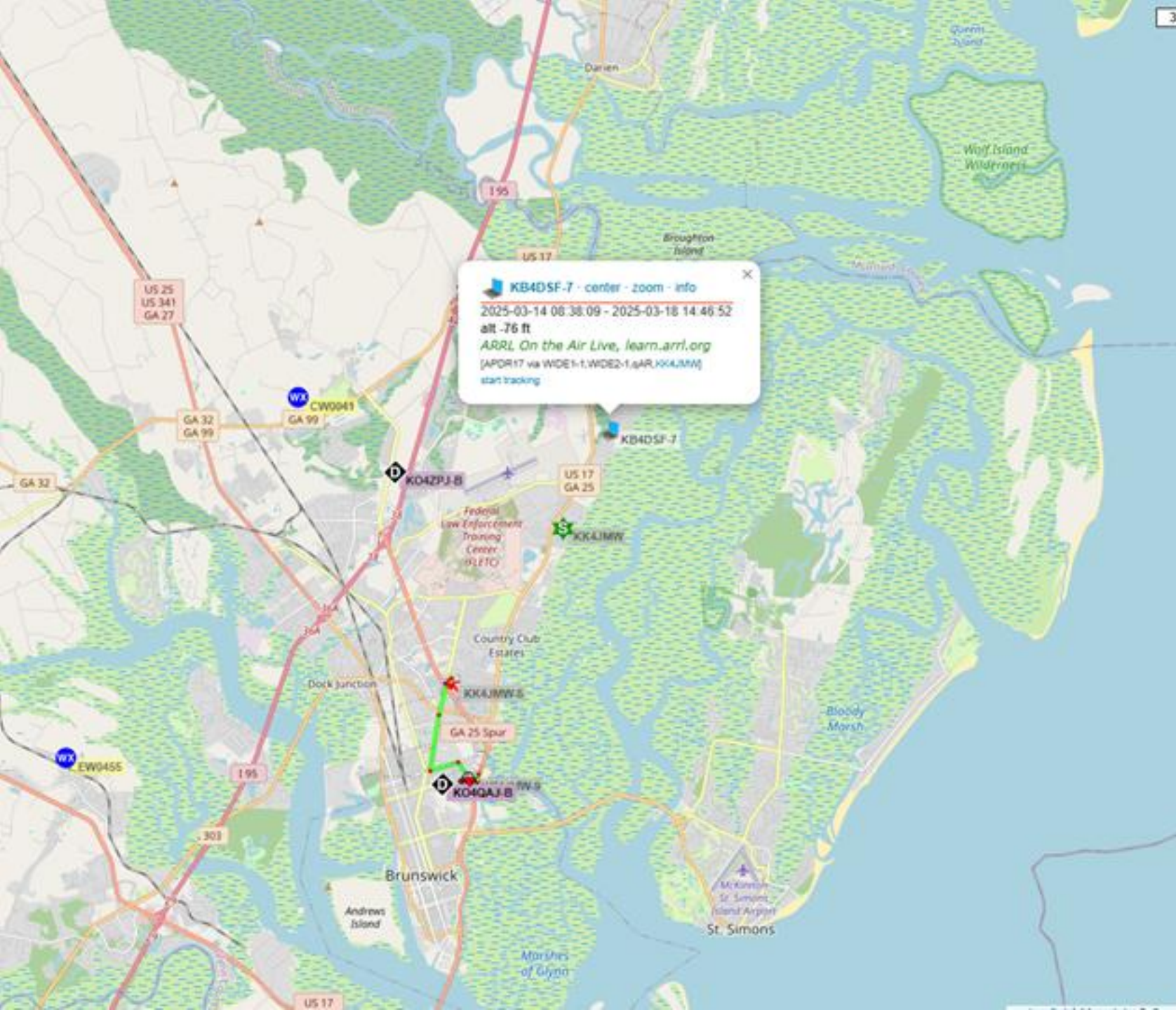




Glynn Amateur Radio Association
Tech Session

December 13, 2025

APRS DEEP DIVE



AGENDA

- What is APRS
- What Do You Need?
- APRS Paths
- Digipeaters
- iGates
- SMS via APRS
- Email via APRS
- Winlink via APRS
- APRS ANSRVR Groups

WHAT IS APRS?

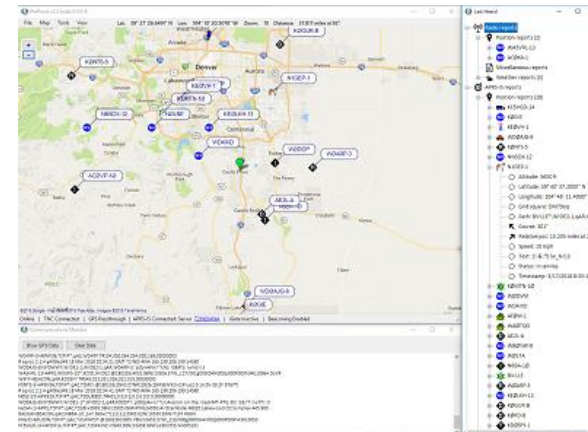
Typical Local APRS Network



- Two-way, tactical, real-time digital communications system: 144.390 MHz
- Decentralized, local, information sharing network, no need for internet*
- Network can be as simple as two APRS devices operating in simplex
- Can be substantial consisting of multiple user devices, digipeaters*, and iGates
- Data can include:
 - GPS location
 - Text messages
 - Telemetry and weather data
 - Objects
 - Field Day location, emergency shelters, etc
 - Bulletins

WHAT DO YOU NEED?

- Radio (Base, Mobile, HT, it does not matter)
- Terminal Node Controller (TNC)
 - Hardware (Mobilinkd, APRS capable HT)
 - Software (Direwolf, Soundmodem)
- APRS Client
 - PinPoint APRS (Windows)
 - YAAC (Cross Platform)
 - APRSdroid (NA7Q)
 - APRS.fi (iOS)
- APRS-IS

[illegible]

APRS Passcode Generator

Enter your amateur radio callsign to get a Passcode for the APRS-IS network.

Callsign:

Your Passcode: 24482

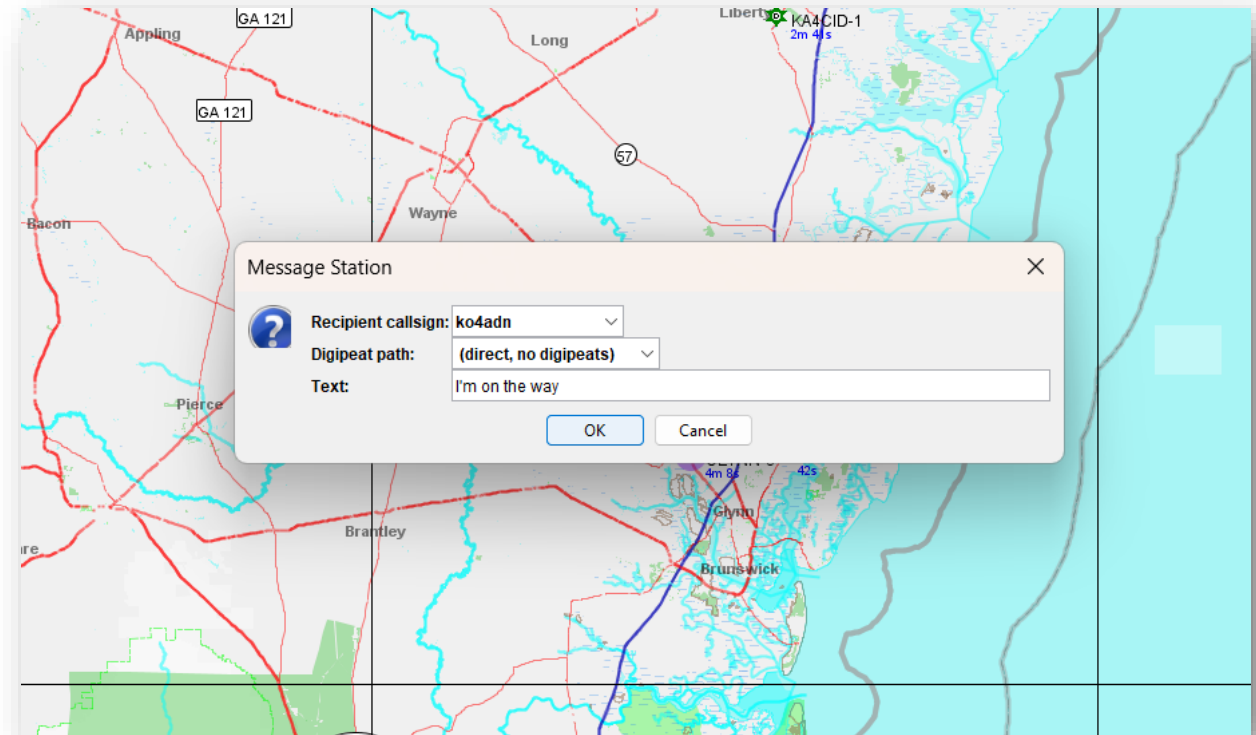
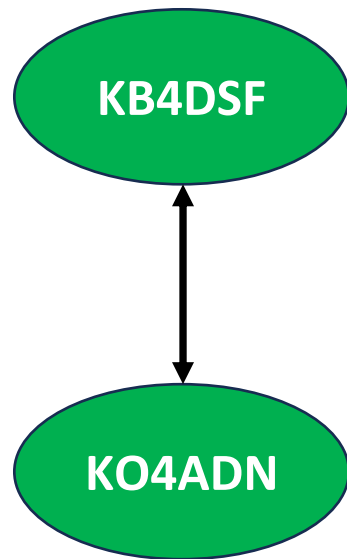
Source Code on [Github](#)

WHAT DO YOU NEED?

- APRS-IS
 - aprs.do3sww.de
 - A unique code tied to your callsign
 - Allows internet enabled APRS services
 - SMS, email, APRSLink, etc
- Enter your callsign then select “Get Passcode!”
- You will need to enter this into your APRS client software

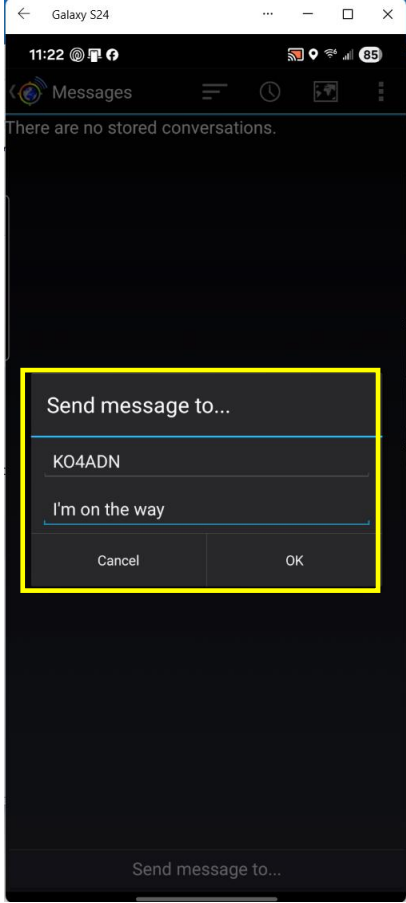
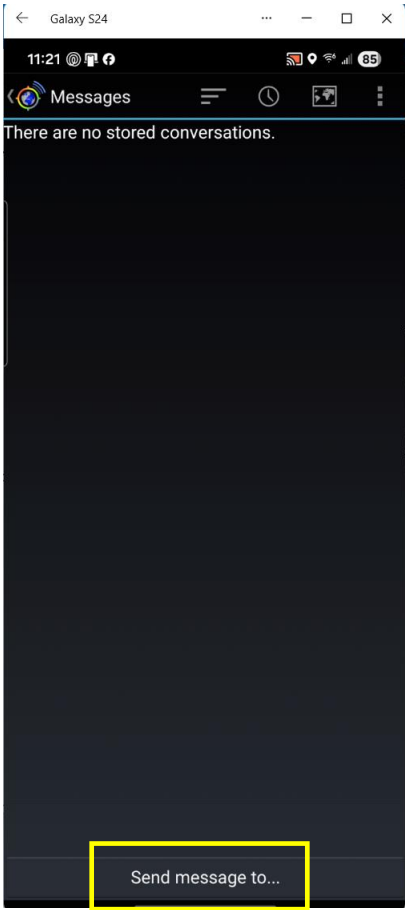
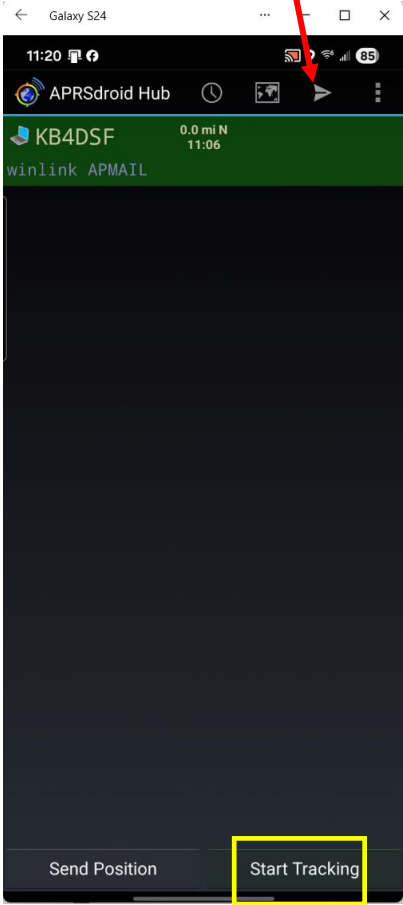
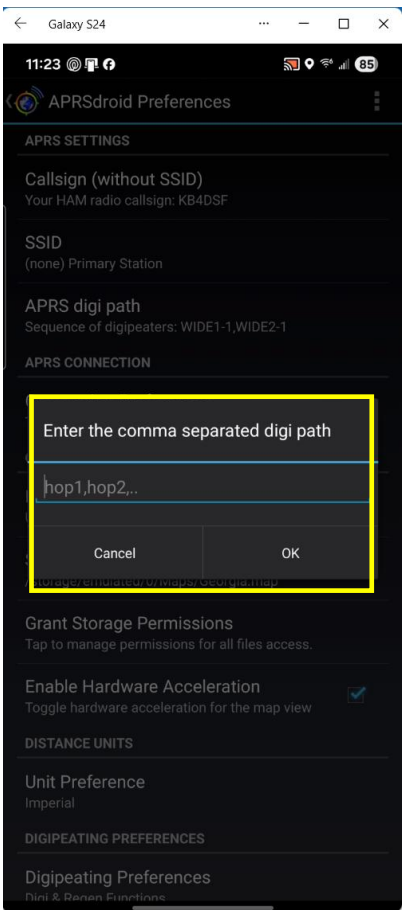
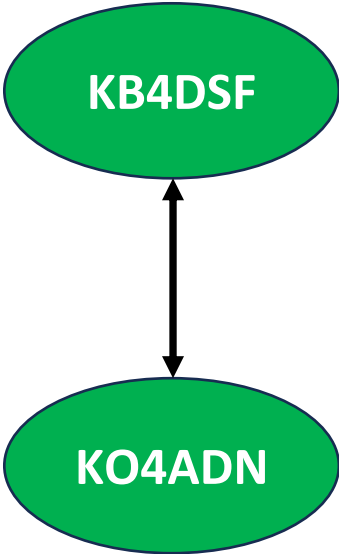
APRS PATHS: SIMPLEX

- Radio-to-Radio, no digipeaters
- Does not have to be on 144.390 MHz



APRS PATHS: SIMPLEX

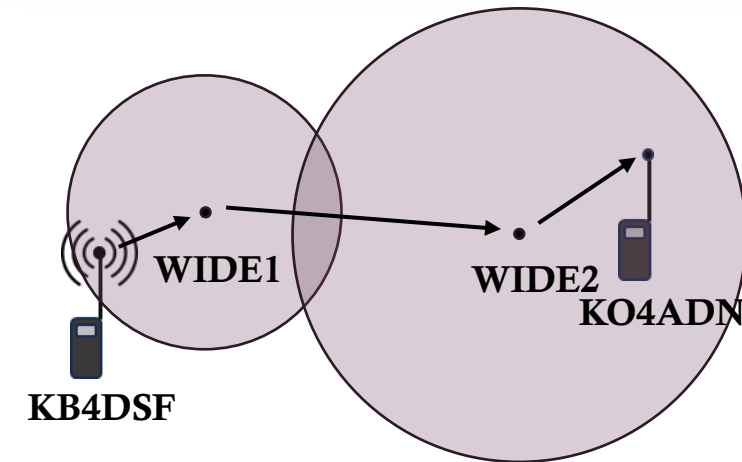
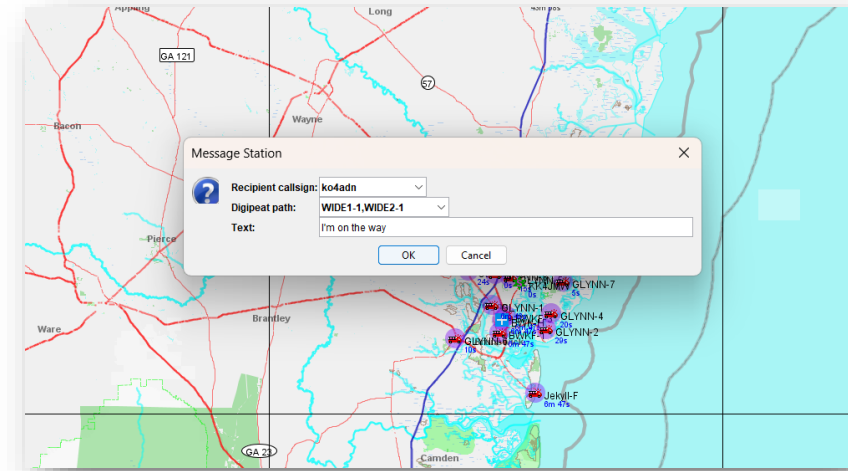
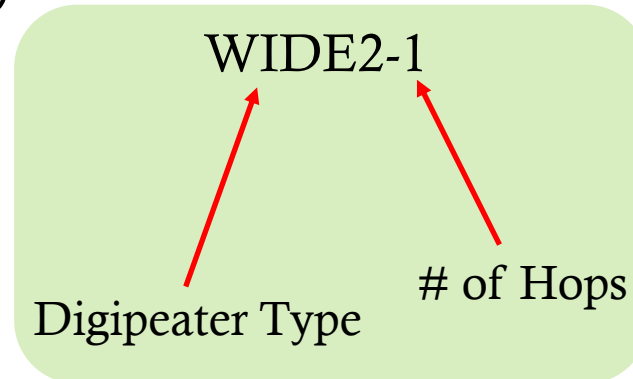
Messages



APRS PATHS: DIGIPEATERS

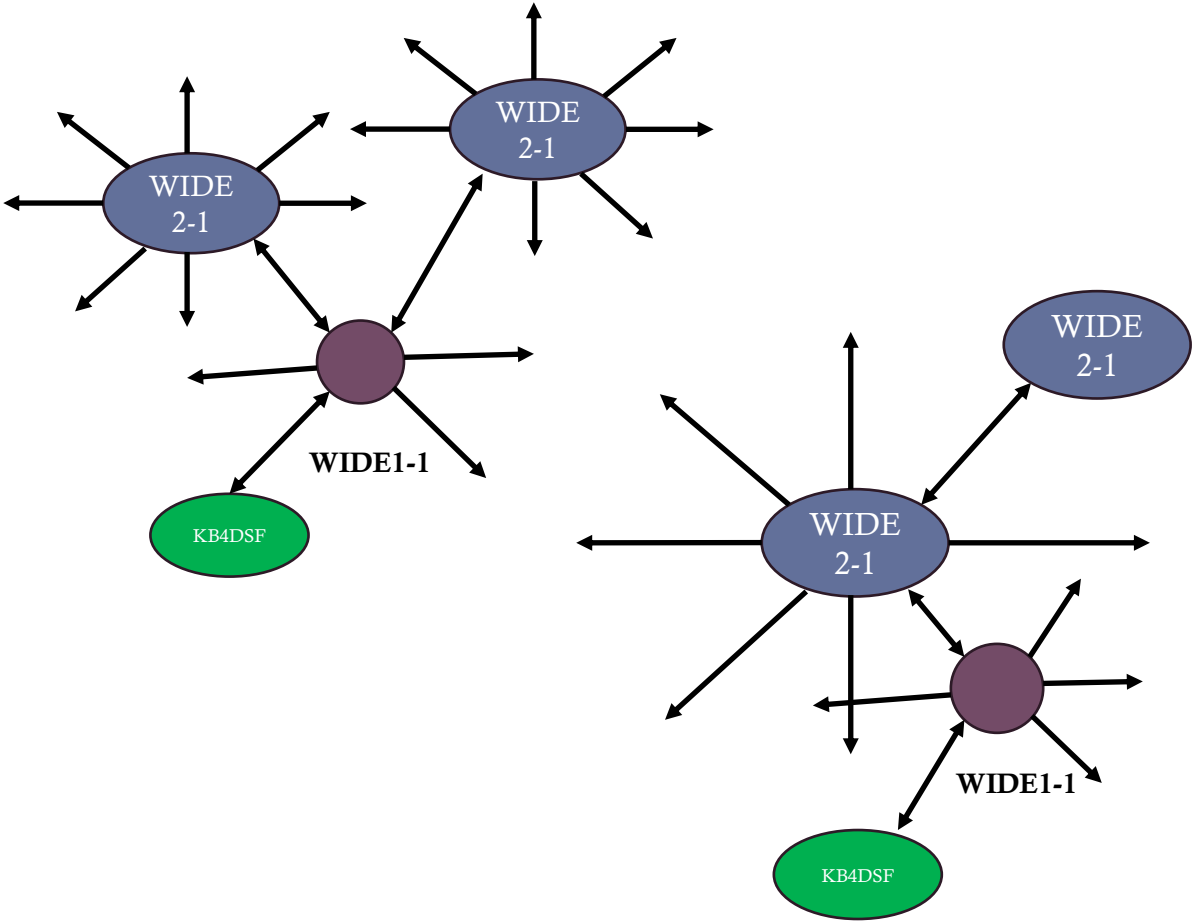
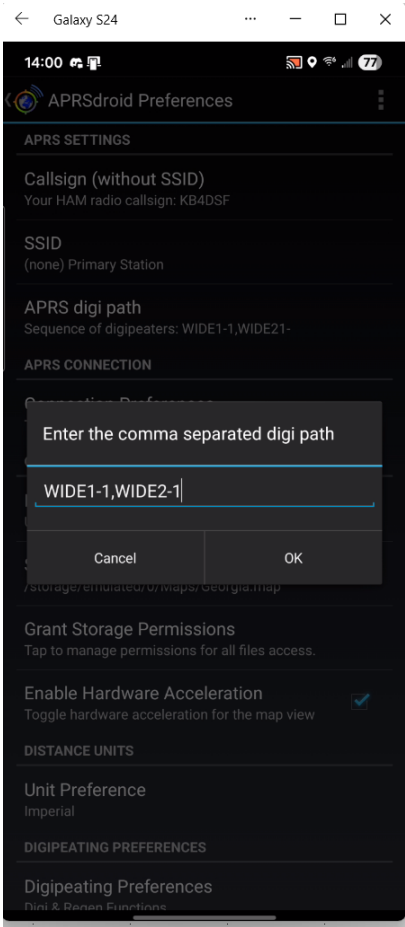
UNDIRECTED

- National APRS Frequency: 144.390 MHz
- WIDE1 (Low Powered Fill-In)
- WIDE2 (Higher Powered)
- WIDE3*
- Typical Paths
 - WIDE1-1,WIDE2-1
 - WIDE1-1,WIDE2-2



APRS PATHS: DIGIPEATERS

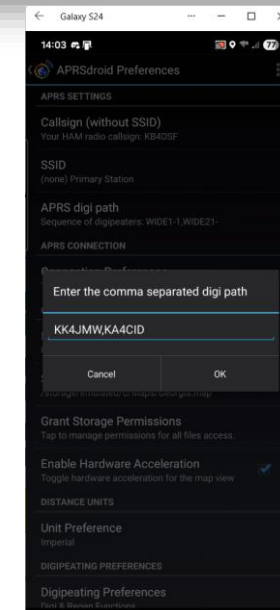
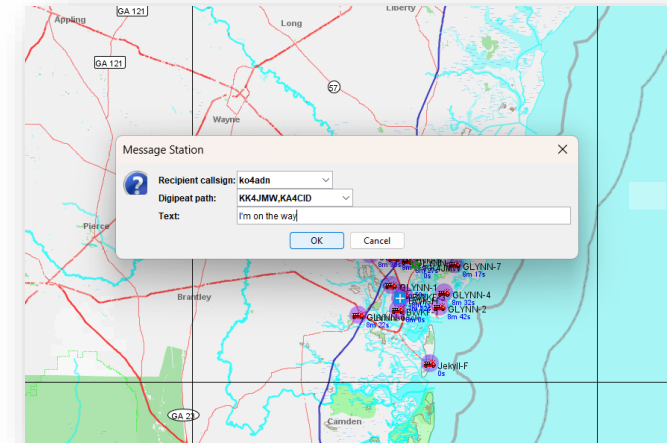
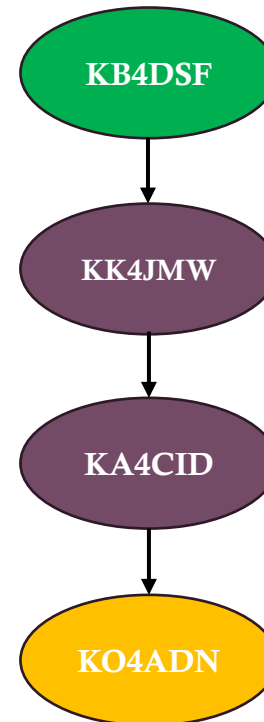
UNDIRECTED



APRS PATHS: DIGIPEATERS

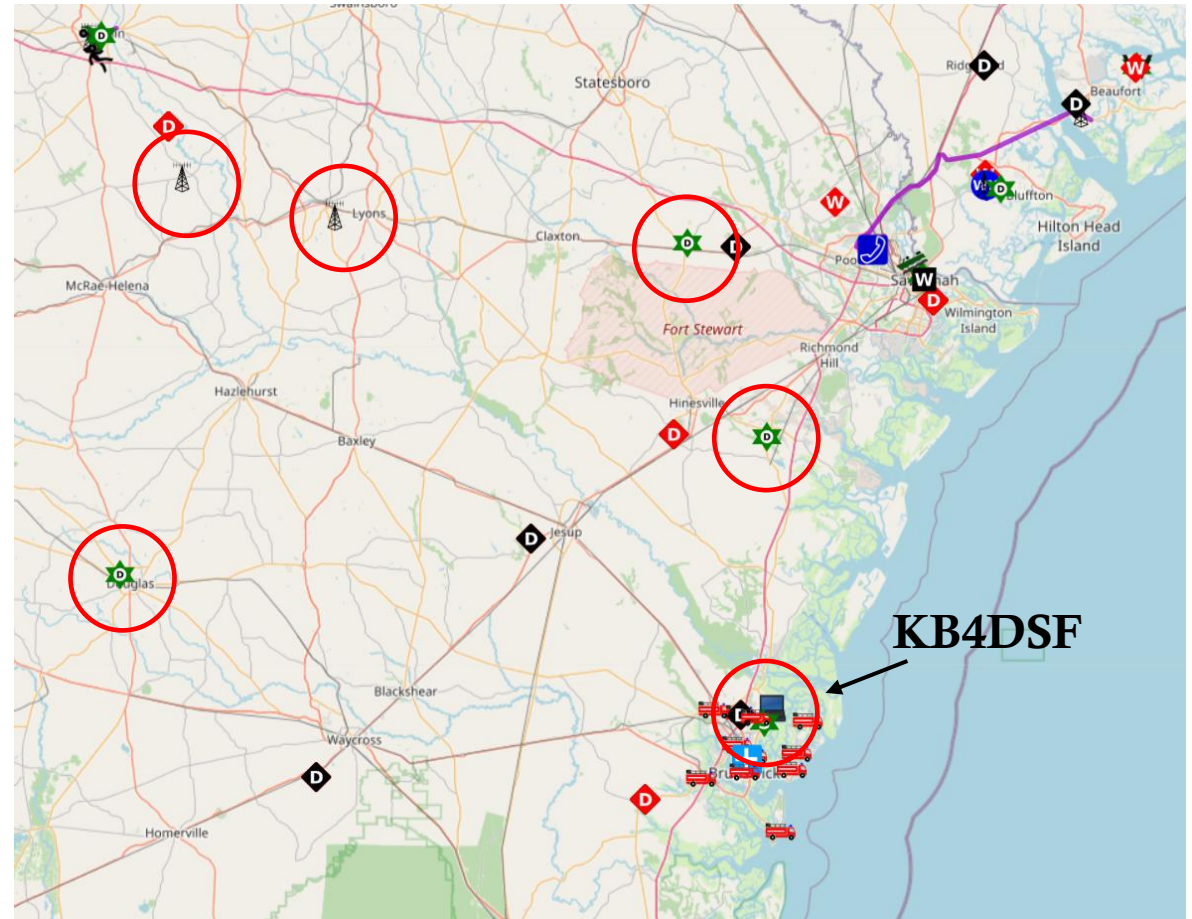
DIRECTED

- National APRS Frequency: 144.390 MHz
- Specify the digipeaters you wish to use

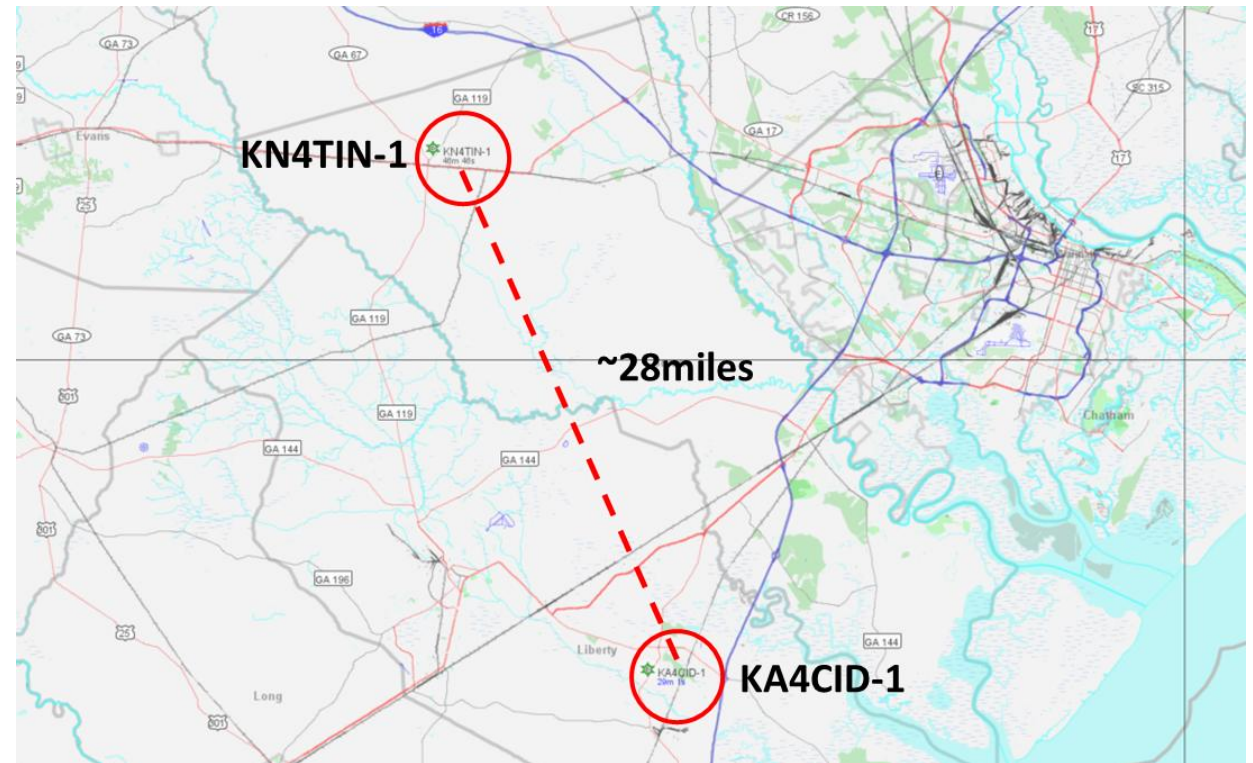
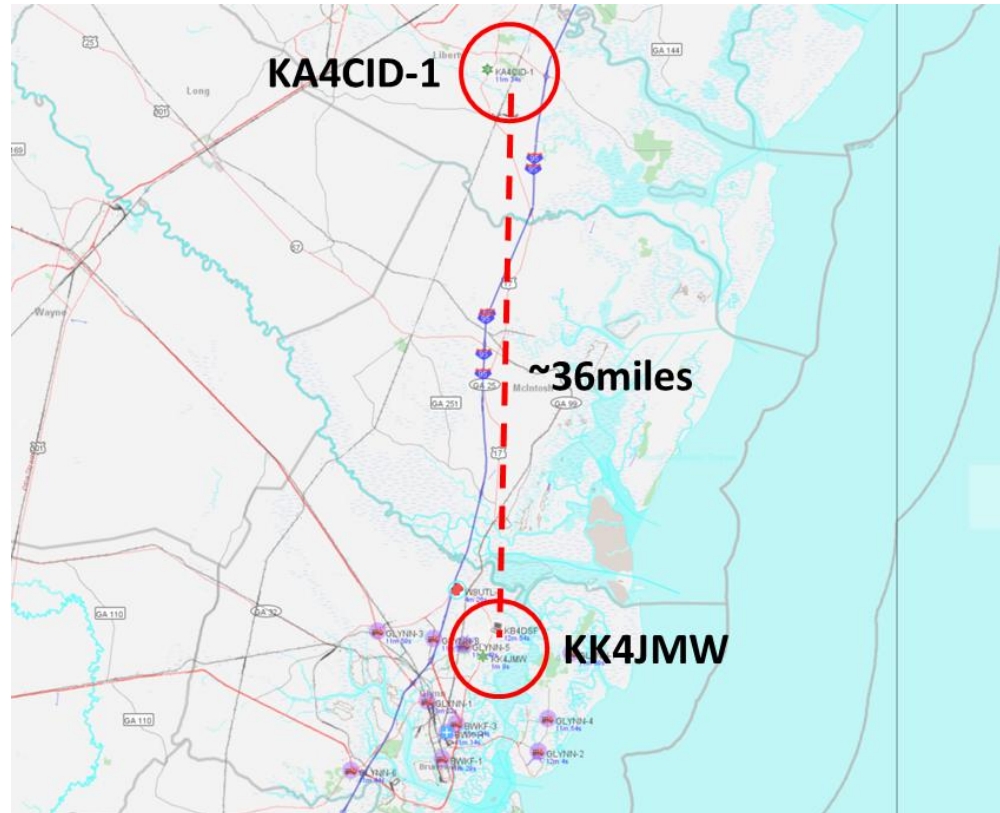


APRS PATHS: DIGIPEATERS

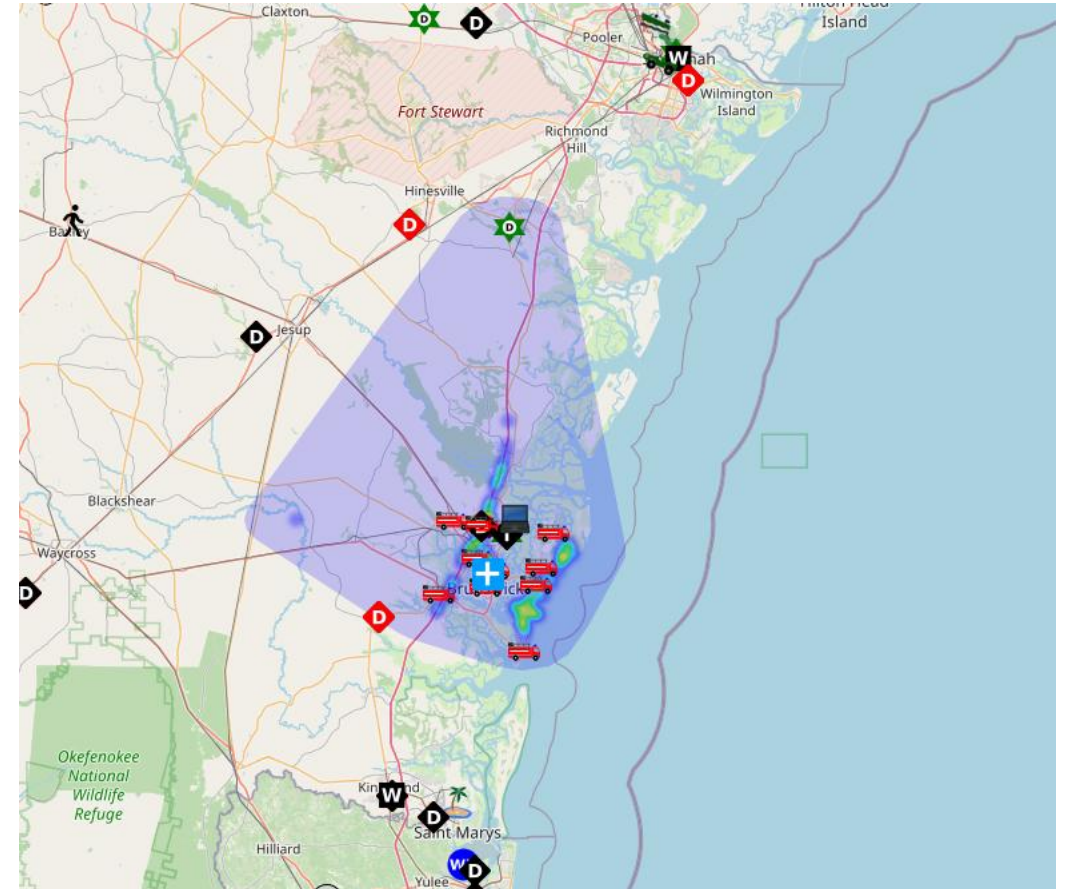
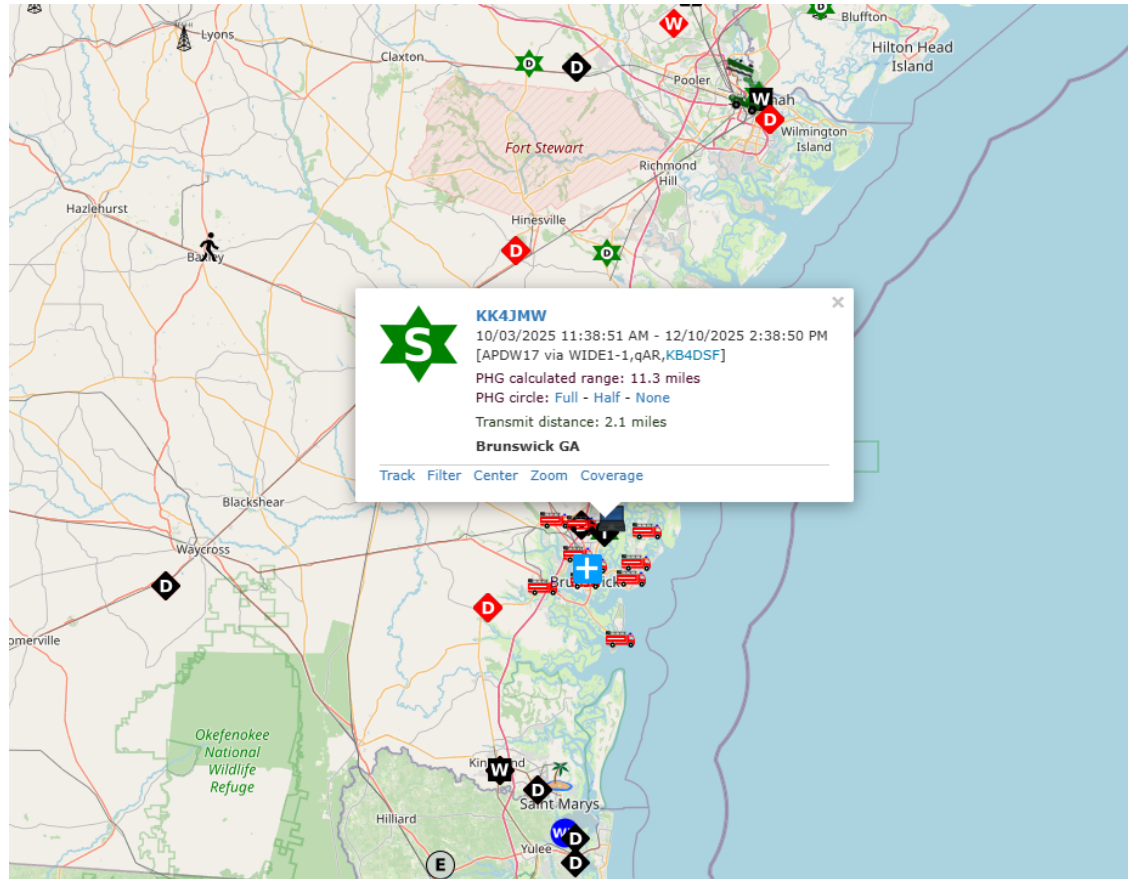
- Determine your digipeater situation



APRS PATHS: DIGIPEATERS



APRS PATHS: DIGIPEATERS (APRS-MAP.INFO)





Opt-in / Opt-out

Winlink & APRS SMS Gateway

[Support the service on Patreon!](#)

APRS Support: USA, Puerto Rico, Canada, Australia & UK ONLY!

Winlink Support: US & Canada ONLY!

ATTENTION SMS USERS:

To stop messages from this service at any time, send **STOP**

All SMS users are required to opt-in due to carrier regulations used by this service. By opting in below, you agree to receive SMS messages from APRS or Winlink users of this service.

Opt-In

Enter your phone number to opt-in:

US, PR, & CA – 10 Digits / AU – 11 Digits / UK – 12 Digits



Opt-In

OPT-IN

Opt-Out

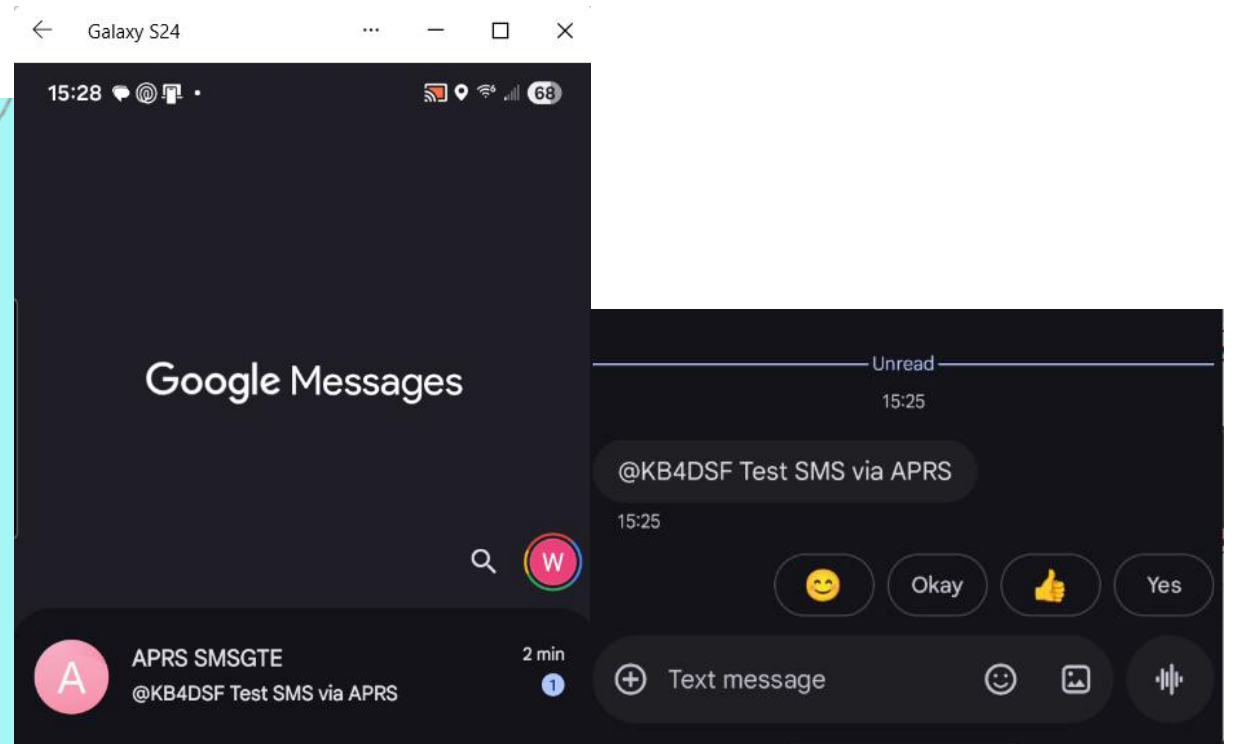
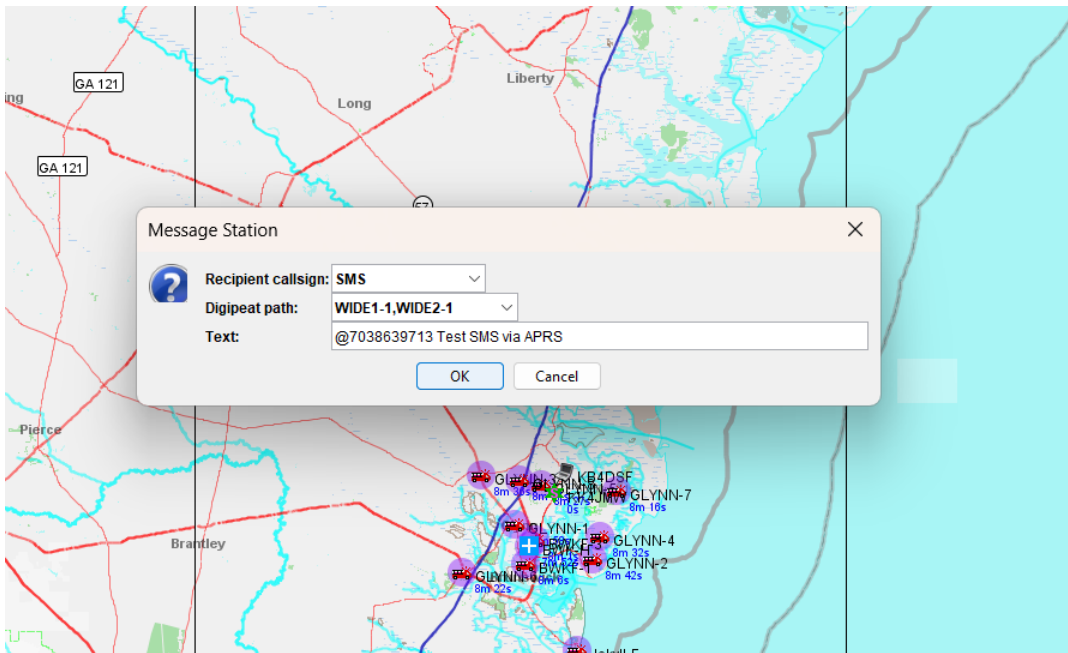
Enter your phone number to opt-out:

US, PR, & CA – 10 Digits / AU – 11 Digits / UK – 12 Digits

SMS VIA APRS

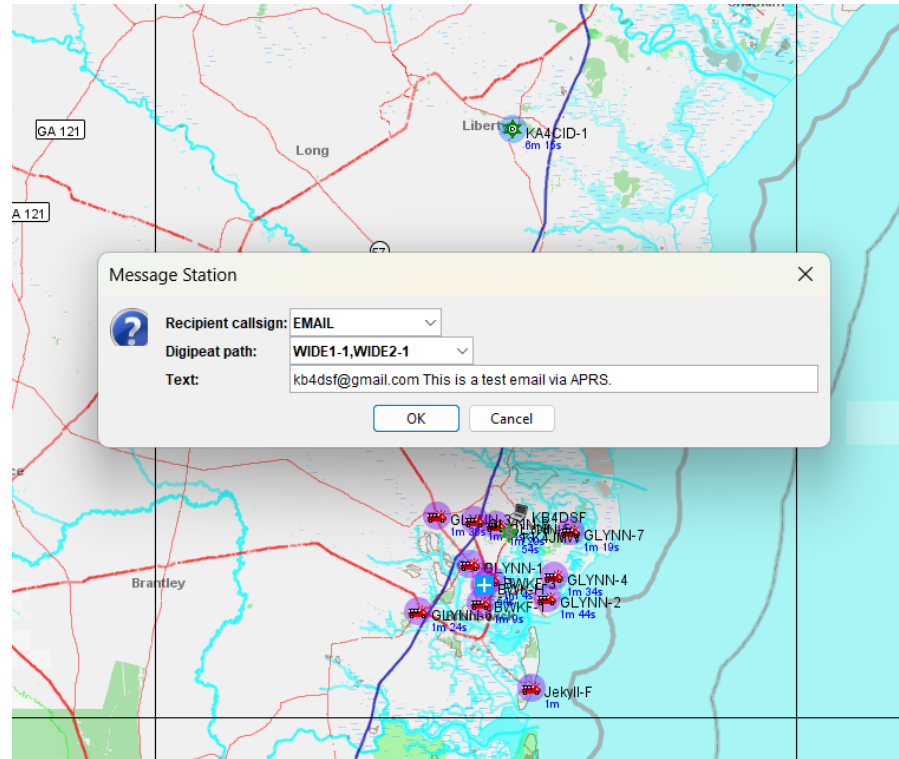
- aprs.wiki
- Must opt in all cell numbers you plan to communicate with

SMS VIA APRS



EMAIL VIA APRS

- Send a message to EMAIL
- Start with the recipient's email address
- Immediately follow with the message.
- Keep it short.



KB4DSF: This is a test email via APRS. Inbox x



KB4DSF <email@aprs.earth>
to me ▼

From: KB4DSF
This is a test email via APRS.

DO NOT REPLY

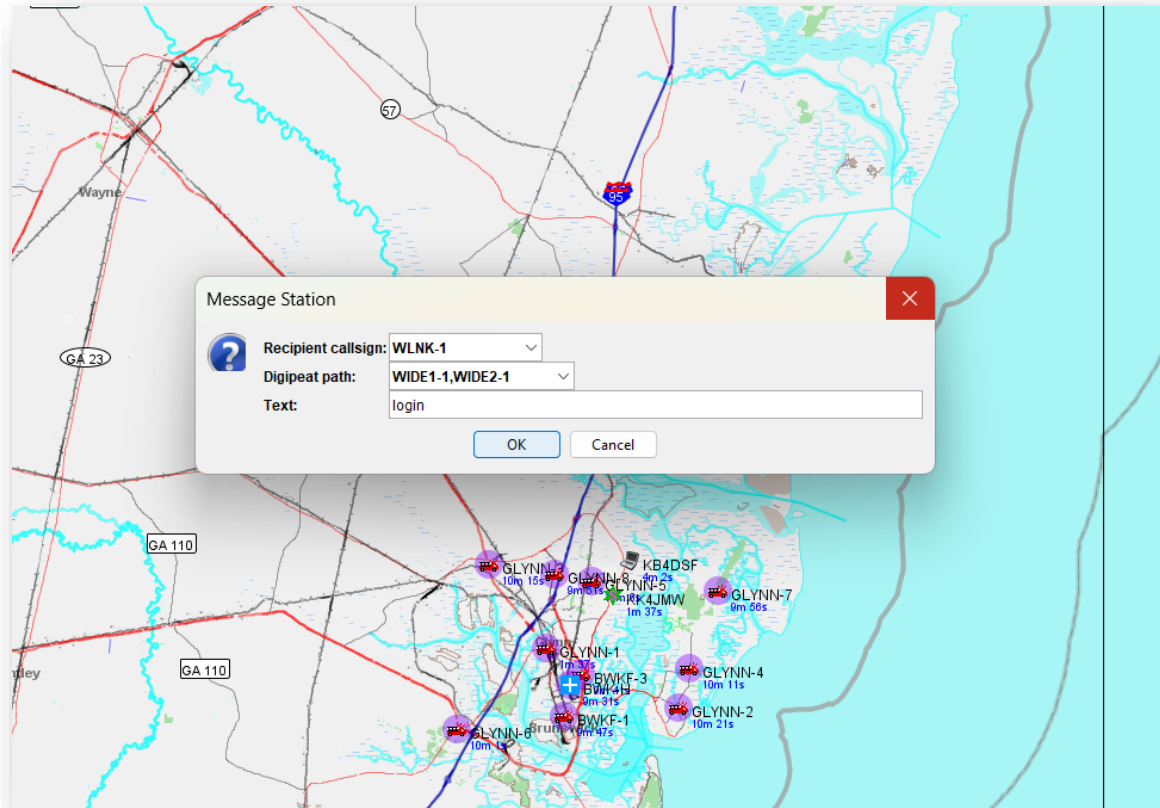
Find KB4DSF at <http://www.jfindu.net/find/KB4DSF>
Track KB4DSF at <http://www.jfindu.net/track/KB4DSF>

Aprs.fi - Track KB4DSF at <https://aprs.fi/?call=KB4DSF&timerange=3600>

Received from KB4DSF via APRS by EMAIL
More info at <http://www.aprs-is.net/email.aspx>

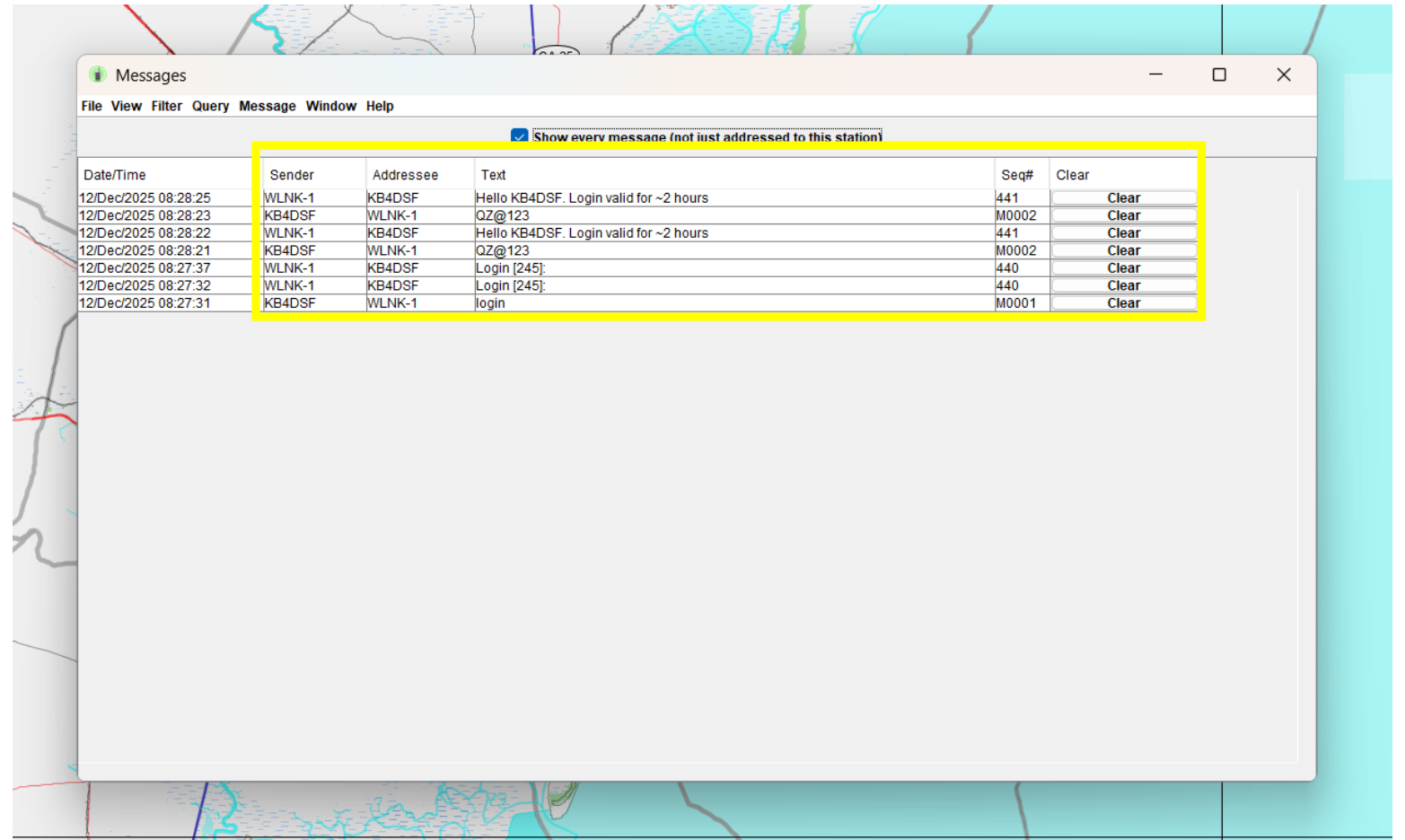
EMAIL VIA APRSLINK

- Send a message to WLNK-1 to login
- Anything will work, but I simply send “login”



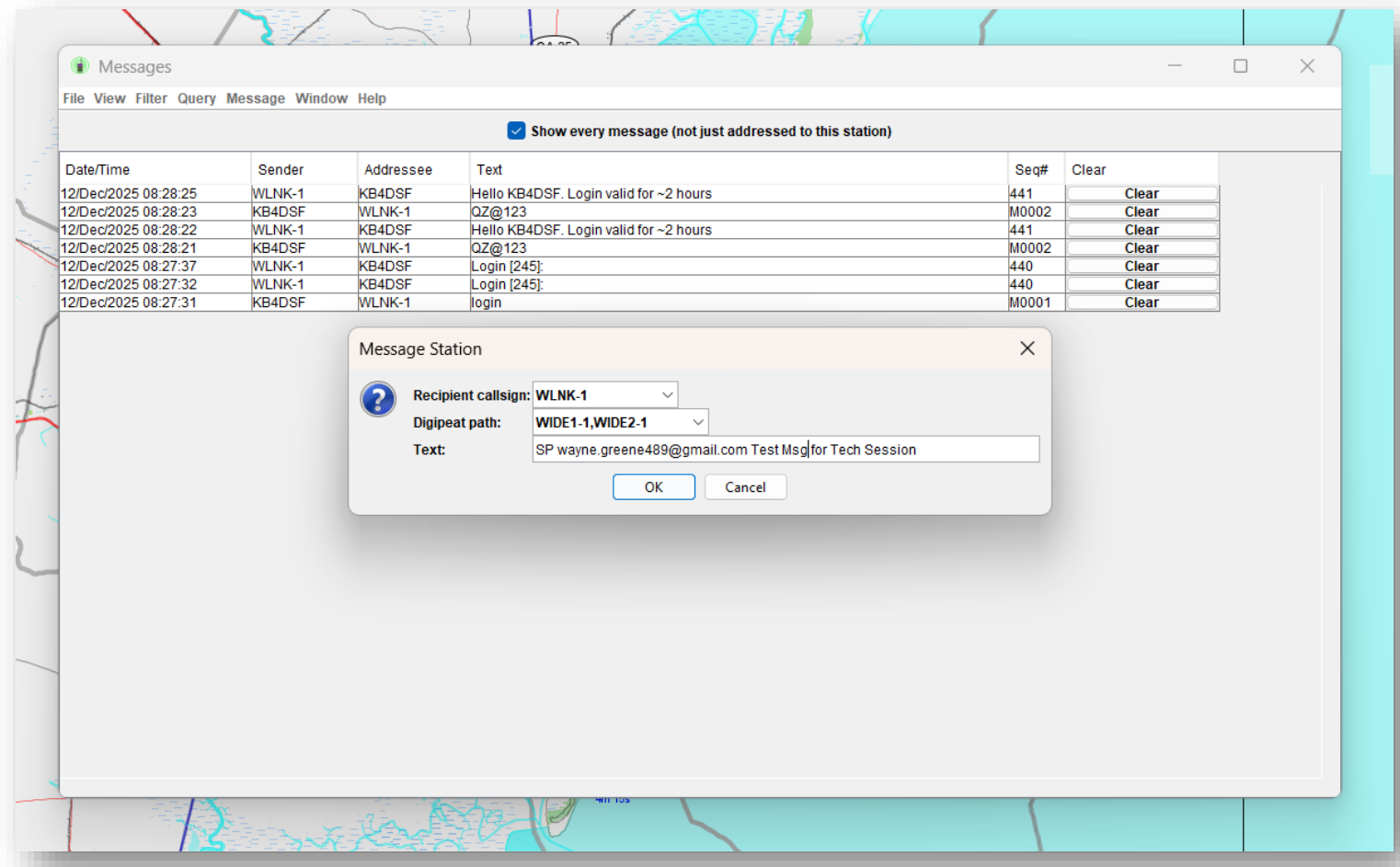
EMAIL VIA APRSLINK

- Password challenge
 - 3 characters of your Winlink password
 - Add 3 additional random characters



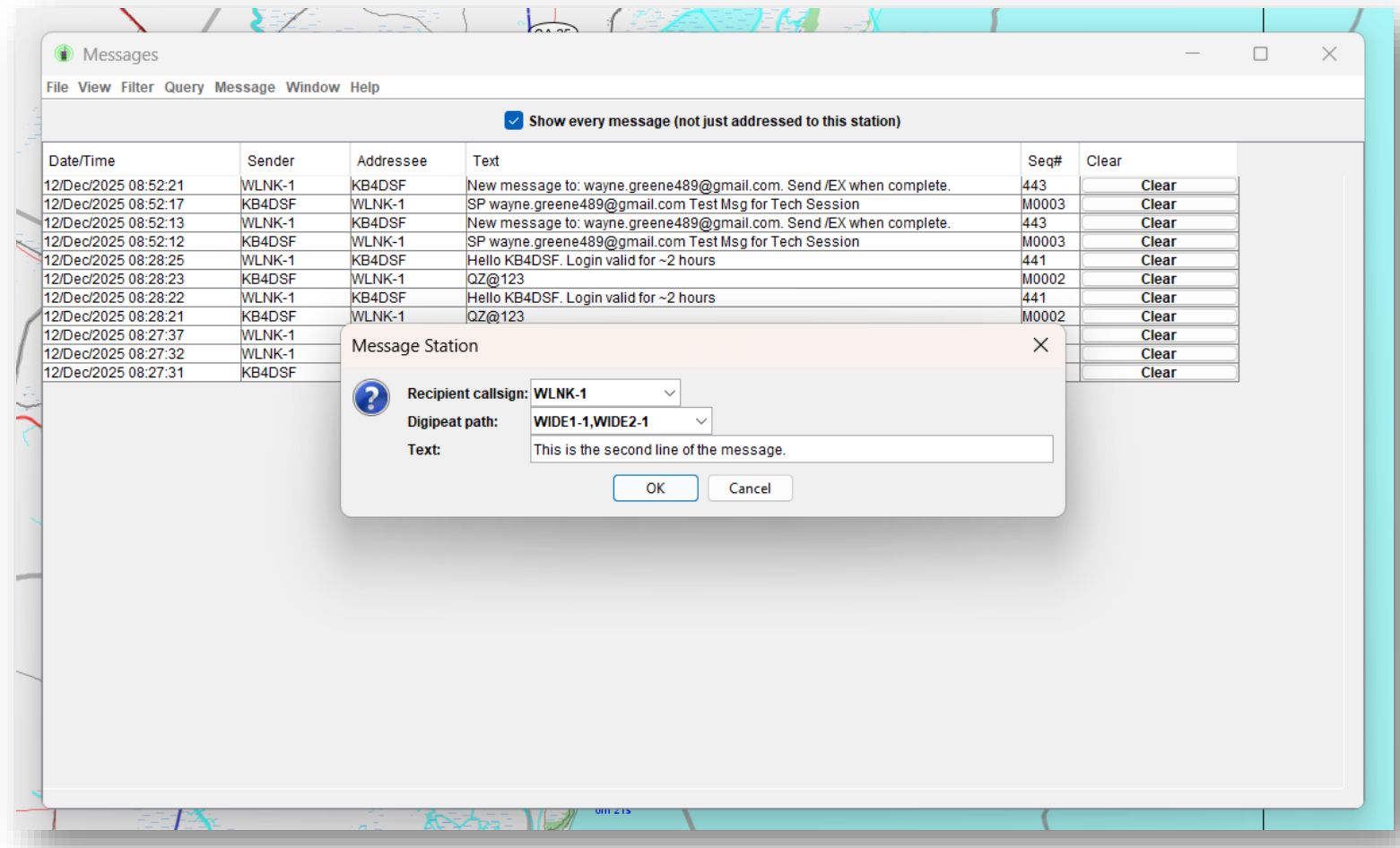
EMAIL VIA APRSLINK

- SP <email address>
first line (message title)
- First line of message.
- Second line of message.
- Any additional lines of message.
- /EX (ends the message)



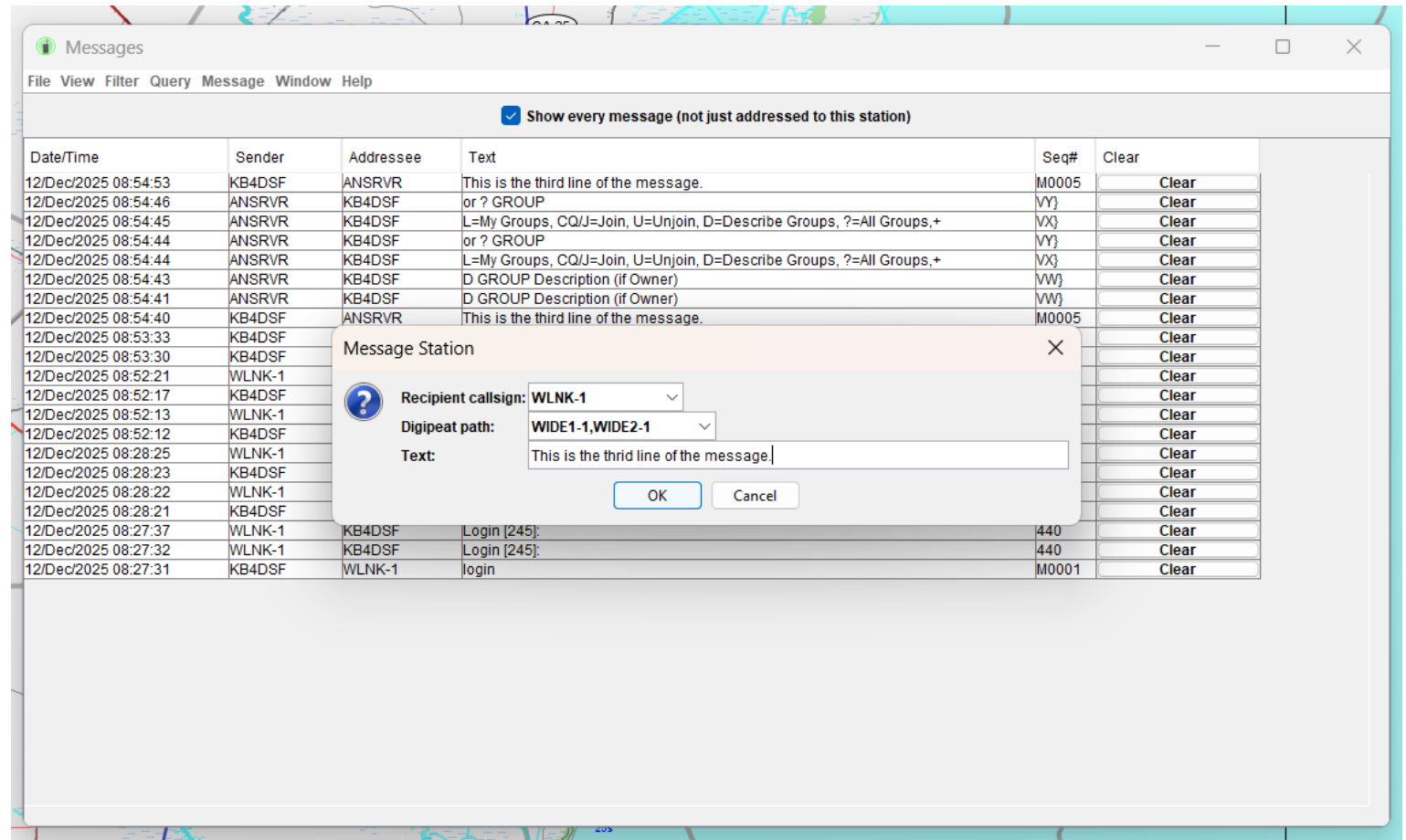
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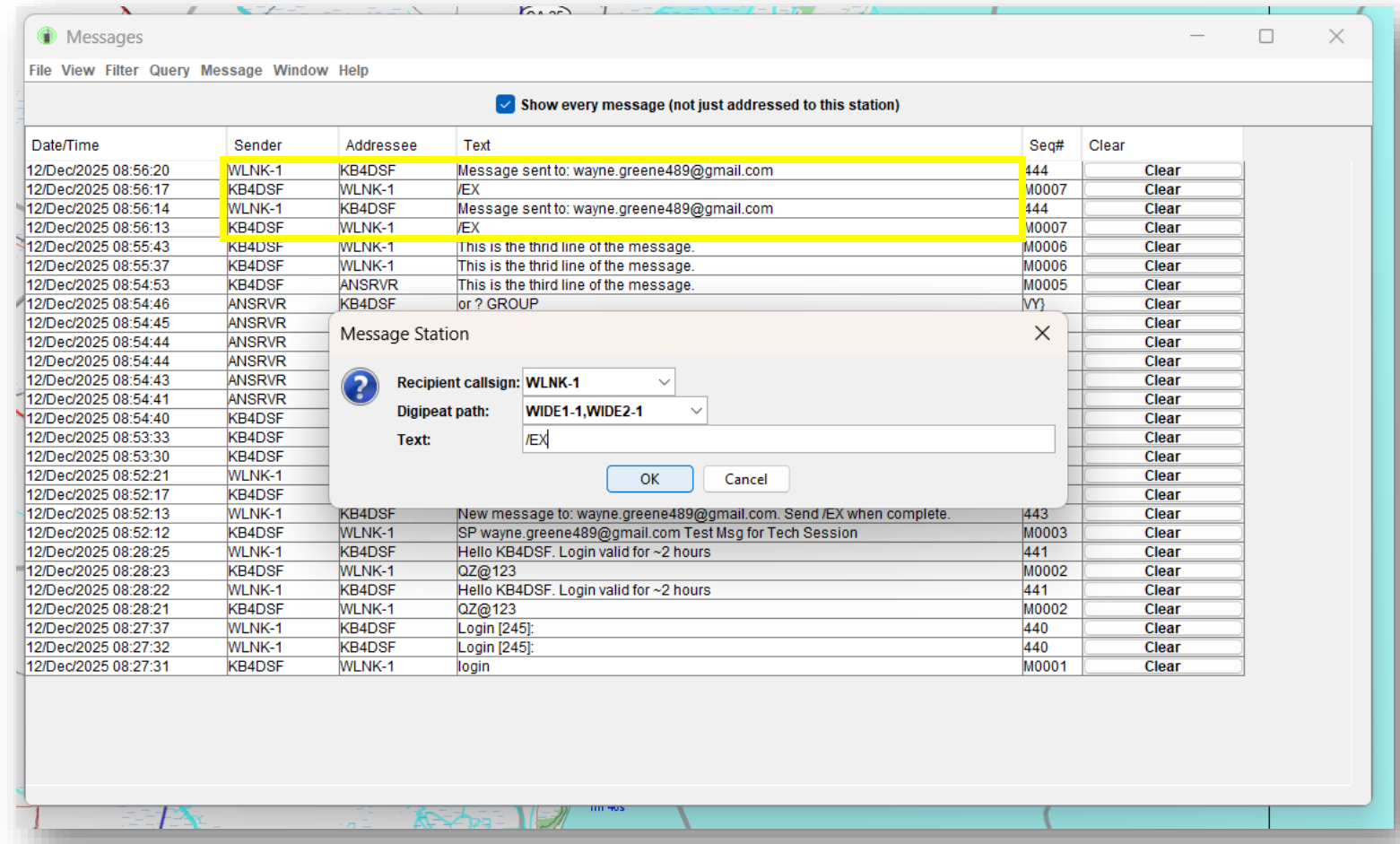
EMAIL VIA APRSLINK

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EMAIL VIA APRSLINK

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- First line of message.
- Second line of message.
- Any additional lines of message.
- /EX (ends the message)



EMAIL VIA APRSLINK

Command	Description
H or?	Return brief Help. Help is also returned whenever APRSLink does not understand a command. Use "?" followed by a command letter for detailed help for that command. Example: "?L" for help with the List command.
L	Return a List of pending messages (a maximum of 5 are returned). The List command queries the Winlink e-mail server and builds a list of up to 5 recent messages. Other commands operate on this list of messages using the message number (#).
R#	Read message number # (# is one of the numbered messages returned via the List command). Example: "R2"
Y#	replY to message. Reply to message number # (# is one of the numbered messages returned via the List command). Example: "Y2"

EMAIL VIA APRSLINK

Command	Description
SP	<p>SP [email address, callsign, or alias] [subject] Then, anything you send to WLNK-1 other than /EX or the (P)layback command makes up the body of your message. If you mess up and need to start over, just issue a new SP command. Here's an example (all sent to WLNK-1): SP sam@iam.com Test Message Some text for the body of the message. Some more text for the message. /EX</p> <p>Each line is a separate APRS message, but the need for entering specific commands for each line/message has been removed. You type and send as much text as necessary and then send /EX as a separate APRS message to complete your email.</p>

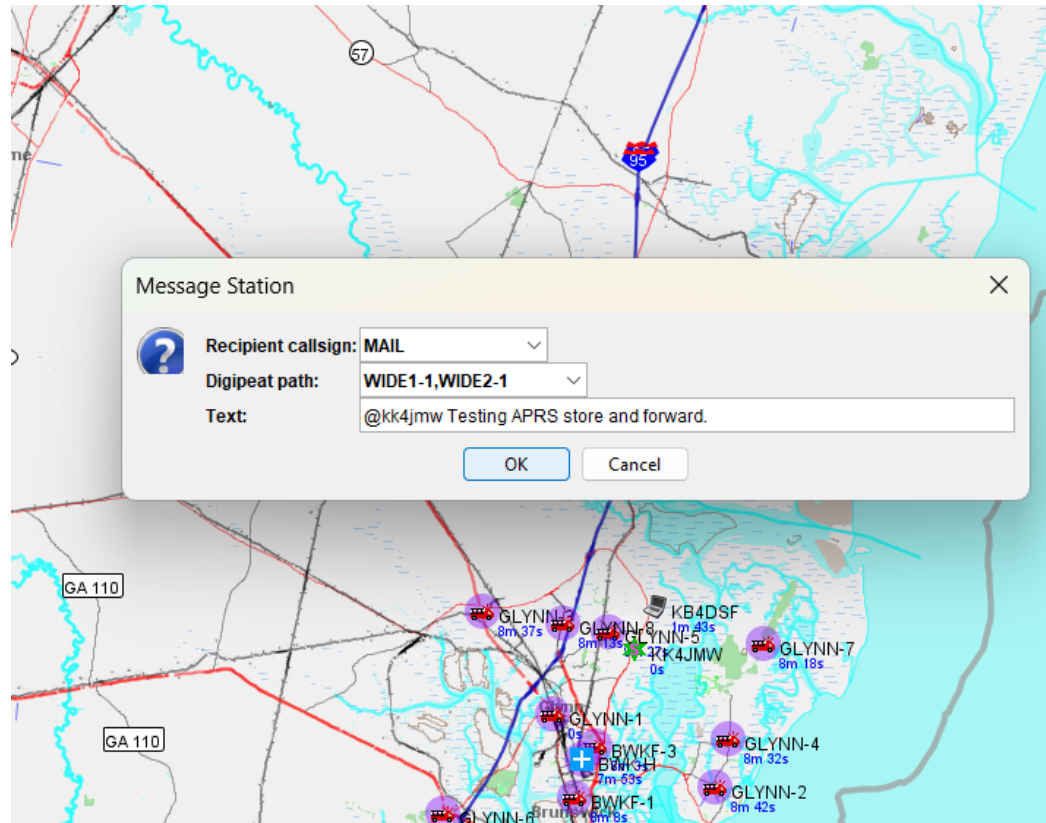
EMAIL VIA APRSLINK

Command	Description
/EX	Complete and send the composed message. You should receive a confirmation message.
P	Playback message. Play back message lines for the message being written.
SMS	Send short message (one line). Syntax: SMS [email address, callsign, or alias] [message] Example: SMS sam@iam.com A short message to Sam
A AL	Create/update an alias for an e-mail address. Example: A sam= sam@somelongdomainname.net Then use "SP sam" instead of "SP sam@somelongdomainname.net " To delete an alias omit the part after the equal sign. "A sam=" will delete the sam alias To get a list of all your aliases send "AL"

EMAIL VIA APRSLINK

Command	Description
F#	Forward message number # to address or callsign following F# (# is 1 to 5)(# is one of the numbered messages returned via the List command). Example: "F2 youraddr@home.net "
K#	Kill (mark as deleted) message number #(# is one of the numbered messages returned via the List command). Example: "K3"
G#	Return information about closest active RMS Packet Gateway. # is a number indicating how many "close" stations are returned. The default (no #) is 1.
I	Return Information about APRSLink

APRS STORE AND FORWARD



- Send a message to MAIL
- Start with @<callsign>
 - @kk4jmw
- Followed immediately by the message

APRS STORE AND FORWARD

- Beacon with APRMAIL to check for stored messages
- Beacon with winlink to check for winlink messages

Configure

General Transmit Digipeat Ports **Beacon** Status Preferences Behavior Weather Alert Repeater Finder

Beacon name: --default-- Save Changes Delete Beacon

☒ Enable station beacon Beacon Type: Position APRS position type: = no timestamp, msg capable

☐ Use GPS for position ☐ Report GPS Speed ☐ Report Altitude ☐ Report Weather

Latitude: 31° 16.29' N Longitude: 81° 25.85' W to ddmm.mm Altitude: feet

Display symbol: / Laptop Symbol overlay:

Station Status: M0: Off Duty Monitor frequency: 000.000 simplex PL: OFF ☐ NB

☐ Show PHG ☐ Show DFS: Power: QRP Height: 10 Gain: 0 Direction: omni

Free text: winlink APRMAIL

Beacon Digipeating:

Standard Digipeat Paths: --direct-- TEMP1-1 TEMP2-2 WIDE1-1 WIDE4-1, WIDE2-1

Selected Digipeat Paths in Proportional Path Order: 1 WIDE1-1, WIDE2-1

Initial repeat rate (sec): 600

Retransmission decay ratio: 2

Stable slow repeat rate (sec): 1,800

Enter User-Defined Digipeat Path:

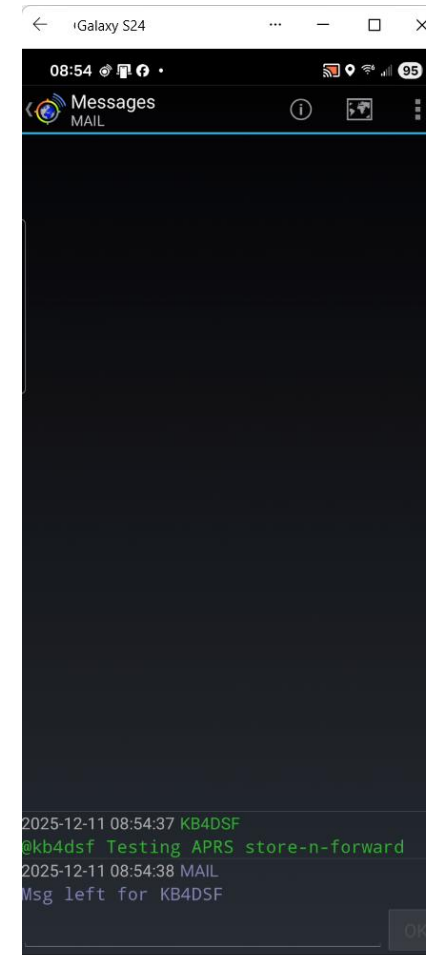
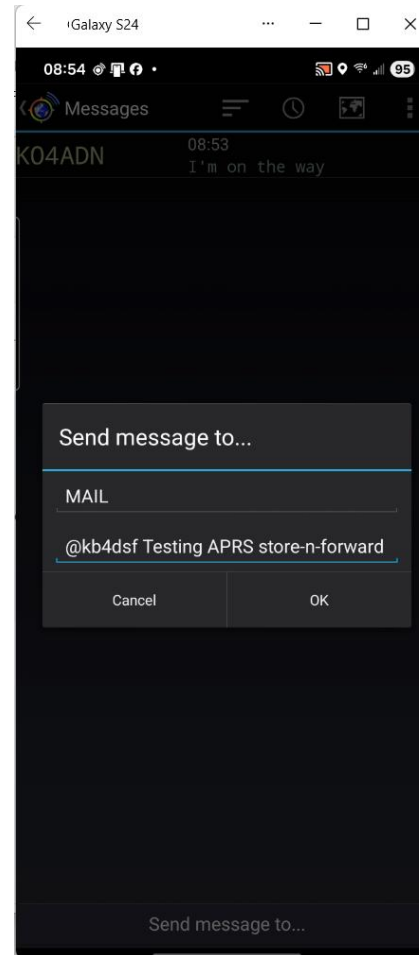
Close Help

APRS STORE AND FORWARD

Messages					
File View Filter Query Message Window Help					
<input checked="" type="checkbox"/> Show every message (not just addressed to this station)					
Date/Time	Sender	Addressee	Text	Seq#	Clear
11/Dec/2025 08:38:14	MAIL	KB4DSF	@KB4DSF Testing APRS store and forward	7482	
11/Dec/2025 08:35:37	MAIL	KB4DSF	Msg left for KB4DSF	7481	
11/Dec/2025 08:35:36	KB4DSF	MAIL	@kb4dsf Testing APRS store and forward	M000d	

APRS STORE AND FORWARD

- Works well when operating APRS via smartphone apps



APRS GROUPS

- ANSRVR
- J to join a group
 - J GARA
- CQ to join and send a message
 - CQ GARA Hello everyone in the GARA group.
 - CQ GARA The GARA Thursday night net is tonight @ 7PM

CQ <group name> text...	Join a group and send a message to all members.
J <group name>	Join the group
U <group name>	Unjoin the group
D <group name> description	Set the group's description
D <group name>	Displays the group's description
? <group name>	Show member count in the group

CQ <group name> will establish a group if it doesn't exist
--

APRS BOTS (MPAD)

- Weather
- Sunrise and sunset
- Satellites
- Supermarkets
- Hairdresser
- Etc, etc, etc, etc



APRS BOTS

- REPEAT
- APSPOT
 - POTA, SOTA, WWFF (World Wide Flowers and Fauna), SiOTA (Silos on the Air)
- NTSGTE

REPEAT

- Find nearby repeaters

REPEAT

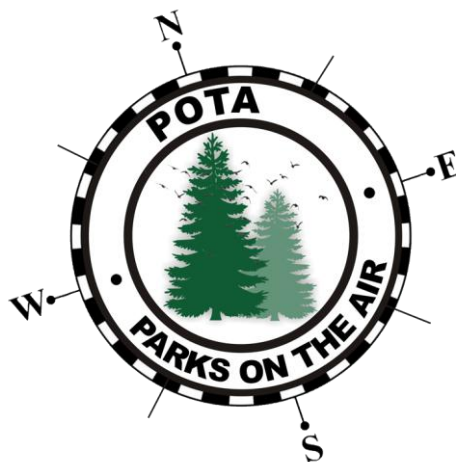
N # capability

APSPOT

spots pota

spots pota <mode>

! POTA US-3719 14.050 CW <comment>



NTSGTE

- National Traffic System

Send “QTC #” to NTSGTE

N#1\R\HXG\KB4DSF\11\BRUNSWICK GA\DEC
12

NA\BILL LENNOX N4IMV\BRUNSWICK GA 31525

NE\N4IMVTS570 ATSIGN GMAIL DOT COM

N1\HEY BILL X I AM

N2\SENDING THIS RADIOGRAM VIA APRS

N3\73

NS\WAYNE KB4DSF

[illegible]

QTC = Telegrams