.60ec05e

Change Color Scheme

Change Device Name

Command Menu

Change Language: English

Channel Settings

Crypto, MQTT & misc settings

Role

Device telemetry is sent over PRIMARY. Only one PRIMARY allowed

SECONDARY

Pre-Shared Key

Supported PSK lengths: 256-bit, 128-bit, 8-bit, Empty (0-bit)

.....

128 bit

Generate

Name

A unique name for the channel <12 bytes, leave blank for default

PWCARES

Uplink Enabled

Send messages from the local mesh to MQTT

Downlink Enabled

Send messages from MQTT to the local mesh

Location

The precision of the location to share with the channel. Can be disabled.

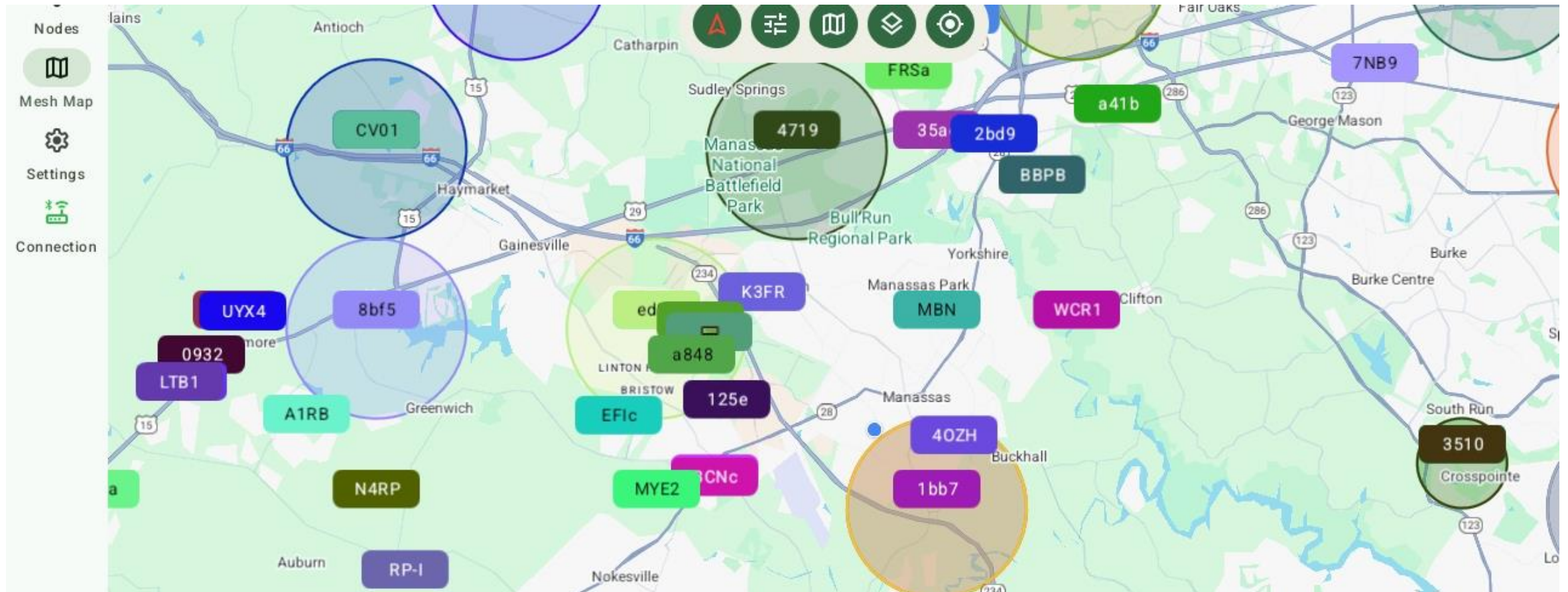
Reach out to the EC  
for the key for the  
PWCARES channel

---

# Meshtastic Use Cases - ARES

- No cell required quick messages
  - Depends on a functioning mesh network
  - No guarantee the message will get through
- Using ATAK or the node map, GPS-enabled nodes are easy to *track*
  - There is a fudge factor to the GPS location, as much as a mile in some cases
  - Only GPS enabled nodes can be tracked this way
- POD communications (inside a shelter/short local distance)

# Meshtastic Map



---

# Questions?

# We Have to Deploy – Now What?

- Initial Stages of Activation
  - David, or an AEC, is notified that ARES is needed
  - An email will go out, if there is time for pre-activation
    - Additional details will be gathered: Rally Point, contact information (person, cell, etc.)
  - David or an AEC will reach out on OVH and WWI for a net control operator
  - Available operators will be solicited to fill slots (MACC, Cities, etc. Based on request)
- First Shift Operations:
  - First teams will be deployed as required
  - Frequencies will be based on need and location, based on what is in the [Quick Reference Guide](#)
  - Second shift planning will begin
- Next Shift Operations:
  - Get a brief from the team on the ground before you relieve them
  - Capture all documents
  - Continue operations

---

# Outside Teams

- Heritage Hunt
- CERT – Manassas/Manassas Park
- REACT
- Other Amateurs
- At the end of the day, we maintain professionalism, and we pass on requests for help without committing us to any particular action or support.
- The ECIC will determine if additional support is required based on the event and coordination with Emergency Management

---

# Questions?

