



ARES Meeting Agenda - 11/19/25

- Welcome to Our Guests
- Winlink Express – Avoid Expiration – Repeat Slide from Oct.
- Winlink Digipeater Challenge
- Meshtastic Messaging – Guest Speaker KA3BQE
- Announcement of 2026 Weather Spotter Training
- IEMA-ARES Net – Please Check In
- Net Control Operators Wanted
- Upcoming RAT-PAC Presentations
- Training Resources
- ARES Net Reminders



Welcome to our Guests

- Thanks for joining us tonight
- ARES - Amateur Radio Emergency Service
- For those new to ARES, we do 3 major things:
 - Severe Weather – Storm Spotting
 - Communications Support for Community Events
 - Emergency Communications for Served Agencies
- Major Tools that we utilize:
 - Ham Radios, typically VHF and/or HF gear, including Go-Kits
 - Winlink Express software for over-the-radio email messages
 - Internet Email and text messaging for inter-team communications
- Training – more to ARES than holding a microphone and talking



Winlink Express – Avoid Expiration

- Winlink accounts do expire due to lack of use
- Time limit is 400 days of inactivity
- Just check for messages using Telnet mode – this resets the clock
- Even if you don't regularly participate in any Winlink Nets or Exercises, it's easy to keep your account alive
- Avoid the hassle of contacting the SYSOPs to fix your account, or recreating & possibly losing your old messages & contacts in the aftermath



Winlink Digipeater Challenge

- Did you know we have multiple Gateways here capable of digipeating to reach other Gateways?
- I emailed a handout with a series of tests for you to run
- Sorry I have yet to write up any instructions
- Refer to the emailed document



TRIAL VERSION

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WINLINK DIGIPEATER CHALLENGE

Learn how many VHF Packet Gateways your Winlink Station can successfully reach with this exercise, by using Gateways that can digipeat (digital repeater). Also learn how far you can reach with digipeaters. You may need to adjust sound card settings for maximum success.

Assumes use of Winlink Express "Packet" mode. Should work for home stations with a sound card interface and for some radios with built-in sound cards. (Kenwood D700 & D710)

This is a Central Illinois focused Challenge. (Peoria and the surrounding Counties)
But anyone is welcome to join in and try it, or make their own version for their region.

Proper Digipeater syntax in an example from the Winlink Express Packet Screen follows below:

Connection type: **Digipeater** **N9PUZ-10** Via **KD9ANU-10** , **K9WRA-11**

Part A – Without use of any Digipeater

Winlink Gateway	Location City or County	Miles Away Per Winlink Express	Success (S) or Failure (F)	Date Successfully Connected
KD9ANU-10	Peoria Co.			
W9TAZ-10	Tazewell Co.			
K9WRA-11	Woodford Co.			
WA9BA-10	Bureau Co.			
W9PFD-10	Mason Co.			
AC9DE-10	Decatur, IL			
KB9BNQ-10	Sangamon Co.			
N9PUZ-10	Sangamon Co.			
KD9AGT-10	Ottawa, IL			
KB9YFW-10	Oglesby, IL			
NS0A-10	Geneseo, IL			
W9PFD-9	Adair, IL			
KD9KDQ-10	Champaign, IL			

RHH Note

Proven to be able to Digipeat
Yes
Yes
Yes

Part B – With the use of one or more Digipeater(s)

Winlink Gateway	Location City or County	Digipeaters Used	Success (S) or Failure (F)	Date Successfully Connected
KD9ANU-10	Peoria Co.			
W9TAZ-10	Tazewell Co.			



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KD9AGT-10	Ottawa, IL			
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W9PFD-9	Adair, IL			
KD9KDQ-10	Champaign, IL			



Meshtastic Messaging

- ARES folks in Southern and Northern Illinois plus Springfield are playing with Meshtastic for message transfer without the Internet, while using 900 MHz
- It is another possible tool in our toolbox
- Alex Polozoff, KA3BQE, is our guest speaker

Meshtastic

Off grid text messaging

Alex KA3BQE

Some history

- Hurricane Sandy that hit NYC and NJ spurred a company goTenna to build the first, but closed, \$49 900Mhz system for consumers.
- They since abandoned the consumer market and only do military and LEO sales. I have a box of goTenna units that are e-waste.
- Meshtastic is open source.
- The bare boards themselves can be incredibly inexpensive.
- Get a TAK.gov userid and can be used in an ATAK app. Useful for search and rescue teams, marking locations as searched.

LoRa 900Mhz band

- Meshtastic vs Amateur Radio (HAM) mode
 - Encryption PKI (public and private keys) different key for each channel vs zero encryption
 - Meshtastic mode 900Mhz adoptable by everyone
 - More power for HAM nodes 70cm but fewer people
- Low Power < 1W
- Uses only radio to send/receive messages
- Pair a mesh device to your mobile phone or get something like a Lilygo T-Deck that has a keyboard built in.
- Automatically provide location details like APRS. Useful at large music concerts or festivals to keep track of friends when no cell phone is available. Most of my units do not have a GPS module and use the phone's GPS. GPS module can chew through battery.

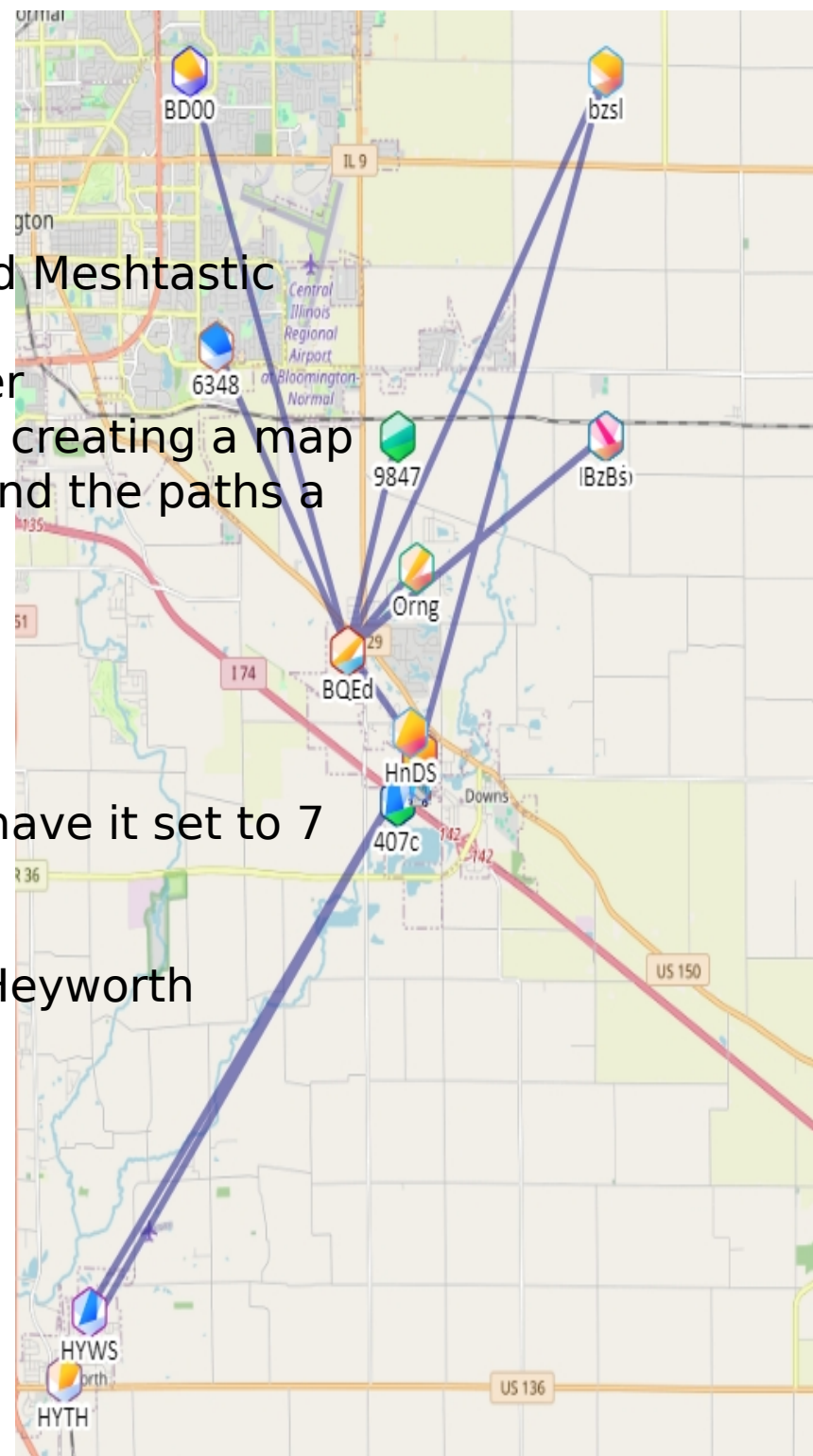
Meshsense

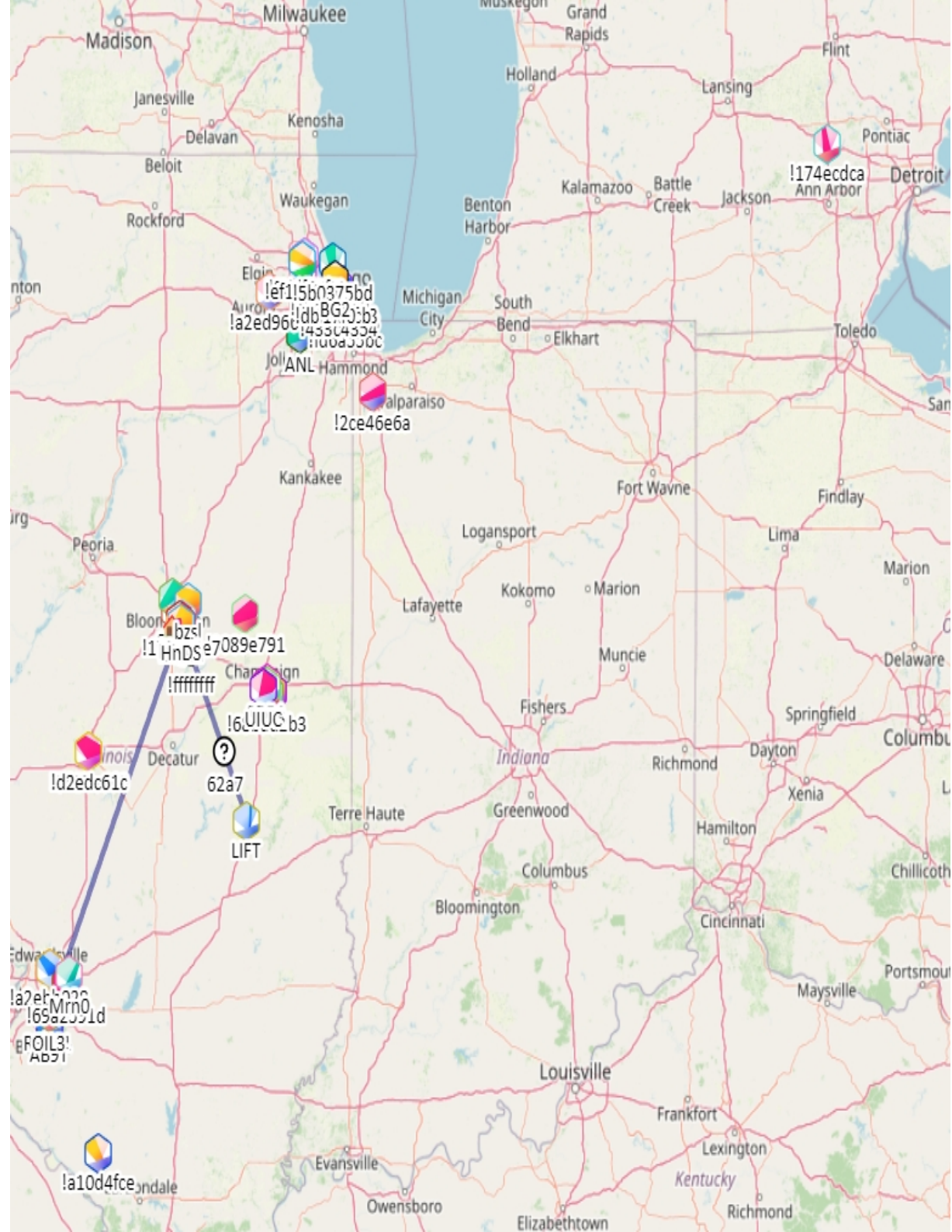
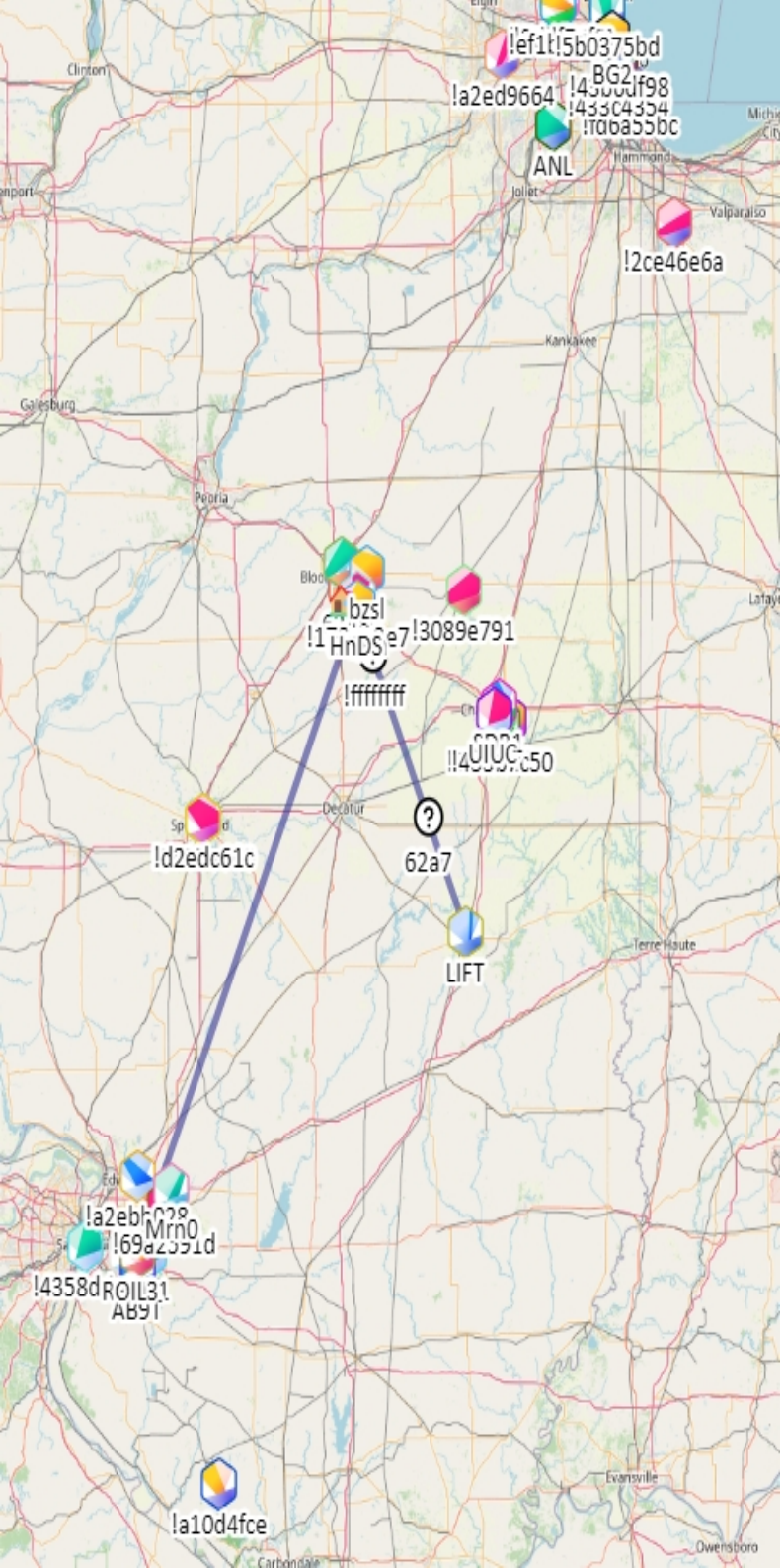
- Application connected to a dedicated Meshtastic node at my house.
- Connected via Bluetooth to computer
- Sends traceroutes every 45 minutes creating a map showing who is connected to what and the paths a message can travel
- Traceroute doesn't always work.

Hop Count default is 3 but I currently have it set to 7
Not a lot of nodes in our area.

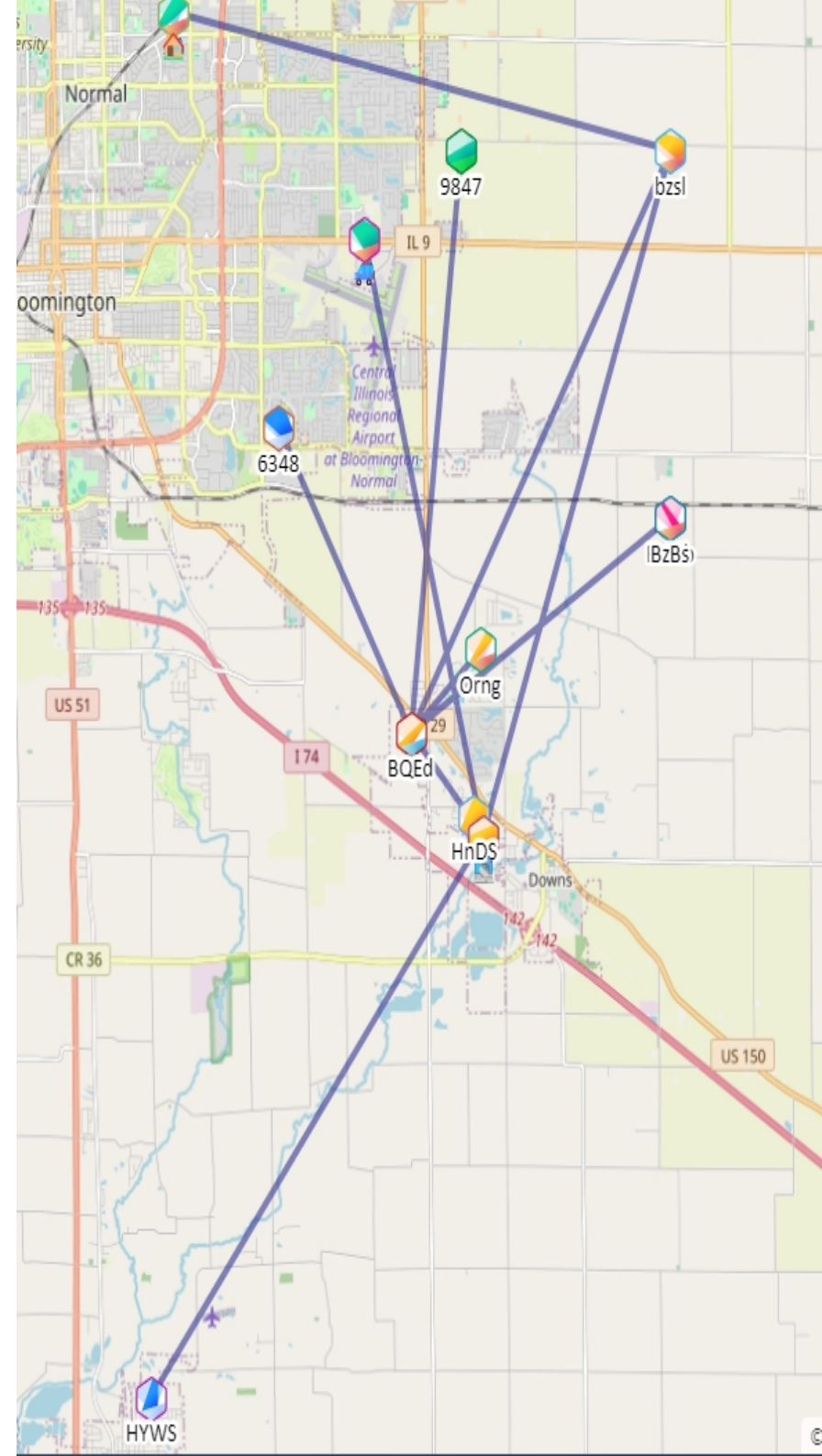
Bottom left is potential new nodes in Heyworth
on their water towers.

BQEd is the Shamrock water tower.





A good example of hopping through nodes.



Besides text – sensor data

- Sensor data such as environmental data can be sent over meshtastic
- Investigating sending water tower related data over meshtastic

Limitations

- Low power.
- Not very smart routing – flood protocol
- No rate limiting in the meshtastic firmware thus someone can be constantly sending sensor data
- There is an ignore list in the meshtastic firmware to ignore a node as if it never sent a message
- Hit and miss doing firmware updates over BLE. Some devices it is possible but others require hard wire USBC connections.
- Remote administration over LoRa radio (put public key of local node into admin key of remote device).

Details

- ROUTER_LATE and CLIENT_BASE modes added
- CLIENT_MUTE typical for a carry node so it isn't chewing up battery relaying messages.
- Default channel 0 LONG_FAST (more range, slower transmission) not encrypted, public channel
- Some geographies have been switching to MEDIUM_FAST as congestion becomes a problem (less range, faster transmission)
- Festivals and concerts sometime use SHORT_TURBO short distance, even faster transmission rates.

References and Q&A session

- PeakMesh – Etsy <https://www.etsy.com/shop/PeakMesh>
- Bluetooth proxy
 - Software <https://esphome.io/projects/?type=bluetooth>
 - Hardware <https://a.co/d/8qbLHaj>
- Handy fleet pack of 5 for \$220 <https://store.rokland.com/products/wismesh-tag-from-rakwireless-mokosmart-meshtastic-compatible-card-sized-node-us915-mhz?variant=43033822625875>
- Meshsense
 - Map <https://meshsense.affirmatech.com/>
 - Application <https://affirmatech.com/meshsense>
- r/meshtastic subreddit on reddit.com



2026 Weather Spotter Training

- National Weather Service personnel are scheduled to perform weather spotter training at the Bartonville American Legion on Tues, April 14
- Training will begin at 6:30 PM, typically runs until about 9 PM



IEMA-ARES Net – Please Check In

- IEMA net is on the 3rd Saturday, 10:30 AM
- Only the 12/20 net remains in 2025
- State EOC call sign is NC9IL, the frequency is 7.227 MHz, taking check-ins from 10:30 AM to 11:15 AM. Tune around if frequency is busy
- Calling stations by North, Central, & South Zones. We are in the Central Zone, District 6
- Everyone is encouraged to check in to this net
- We want to show IEMA that ARES is here



Net Control Operators Wanted

- We want to get more folks involved doing Net Control for our Peoria County VHF ARES Nets (one net per month)
- Rich KD9ANU will do one Net each month, a volunteer does the other Net that month
- Our net is quite easy, the script is on our website
- A form to record check-ins is now available
- Just do one set of check-ins using 075 repeater
- Report the check-ins to Rich – a photo of your notes will do
- Let's get some folks volunteering



Upcoming RAT-PAC Presentations

Radio Amateur Training Planning and Activities Committee

Nov 19, 2025	Auxiliary Communications Mutual Aid
Nov 26, 2025	NO RATPAC -THANKSGIVING
Dec 10, 2025	Holiday - Ham Radio Gifts
Dec 24, 2025	NO RATPAC - CHRISTMAS
Dec 31, 2025	NO RATPAC - NEW YEARS
Jan 14, 2026	FreeDV- Radio Autoencoder (RADE) Technology

Held Wednesday & Thursday via - Zoom 8:00 PM CT / 02:00 UTC

<https://us02web.zoom.us/j/2128884758?pwd=RG94eEY2L3FiMEg0U3ZlWmhXaEdwdz09>
Zoom Passcode- RATPAC

RATPAC Video Presentations Lists: <http://tiny.cc/ratpac-list>



Training Resources

- New Training Courses are now available from the ARRL
 - Basic EMCOMM
 - Intermediate EMCOMM
- Still Under Construction
 - Advanced EMCOMM – on hold until further notice



Training Resources

- Training Documentation Form
 - Also on our website – on the “Training” Tab
 - <https://www.peoriacountyares.org/wp-content/uploads/2023/01/Training-Documentation-Fillable-Form.pdf>
- How to get a FEMA Student ID (SID)
 - Go to <https://cdp.dhs.gov/femasid>
- FEMA Training for IS 100, 200, 700, & 800
 - Go to <https://training.fema.gov>
- More details in our 07-20-2022 Meeting slides
 - <https://www.peoriacountyares.org/wp-content/uploads/2022/07/ARES-Meeting-07-20-2022.pdf>



FEMA Login Changing

- The login procedure for <https://training.fema.gov> appears to be changing
- This URL is where you access IS 100, 200, 700 & 800 training courses and print certificates
- Apparently they are now requiring multi-factor authentication, plus use of LOGIN.GOV
- May take a little effort on your part to get it working again



ARES Net Reminders - Winter

- Illinois State ARES HF Net
 - 1st and 3rd Sundays of month at 4:30 PM CST
 - 3.905 MHz LSB (alternate 7.227 MHz LSB) & Echolink 824404-listen & text
 - ~~Informal 60M & 80M check in -- (3905 KHz) at 4:10 PM~~
 - ~~60M check at 4:20 pm (5403.5 kHz Channel 5, if busy then 1, 2, 3, 4)~~
- IEMA-ARES Net, 3rd Sat, NC9IL on 7.227 MHz, from 10:30 AM to 11:15 AM
- Illinois Multimode Net every Wednesday 8:00 PM on Illinois Link
 - WIRES X 21565
 - Brandmeister DMR 31171
 - TGIF DMR 31171, DMR+ Reflector 4636
 - NXDN 3117
 - P25 31171
 - YSF Reflector Illinois Link 83132
 - D-Star XLX 334G, DCS 334G, XRF 334G, and XLX 312G
 - Allstar Link 42810



END

- www.peoriacountyares.org
 - arrl-il.org
 - www.arrl.org/ares