2025-05-06 Hamlet Net - Adventure Protocol

Announcements:

- Test Session Info
 - Next VE session is Saturday, May 24th in the Clover Building at the Boulder County Fairgrounds, and starts at 9 am. It is a PVET session, so there is no fee to test. For more info, and to pre-register, see the Licensing/Testing page on the club web site, <u>https://w0eno.org/</u>, under the Education menu.
- Moved repeater from temporary location to another temporary/permanent location. Made some other changes that may help quality of audio - will have to see.
- If you haven't done so already, please take a moment to fill out the survey on the club web page at w0eno.org click on the "LARC Survey" link on the right-hand side of the grey menu bar.

The Board has been discussing what can be done to raise attendance and participation at club meetings and events, and we need to get your input. Whether you go to meetings, watch them live via Zoom or recorded on Youtube, or don't attend at all, we'd really like to know if there's anything we can do to make the club better.

• There are a few new items on the club's For Sale web page, including a 20 meter QCX mini and a (tr)uSDX radio.

Click on the "Items for Sale" menu item under the For Sale menu on the club web page.

- There are also items available on other club web sites including NCARC (<u>https://ncarc.co/for-sale/</u>), RMHAM (<u>https://www.rmham.org/the-swaplist/</u>), and the Denver Radio Club (<u>https://w0tx.org/trade/</u>)
- If you are interested in find out more about the Amateur Radio Emergency Services (or ARES) in the local area, check out the Boulder County ARES web site at <u>https://bouldercountyares.org/</u>

They have a VHF net on Monday nights at 8:00pm, as well as a DMR net on the 2nd, 3rd, and 4th Mondays at 8:30pm.

- Upcoming Club Volunteer Opportunities:
 - Summer Field Day is our next large Club event and is June 28-29 this year. As with other events, the more help we get, the easier it is on everyone. We will need help with things like setup, teardown, food, running the GOTA station, completing activities needed for bonus points, etc., so please help out in any way you can.

Planning meetings for Summer Field Day are held via Zoom on Monday nights from 7 to 8 pm. If you can help out with any activities, or would like to get in on the planning, please plan to attend. Meeting information can be found on the club event calendar on the club web page.

Sign up sheets are available online. You can find out more information about the Field Day on the ARRL's web site at: <u>https://www.arrl.org/field-day</u>

- May 10th is the satellite GoBox build. Will be at the Clover Building at the Boulder County Fairgrounds from 9 to 1. Run by Chuck Lucas. Will have an Arrow antenna and a Kenwood D72a HT.
- HAMCON Colorado 2025 for Rocky Mountain Division is October 23-26, 2025 in Grand Junction. For more information and to register, see their web site at: <u>hamconcolorado.com</u> They are also looking for presenters.
- I checked out the RMHAM web site they don't have last weekend's grounding and lightning protection presentation up yet, but they do have the presentations up from their antenna workshop. You can see them on the RMHAM web site at: <u>https://www.rmham.org/</u>
- Breakfast Saturday at 7:30 8:00a at the Hidden Cafe.
- RMHAM is taking over the summer swapfest this year from the Denver Radio Club, Sunday August 24th. Sunday, August 24th at the Adams County Fairgrounds from 9am to 1pm. Admission is just \$6, so plan on dropping by! Tables are also available for \$13 in advance, and \$20 at the door.
- If you are an ARRL member, remember that you have digital access to four magazines QST, On the Air, QEX, and National Contest Journal.

This month, they're covering Field Day with the 2025 ARRL Field Day Guide, but they also have some articles that sound good. One is about evaluating AC power supplies for QRP use, and another is the construction of a receive-only antenna switch for a radio that only has a single antenna port. There is also a review of an inexpensive SDR transmit/receive switch.

• We have a new net on the LARC repeaters. It's run by Timothy Moss, KFØLAR, on the 22nd of every month at 6pm. The 22nd was chosen to highlight the average of 22 vets who commit suicide each day. While the purpose of the net is to connect veterans, non-vets are welcome to participate as most all of us have friends or family who are or have served.

- The ARRL Colorado Section Net occurs on the second Monday of the month from 7 to 8pm. The net is run by Amanda Alden, K1DDN, our Colorado ARRL section manager, and is open to hams and non-hams alike. This net is a place where Colorado hams can ask questions of ARRL leadership and request help, guidance, club support, and technical support. This net meets on the second Monday of each month at 7:00 pm Mountain time. The net is on the Colorado Connection, Rocky Mountain Ham Radio DMR Talk Group 700, The Fun Machine, WE0FUN, and the NCARC Buckhorn Repeater 447.700 – with 100 Hz tone.
- We have some volunteer opportunities available where you can help out LARC:
 - Photographer / videographer record team activities and upload to web site / YouTube
 - Newsletter Editor put together the monthly Splatter newsletter
 - Event Coordinator
- Time's up for this year, but you can earn your 2026 membership or future renewal by acting as NCS for at least 5 nets next 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!
- Chuck has set a goal for the Club of running at least one activity a month. This can be a hands-on construction activity, an operating activity like Field Day, a fox hunt, or a special event station. The goal is to get people together to have fun with amateur radio! We have multiple locations at our disposal, as well as lots of Club equipment, so if you have an idea for something you think others hams would like to do, please let us know, and if you're willing to run it, even better!
- The Club is also looking for presentation topics for 2025. If you have any ideas, or better yet, would like to present, please let Chuck know and we'll get you on the schedule! We would like to get some presentations from club members on stuff they've been doing, projects they're working on, or just things that interest them.
- All club activities are open to anyone members and non-members. If you have questions, ask them on a net or **send email to <u>elmer@w0eno.org</u>**

Presenter: Bryan, AF0W

Topic: The Adventure Protocol

• On a previous net, the Wilderness Protocol was covered.

- a. To summarize, it uses the calling frequencies of multiple bands (primarily the 2m calling frequency, but also those on the 70cm, 1.25 cm, 23 cm and 6 meter bands)
- b. Users in need of assistance attempt to make contacts on those frequencies up to
 6 times per 24 hour period (once every three hours starting at 7am local time)
- I recently saw a video on Youtube detailing a new proposed protocol for operators "out in the wild" called the Adventure Protocol.

Adventure Protocol

- The Wilderness Protocol does have some shortcomings:
 - a. It requires active monitoring from stations willing and able to provide assistance
 - b. It is spread out over 5 frequencies, reducing the chances of operators being able to make a contact as there are many combinations of caller and responder frequencies
 - c. There are just six communication windows of 5 to 10 minutes each
 - Are radio operators really going to set an alarm to make sure they monitor one of the frequencies at the proper times?
 - What if you need aid 15 minutes after a window closes? You have to wait almost three hours to make an attempt!
 - d. Long Tone Zero (or LiTZ) is not possible on some current radios
 - When you press a key to generate a DTMF tone, it gets generated for a small amount of time - not for as long as you hold the number key down
 - e. The Wilderness Protocol is meant for making emergency contacts only
- To attempt to address these limitations, George Zafiropoulos, KJ6VU, has proposed a new protocol that he calls the Adventure Radio Protocol
- His goals in designing this system are:
 - a. To make it easier for radio operators in the field to find and communicate with each other
 - b. To support multiple communications scenarios such as emergency signaling, SOTA/POTA activities, and receiving automated informational messages

- c. To make it possible to signal for help at any time when no one is actively monitoring the frequency
- The key elements of this protocol are:
 - a. A single common radio frequency
 - b. A common signaling standard that any radio can support (CTCSS sub audible tones)
 - c. Two Modes:
 - Radio to Radio
 - Radio to Infrastructure
- Modes
 - a. There are two distinct modes of operation specified by the protocol
 - Radio to Radio is meant to be used by stations to directly contact other stations
 - This can be used for an emergency or just for routine communications
 - No infrastructure or repeater support is needed for this mode of operation
 - Radio to Infrastructure
 - This mode is used to interact with some sort of repeater or other infrastructure
 - It does require support on this equipment to function
 - It appears to be intended for emergency and short informational communications
 - There is nothing that prevents individuals from monitoring communications in this mode
- Frequency
 - a. The proposed frequency to be used by the Adventure Protocol is 146.580 MHz simplex FM

- b. This was chosen as it is a common FM simplex frequency in the band plans of most parts of the country, including here in Colorado
 - US states do not all use the same channel spacing
 - For example, the majority of states, including Colorado, use 15 MHz spacing, but Montana uses 20 MHz spacing
 - This reduces the number of frequencies that are common to band usage plans
- c. 146.520, was not used so as not to interfere with its use as the 2m calling frequency
- CTCSS Tones
 - a. The protocol depends on CTCSS tones
 - b. You are likely familiar with their use on repeaters, where they are frequently required for the repeater to retransmit incoming signals and may be used on outgoing signals as well
 - c. The Adventure Protocol uses different CTCSS tones to specify different types of traffic
 - d. It splits the available tones into two groups:
 - 67.0 to 151.4 Hz are reserved for the Adventure Protocol
 - 156.7 to 254.1 Hz are reserved for anyone to use for any purpose
 - e. The specific tones used by the Adventure Protocol are:
 - 67.0 Hz for Emergency Calling
 - 77.0 Hz for pinging in infrastructure mode
 - 88.5 Hz is for POTA, SOTA, and other "xOTA" activities
 - 100.0 Hz is used for general rag chewing
 - 123.0 Hz is used in infrastructure mode to trigger an automatic information response

Use

• So how is this protocol used?

- For Radio to Radio mode:
 - a. Simply set your radio to 146.580 MHz and select the CTCSS tone you wish to use for both encoding and decoding for the type of traffic you want to monitor
 - b. You can program the frequency and different CTCSS tones into memory locations in your radio so you can easily switch between different types of traffic
- For Radio to Infrastructure mode:
 - a. Infrastructure repeaters would be equipped with an auxiliary 2m remote base radio set to 146.580
 - b. They would also have a controller capable of decoding desired CTCSS tones and taking appropriate action
 - If a 67 Hz tone was received, audio could be passed from the 146.580 receiver to the repeater with a specific audible tone indicating emergency traffic. External equipment, such as a Raspberry Pi, could be configured to send SMS messages to club members to alert them of the traffic.
 - If a 77 Hz tone is received, the auxiliary radio would respond with a beep and/or CW ID indicating you have reached a node supporting the Adventure Protocol. Nothing is passed to the repeater for this call.
 - This allows you to check to see if you are within range of Adventure Protocol infrastructure
 - If a 123 Hz tone is received, a computer (or Raspberry Pi) could respond with a pre-recorded message. Once again, no repeaters are keyed up in this case.
 - Other tones, such as the 88.5 POTA tone, or the 100.0 Hz ragchew tone would be ignored.
 - The ability to simultaneously look for more than one CTCSS tone is generally not supported with typical repeater controllers
 - George is designing a controller to provide this functionality
 - He currently has a "Revision 1" controller that uses through-hole parts and supports all the basic infrastructure functions, and is planning to redesign it to use surface mount components and have a more powerful processor while reducing costs

Summary

- George has presented his protocol on a number of amateur radio Youtube channels over the past few years
- It's very likely he is the only person working on a controller to support the Adventure Radio Protocol
- He's also involved in other projects for his companies, Sierra Radio Systems and Packtenna, so the Adventure Protocol is likely going to take a back seat to other more revenue-producing items
- I've not seen any mention of repeaters actually supporting the Adventure Protocol many people have commented that it sounds like a good idea, but no one has said they've implemented it
- Not sure how well the protocol will actually take off in the real world perhaps if George is able to provide a cheap, easy-to-implement controller, things might improve
- In the meantime, it may be worth programming 146.580 into your radios just in case
- An HF radio in conjunction with JS8Call can also be used to send SMS or email messages, so this can be a potential backup in areas with little to no amateur radio coverage.
- That being said, if you are going to be in a situation where you may need support but which does not have

Questions:

- **The question for the week is:** When you have your HT or mobile radio on, what frequencies do you typically monitor?
- In my case, I generally monitor both the LARC 2m and 70cm repeaters to make sure they are operating properly. I've recently acquired a GMRS license, so I may add in the area GMRS repeaters to see what sort of traffic they have.

More Info:

- Adventure Radio Protocol: <u>https://www.packtenna.com/adventure-radio.html#/</u>
- North America Adventure Frequency: 146.580 MHz: <u>https://www.k0nr.com/wordpress/2021/01/north-america-adventure-freq/</u>
- Adventure Radio Protocol & Controller (RATPAC Amateur Radio): <u>https://www.youtube.com/watch?v=uEvDyRnh8vo</u>
- Ham Radio Crash Course episode on the Adventure Radio Protocol: <u>https://www.youtube.com/watch?v=JhDkGCmuJY8&t=31s</u>

- Simplex Channel Spacing: <u>https://www.k0nr.com/wordpress/2020/08/simplex-channels-2m/</u>
- The Wilderness Protocol: <u>https://tcares.net/the-wilderness-protocol/</u>

Email to elmer@w0eno.org

 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 <u>k0itp@w0eno.org</u>

Email to <u>elmer@w0eno.org</u>

- 1. KØITP Chuck Firestone
- 2. AE0DO John N of Longmont
- 3. N7CTM Mark Firestone
- 4. WAØJJC Bob Boulder
- 5. WØAKI Aki Longmont
- 6. AFØW Bryan Longmont

End: 7:55pm