

2022-11-22 Hamlet Net

Announcements:

- Test Session Info
 - Next scheduled test session is Saturday, December 10th at 350 Terry Street
 - ARRL session, so \$15 test fee
 - To test before this (or online), go to hamstudy.org -> Find a Session (make sure you search for online sessions!)
- LARC's SotA (Santa on the Air) coming up - Nov 27th - Dec 4th - On repeaters (LARC and NCARC) and Echolink. Kids will get QSL card from Santa. I saw it mentioned in the news page on eham.net and it's currently on the QRZ homepage, so we may get a big response this year!
- On December 10, Ed, whiskey-alpha-7-echo-mike, will be hosting a special event station to commemorate the 75th anniversary of the invention of the transistor. The station will be using a special event callsign of whiskey-zero-tango, and all license classes (and even unlicensed individuals) are welcome to drop by and make some HF contacts! The event will be held at 350 Terry Street in Longmont on December 10 from 9 am to noon. For more info, see the club web site at w0eno.org or contact Ed, WA7EM.
- On that same day, LARC will be providing communication support for the Longmont Parade of Lights. Don Lee, K0DBL (kilo-zero-delta-bravo-lima), is coordinating this event, and is looking for volunteers that can help out starting at 4pm. No experience is necessary, so if you were planning to go to the parade anyway (or even if you weren't), contact Don to help out!
- Bob, N0ZFV, is helping Dick out with special events. They are planning to put together a LARC Winter Field Day site FD at noon, Sat Jan. 28th in the Clover Building. Come join the fun, and if you haven't made an HF contact yet, this would be a perfect opportunity, as there will be a lot of activity on the bands, as well as experienced hams to help you out. You don't even have to be licensed (or be a General or Extra Class licensee) to use the radio - we will have plenty of licensed control operators on site.
- RMHAM has published details of their upcoming Tech Talks and RMHAM University presentations. The next session is on December 12th and is titled "Test equipment for amateur radio, with emphasis on oscilloscopes and vector network analyzers" by Bob White, kilo-zero-november-romeo. For more information, or to sign up for these free presentations, go to the RMHAM web site at rmham.org and click on the RMHAM UNIVERSITY menu item near the top of the page.
- There is still plenty of time to earn a free year of LARC membership by acting as NCS for at least 5 nets this year. You can run either this Tuesday night net or the Thursday night net (or both). We have scripts available for both, so all you need is a good connection

into the repeater, and somewhere to keep track of names and call signs as people check in. If you're going to be on the net anyway, why not save some dough at the same time!

- If there are any newly-licensed hams listening, QRZ and GigaParts have announced a New Ham Jumpstart program, which will provide new hams with a welcome package containing a dual-band HT and programming cable.

If you obtained your first license within the last 30 days, then you are eligible! The program runs through October 31st. To sign up, go to www.qrz.com/jumpstart, that's www-dot-quebec-romeo-zulu-dot-com-slash-jumpstart

- The LARC Christmas Party will be held on December 14 at the Niwot Grange. The cost per is \$11 at the door. Members and spouses/family members are welcome! (Dick - KE0VT)
- All club activities are open to anyone - members and non-members. ~~If you have questions, ask them on a net or~~ **send email to elmer@w0eno.org**
- Club breakfast Saturday mornings at 8am at the Hidden Cafe in Longmont
 - Come meet other Club members and discuss amateur radio

Misc:

- The CQ Worldwide DX Contest for CW is this weekend on all the HF contest bands. Since this is a DX contest, there are no points assigned for contacts within the same country - you've got to at least get to Canada or Mexico to score some points!
 - Even if you don't know CW, these contests can be a great opportunity to practice with your radio's filtering functions and maybe check out the Morse code decoder in fldigi

Presenter: Bryan, AF0W

Topic: SMS and APRS

- Although some big city dwellers may not believe it, there are still plenty of places here in Colorado where your cell phone just can't get a signal
- Many of these locations do have amateur radio coverage, but since it's not always possible to get your spouse, significant other, or family members involved in amateur radio, is there still a way you can contact them?
- One option is to use APRS to send an SMS text message to their cell phone. They can even respond to this message via text and have it get to you.

- Of course, there are some equipment requirements and limitations, but it's a good option to have available

APRS

- First of all, what is APRS? It stands for Automatic Packet Reporting System.
- Its creator, Bob Bruninga, described it as "a two-way tactical real-time digital communications system between all assets in a network sharing information about everything going on in the local area."
- In the US, APRS is primarily found at 144.390 MHz FM at 1200 baud, and is a packet-based communications protocol based on AX.25.
- One of its prevalent uses of it is to report the GPS coordinates of amateur stations which can then be plotted on a map
 - a. If used during an ARES activation, for example, it can provide an overview of resource locations, such as volunteer vehicles or fixed stations
- APRS is so much more than just a position reporting system
- One of its capabilities is to send and receive short messages
- The APRS network consists of digipeaters, which are digital repeaters, and igates, or Internet gateways.
 - a. Igates are used to exchange RF-based APRS traffic with an Internet-based system called APRS-IS, or APRS Internet Service, allowing information to be utilized world-wide
 - b. Igates may also be receive-only or support both transmit and receive
 - c. Note that igates are not necessary for APRS to function, but they are necessary for the SMS functionality
- There are servers out on the Internet that look at the APRS-IS information, and can act on this information.
 - a. In addition to allowing the exchange of SMS messages, there are servers that will do things like return a list of repeaters near your location, return upcoming amateur radio satellite pass information, and allow you to send and receive email via APRS.

SMSGTE

- The service that allows you to send and receive SMS messages is called SMSGTE (sierra-mike-sierra-golf-tango-echo) - pronounced "sms geit"
- To use this service, you simply send an APRS message to the SMSGTE service, and include the phone number of the phone to which you wish to send the text, followed by the message
- Here is where the major limitation of this service comes into play - your RF APRS message must now reach an igate so it shows up on the APRS-IS service
 - a. Your RF can either directly reach an igate, or it can reach it via multiple "hops" through digipeaters
 - b. Ideally, you'll want to try out your station at your campsite (or wherever you'll be) to verify that there is an APRS igate coverage in the area.
- When the SMSGTE service "sees" your message on APRS-IS, it will send a text to the recipient you specified
 - a. The text will include the callsign you used in your APRS packet, and the phone number will correspond to the SMGTE server in your region
 - b. SMSGTE "tracks" conversations between stations, which means that subsequent messages do not need to include the addressing information (callsign or phone number)
 - c. This also means that your recipient can simply respond to your text message as they would any other message - they don't have to know about callsigns or SMSGTE
- One caveat is that for you to receive this reply, there must be a two-way igate in your area to generate the RF APRS message back to you
 - a. If there are no igates capable of transmission, you will not receive the reply
 - b. There is a basic acknowledgement protocol that is used by SMSGTE to verify that your station received the messages sent to it. The message will be periodically retransmitted for a time until acknowledged
 - c. SMSGTE does support a command that will resend any unacknowledged messages addressed to your callsign over the past 24 hours
- SMSGTE has some features to make your use of the service easier

- You can set up aliases to use in place of phone numbers in your messages - for example, you could set the letter "w" to map to your wife's cell phone so you do not have to enter her entire number on your radio
 - a. One thing to keep in mind is that APRS messages are not encrypted - you can go to a web site like aprs.fi and see a list of all messages received by APRS-IS, and this would include the phone numbers you communicate with
 - b. Since you can manage your aliases via SMS or via a web page, you can keep this information private
- You can also create a list of shortcuts for common phrases you use to reduce the amount of information you must enter on your radio
 - a. For example, you could set up a shortcut called "ok" that expands to a longer message, such as "I'm doing fine - everything is OK" when sent via SMS

Hardware and Software

- Ok, so this sounds great - what do you need to make it all work?
- The most straightforward method is to use a radio that has built-in APRS functionality such as the Kenwood TH-D72, the TM-D710, or the Yaesu FT-2D. (there is a list of "certified" hardware on the SMSGTE web site: <https://smsgte.org/compatibility/>)
- If you have Internet access, you can communicate directly with APRS-IS using software such as APRSDroid for Android, or AGWTracker on Windows. Of course, if you have Internet access, you could likely use your cell phone to send email as well.
- Finally, you can use an external TNC (or terminal node controller) connected to your radio.
 - a. One popular model for portable use is the mobilinkd, which is a device that you wire to your radio's speaker and microphone jacks and connect to your phone or tablet via Bluetooth.
 - Unfortunately, their web site says they are out of stock due to parts shortages, and have no estimate for when they will become available
 - b. There is a digital interface called the DigiRig that can be used with software to provide digital communications via radio, but I was not able to find any info on anyone successfully using it with APRSDroid
 - The issue appears to be support for PTT control - you could try to handle PTT manually by pressing the radio's PTT button

- c. While much larger than the DigiRig, the Signalink USB interface will provide a VOX-based push-to-talk signal. Not sure if it will interface to Android devices seamlessly
- d. I came across at least one post where someone was able to simply hold their radio up to their phone and send and receive APRS traffic
 - This will depend on a lot of things, not the least of which will be the ambient noise at your location
 - Probably best not to rely on this solution, but it is something you could play around with
- Other IOS software that was mentioned are "PocketPacket" and the free "PulseModem"
- If you have a laptop along with you, there are many APRS applications for Windows, Mac, and Linux (including on the Raspberry Pi)

Summary

- While there are other possibilities, such as sending SMS messages using JS8Call or Winlink, the SMSGTE system is something you should look into if you have such needs
- We had one of our students in our Technician licensing class tell us that he used the SMSGTE system to let his wife know he was OK when he was out in the wilderness hunting in areas with no cell service.
 - a. She had no interest in getting her own license, so voice communication was out
 - b. I believe he had a personal locator device with him, so using APRS was for welfare messages and not his plan for emergencies
 - c. It was very satisfying to hear that a student had been able to leverage amateur radio to provide communications even in our modern-day society
- If you want to hear what APRS sounds like (and see if there is any traffic in your area), just tune your VHF FM radio to 144.390 MHz and see if you can hear anything.
 - a. Depending on the strength of the signals, you may need to reduce your squelch

Questions:

- **The question for the week is:** Have you ever used APRS messaging before, and have you recently been in a location that does not have cellular service where you could have used the SMS gateway functionality?
- **In my case,** I have played around with APRS messaging and the SMSGTE gateway, but have never used it "for real."

We were in a location without cell service when LARC activated Eldora State Park. There was no cellular data service (don't think there was voice service either), but I was able to receive APRS on my Kenwood TH-D72 handheld.

Unfortunately, I hadn't used APRS on this radio before, so it took me a while to figure out how to enable the built-in TNC, but once I did, I was able to send a position report and receive a confirmation that it had been received, and my position showed up on the aprs.fi web site once we got back to Longmont.

More Info:

- Main APRS web site: <http://www.aprs.org/>
- SMSGTE site: <https://smsgte.org/>
- APRSDroid (Android): <https://aprsdroid.org/>
- Mobilinkd: <http://www.mobilinkd.com/>
- DigiRig: <https://digirig.net/>
- APRS on IOS:
https://www.reddit.com/r/amateurradio/comments/k3n16x/best_iphone_aprs_app/
- PocketPacket (IOS): <https://koomasi.com/pocketpacket/>
- PulseModem (IOS): <https://www.pulsemodem.com/>
- APRS POTA/SOTA spotting via APRS: <https://apspot.radio/>
- iOS Winlink: <https://radiomail.app/> (currently beta testing this)

Notes:

- If you have ideas for net topics or general meeting topics / presenters, please let us know! Tell us on a net, or send email to k0itp@w0eno.org

Email to elmer@w0eno.org

1. K0ITP - Chuck - Firestone - Has used SMSGTE before. Could have used once in mountains - were stuck near Hidden Valley and no traffic moving. He just used repeaters to get info. Uses his Anytone 878 for APRS during morning commute.
2. AF0W - Bryan - Longmont -
3. W0HLO - Harlan - NE Longmont - Has not used, but going to look into it. Has Anytone 578 and couple of 878's, but have not turned on APRS. (Chuck) - First 878 and 578s just had xmit capability for APRS - second version has both.

4. KV0N - Raman Lafayette - Have Yaesu FT-5DR. Usually use it for beaconing. Have done some POTAs in mountains and beacon his position so his wife can see he's OK. Saw YouTube video on it and was wondering how to hide phone number.
5. KM6SJA - Steve - Longmont - Has not heard of APRS, but sounds fascinating.
6. WA7EM - Ed - Erie - Have not used, but has used POTA spotting sites to see where to contact.
7. KN6CFI - John - Longmont - Back when doing Winlink on HT, ordered APRS cable but hasn't gotten around to using it yet. Would like to learn more about this.
8. AE0DO - John - N of Longmont - Have not used APRS. Have not been in area where lack of cell phone service was a problem.
9. NA0A - John - Boulder - Does not have an APRS-enabled radio, so no on both questions.
10. KF0FEC - Will - Boulder - APRS is familiar to him. He has played around with it quite a bit. Hooked a mobile up to a Raspberry Pi and set up Direwolf to run an iGate. Has Anytone 878 that can do beaconing. Have used APRSDroid hooked up to an HT with no packet capability. Agree that protocol is a bit of a hodgepodge - built as they went. Would be nice to have some better-designed messaging protocol in the future.

Announcements:

WA7EM - 2022 is 75th anniversary of the transistor. On Dec 10, celebrating with special event station - W0T.

K0ITP - Santa on the Air, sponsored by LARC and NCARC. Starts Nov 27, runs through Dec 9. Will have 5 repeaters linked together for the event, plus Echolink.

Wed night club meeting - talked about 2023 events coming up.