2022-11-15 Hamlet Net

Announcements:
- Test Session Info
  - Had a test session Sunday with 5 candidates - all passed what they came for. We had 4 new Technicians and one Tech to General upgrade.
  - 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!

- The August, September and October LARC general meetings are available on Youtube. You can find them on the club web site at w0eno.org under the Presentation link under the LARC History menu.

- 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 new page on eham.net, so we may get a big response this year!

- RMHAM has published details of their upcoming Tech Talks and 2022-2023 RMHAM University presentations. Topics include Using the Incident Command System for events, Ham Radio instrumentation and others. 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:
- ARRL SSB Sweepstakes contest is this weekend. Should be a lot of voice traffic on the hf bands.

  - The contest exchange is a bit involved, and consists of 5 pieces of information

  - Interestingly, these roughly correspond to 5 of the first 6 fields of the standard ARRL radiogram which are: number, precedence, callsign, check, and place of origin

  - It is a lengthier exchange than is typical for contests to reinforce that longer traffic messages must be sent accurately

Presenter: Bryan, AF0W

Steve has a question from two weeks about what language the DXLab Suite applications used. It appears that as of 2018, they were investigating what to switch to from Visual Basic 6 (https://groups.io/g/DXLab/topic/future_platforms_for_dxlab/27153821).

It's not directly specified, but it sounds like they likely went with Microsoft .Net for the rewrite.

Topic: fldigi - requested by Bob
- fldigi is a suite of computer programs used for Amateur Radio Digital Modes operation using a PC

- The name stands for "Fast Light Digital"

- It is available for Windows, Mac, and Linux - and has even been ported to Android

- It is free, open-source, and actively being maintained

- It works with a conventional transceiver connected to a PC via a soundcard

- Some modes are even functional when used in "acoustic coupling" mode - that is, holding the radio up to the computer's microphone and speaker (and manually pressing the radio's PTT)

- It can also control the radio using CAT control

- It is multi-mode, so the user can utilize many digital modes without having to change programs

- The modes it supports are chat modes and are used for keyboard-to-keyboard communication (as opposed to something like FT8 with its regimented exchanges)

- So why all the different digital modes?

  a. Most HF communications rely on atmospheric propagation, which can vary from moment to moment

  b. There are also issues of multipath, or multiple copies of the signal arriving at different times, as well as atmospheric and man made noise and interference

  c. Depending on the exact current conditions, different digital modes will perform better than others

  d. As with a lot of things related to amateur radio, experience is the best teacher when it comes to digital mode selection

- One other issue is identifying the particular mode being used when tuning across the band

  a. The manual methods of determining the correct mode will be either listening to or looking at the signal, or switching to different modes until one of them decodes properly

  b. Determining the mode by listening isn't as difficult as you might imagine - FT8 sounds much different than RTTY or JT65, for instance (PERHAPS PLAY EXAMPLES HERE)

  c. Here again, experience will be very beneficial

- There is a system for automatically selecting the appropriate mode using the Reed-Solomon Identification or RSID feature

  a. RSID transmits a short burst at the start of your transmission which identifies the mode you are using

  b. Those amateur radio operators also using RSID while listening will be alerted by their software that you are transmitting in the specific mode (such as Olivia), what settings you are using, and where on the waterfall your transmission is located.

- The fldigi application currently supports 19 different digital modes, such as CW, Contestia, Olivia, PSK, and RTTY with multiple variations of each

a. For example, the PSK mode has PSK-31, -63, -125, -250, -500 and -1000 in addition to 6 multicarrier variants

b. PSK-31 is the slowest mode - and is intended for keyboard-to-keyboard QSOs

c. PSK-63 and -125 are used mainly with macros as they are much faster

d. Of course, this additional speed comes with a cost - they also occupy more bandwidth

● It also supports two special modes

a. The first is WWV mode, which allows you to receive the standard time signal and use it to calibrate the software to your soundcard

b. The second is called Frequency Analysis and displays a very narrow waterfall along with a frequency meter that is accurate to two decimal places, which can be used to measure the frequencies of incoming signals

■ The ARRL has a yearly frequency measuring test where participants measure the frequency of HF signals transmitted by the ARRL and report their results to see how close they come to the actual signal frequency

● The fldigi application has three main sections or panes - one each for receive and transmit, and one for the waterfall

a. The send and receive windows are similar to many older messaging applications

b. The waterfall resembles the waterfalls on the ICOM IC-7300 or in the WSJT-X software

c. One feature of the program is that you can type in the transmit pane while you are receiving - your typing will be queued up until you switch to transmit mode, at which point it'll quickly be sent

● Some additional fldigi features are:

a. Automatic frequency control, or AFC - this feature automatically follows signals that drift in frequency

b. Macros allow you to configure sequences of actions and information to be transmitted

■ For example, you can answer a QSO with your call sign and that of the sending station

c. It also supports CW decoding, but the decoder isn't as good as CW Skimmer (http://www.dxatlas.com/cwskimmer/) , another software decoder

- fldigi also contains its own logging facility

  a. 70% of the fields being logged are either gathered from the data transmissions or from the program configuration, thus reducing operator time to make an entry

  b. The log does interface to the LoTW TQSL application for uploading and downloading records

- There are also a few other programs available as part of fldigi:

  a. flmsg

    ■ flmsg is a simple forms management editor for the amateur radio that supports standard message formats.

    ■ Form data can be transferred between computers either using standard internet email or via RF

    ■ flmsg forms can be very complex and include embedded images and other controls that make data entry less error prone. The template information is not transferred between computers, only the volatile information contained in the form entry controls.

    ■ The form template must reside on each flmsg computer that will be used to create, edit, or review the data.

    ■ It uses fldigi to perform the modulation/demodulation for RF signals

  b. Flamp

    ■ flamp is a program for AMP or Amateur Multicast Protocol, allowing a file to be transmitted to multiple stations simultaneously

    ■ An FLAMP session will transmit one or more files with one or more repetitions of the transmission

    ■ Files can be of any format - text or binary

    ■ Each file is broken into blocks having a checksum. - the receiving station saves the blocks that pass checksum

    ■ Successive transmissions will fill in the missing blocks provided that the new blocks pass the checksum.

- ■ "Fills," or missing information, may be provided by retransmitting the entire file or by the sending station only sending the missing blocks.

- ■ fldigi modems are used to perform the actual transmission

- ■ flamp also supports a sort of digipeater operation for use where all stations cannot hear on another directly

- ■ One use of this application is to send form definitions to be used with flmsg

c. flarq

- ■ flarq implements the Automatic Repeat Query or ARQ specification to transfer files over radio.

- ■ This protocol is unicast, or point-to-point, and connection-based

- ■ If the receiving station does not receive the packet without errors, it will send an ARQ to request a retransmit of the packet

- ■ The software seamlessly integrates with existing email clients such as Microsoft Outlook, Mozilla Thunderbird

d. Flrig

- ■ Provides rig control via CAT or Computer Aided Transceiver

- ■ The exact functionality will depend on the commands supported by your radio

- ■ It can be used by itself or with fldigi

e. flcluster can be used to access DX spotting clusters

f. flnet is an application that can assist a net control station with running a net by keeping track of participants

- There are also two Android-only apps:

a. andflmsg is a combination of Fldigi and Flmsg for portable devices running Android

- ■ The last update to this app was in 2021

b. Tivar is an Android app that provides read-only access to a few of the fldigi modes: PSK, DOMINOEX, THOR, OLIVIA and MT63

- - The objective of this app is to provide a low power highly-portable fldigi read-only solution. There is no facility to transmit any signal.

  - This app appears to no longer be in active development - the last update was in 2019, but they are looking for someone to take it over

- fldigi is part of the ARRL's Narrow Band Emergency Message System or NBEMS

- To download the fldigi software, go to: http://www.w1hkj.com/

More Info:

- ARRL NBEMS: http://www.arrl.org/nbems

Questions:
- **The question for the week is:** Do you have any goals related to amateur radio? These could be operating from some remote site, contacting a particular country, achieving an ARRL award like the DX Century Club, or simply to run a net.

- **In my case,** my goals are space-related. I'd like to make a satellite contact on an FM satellite and another on a linear satellite, and finally, to make an FM voice contact with an astronaut on the ISS.

More Info:
- https://stationproject.blog/wp-content/uploads/2014/12/dxlab-intro-v3.pdf

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 -
2. AE0DO - John - N of Longmont -
3. KC0CT - Joe - Broomfield -
4. KN6CFI - John - Longmont -
5. KV0N - Raman - Lafayette -
6. AF0W - Bryan - Houston -
7. N0ZFV - Bob - Broomfield Echolink -
8. WA0JJC - Bob - Boulder -
9. KF0EGA - Dan - Wellington -

Announcements:

N0ZFV - Is helping K0VT with special events. Rules for WInter Field Day have been published. Going to try to put together a FD at noon, Sat Jan. 28th, concludes one minute before noon on Jan. 29th. Planning to have in Clover Building.

Chuck just updated About Us page on w0eno.org - committee info - let chairperson know if interested in committee.

Keep an eye on Website for KE0SI items for sale - next day or two

Net

K0ITP - Participate in more special event things - get club more involved, make worldwide contacts, become more familiar with the GoBox/7300, have more time to play on the radio

AE0DO - Great topic. Lofty - learn CW. Attainable - getting back to Saturday morning breakfasts and running a net

KC0CT - Get in and understand Winlink and WSJT-X/FT8, have SignaLink USB

KN6CFI - Upgrade license from Tech, one or two technical projects

KV0N - Finish software he's writing for ham radio (FT8 and one to help sell your radio gear), simplify his mobile setup (HF radio in car to do POTA whenever he wants to)

N0ZFV - Thanks for doing his topic - See AE0DO show up for breakfast! (ha!) Build a completely grid-down, Internet-down radio station. VARA HF. **Topic: HT and soundcard interface w/Mobilink and ported to cell phone. Text to cell phone to APRS and text to wife.** Has goal to do this himself. Emergency communications is his main driver.

WA0JJC - Raspberry Pi 4 came with fldigi, and has used it for PSK-31 and JS8CALL. WAS on CW, then going to retry getting it on QRP.

KF0EGA - Winter - get General upgrade. Done a lot of work on VHF with things like National Traffic System.