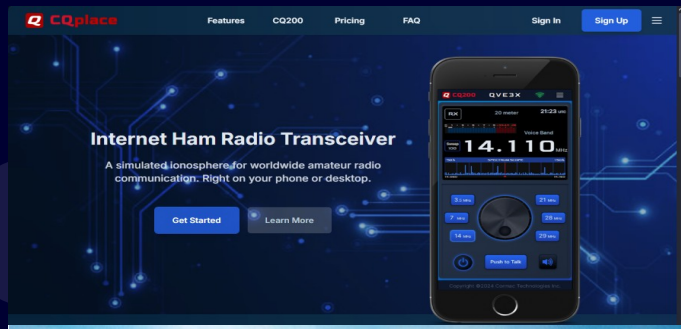
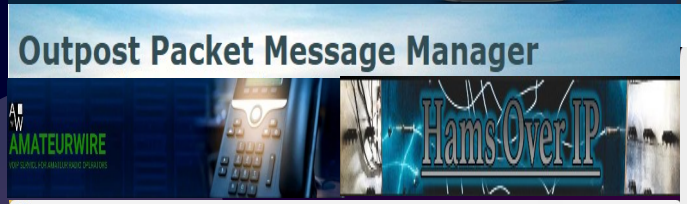
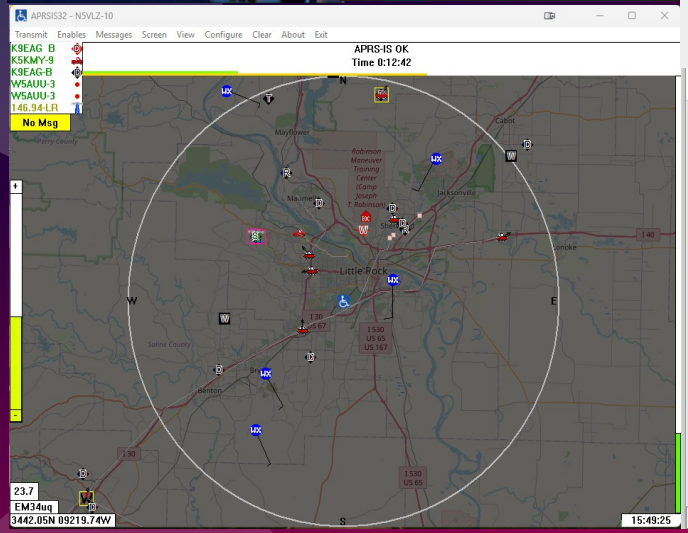
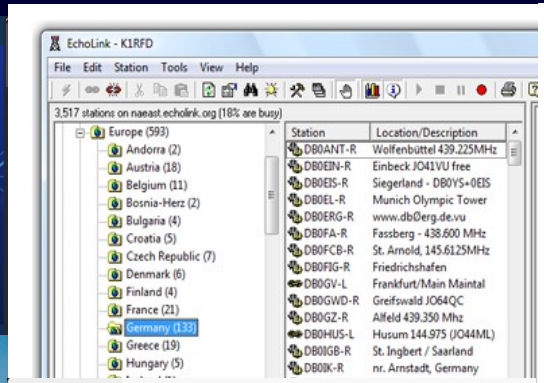
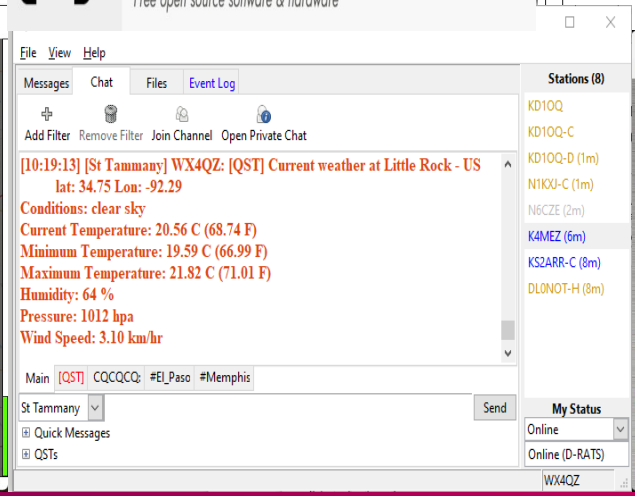
Operating Internet Radio – By Daryl Stout, N5VLZ

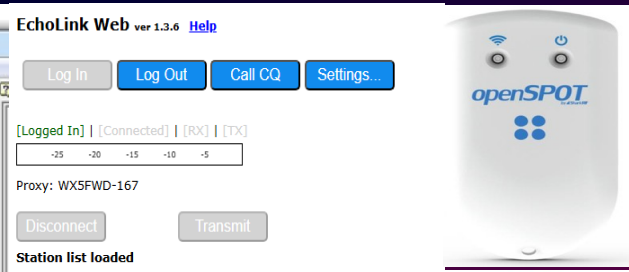


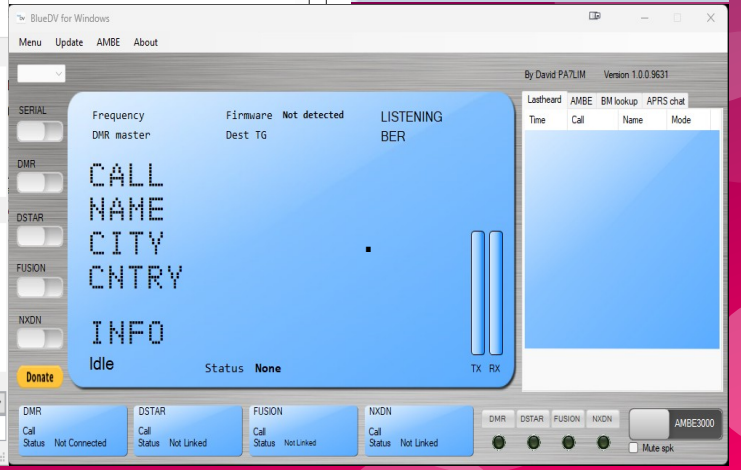












How Quickly Things Can Change With The Hobby

- One Day, you have the ideal shack, doing RF (HF, VHF, UHF, etc., with using computers for logging and other issues.
- Suddenly, your landlord, or Home Owners Association (HOA) notifies you of new Covenants, Creeds, and Restrictions (CC&R's)...or you're faced with moving to an area where RF is prohibited.
- Does that mean your days as an amateur radio operator are over??

“We Are Communicators First, And Hams Second”

- That’s how an FCC official put it years ago, when asked about traditional RF versus “internet radio”.
- While the “ham radio purists” feel that “any form of internet radio is NOT amateur radio”, if you can’t get on the air in the first place, why even bother to get licensed??
- Many long time hams, who had used RF, are moving to new living areas, whether with HOA’s or CC&R’s (with retirement or otherwise), or moving to a medical or assisted living facility due to health concerns. They are now faced with the choice of going to “internet radio”, or giving up a lifelong hobby.
- In many cases, losing contact with family and friends (including amateur radio friends), could result in a loss of the will to live.

Pro's and Con's Of Operating RF Versus Internet

- With RF, you have to buy rigs, microphones, power supplies, SWR meters, coaxial cable, antennas, masts, and towers...with computers and printers for logging, etc. The PRO is that you don't have to worry about operating if the internet or other communications goes out...as long as you have a reliable backup power supply available. The CON is that the cost of all these items can be RATHER EXPENSIVE; and if you're on a fixed income, you may NOT be able to have a simple, let alone a fancy station.
- With operating internet radio, the PRO is "portability" and "cost". All you need is a computer (desktop, laptop, tablet, or smartphone), the needed software, an internet connection (DSL, broadband, Wi-Fi...dial-up internet is NOT recommended, as it's too slow), and a power supply. You can set up and operate virtually anywhere...and not have to worry about SWR levels with the bands – never mind lugging a bunch of gear, towers, etc., back and forth. A headset mic is strongly recommended (it cuts out ambient noise). Plus, you don't have to worry about RFI issues if you have a pacemaker, defibrillator, or a combination device, due to a heart condition. The CON is if your internet or power goes out, you are offline and off the air.
- Amateur Radio Operators today operate via phone, over the internet, or both.

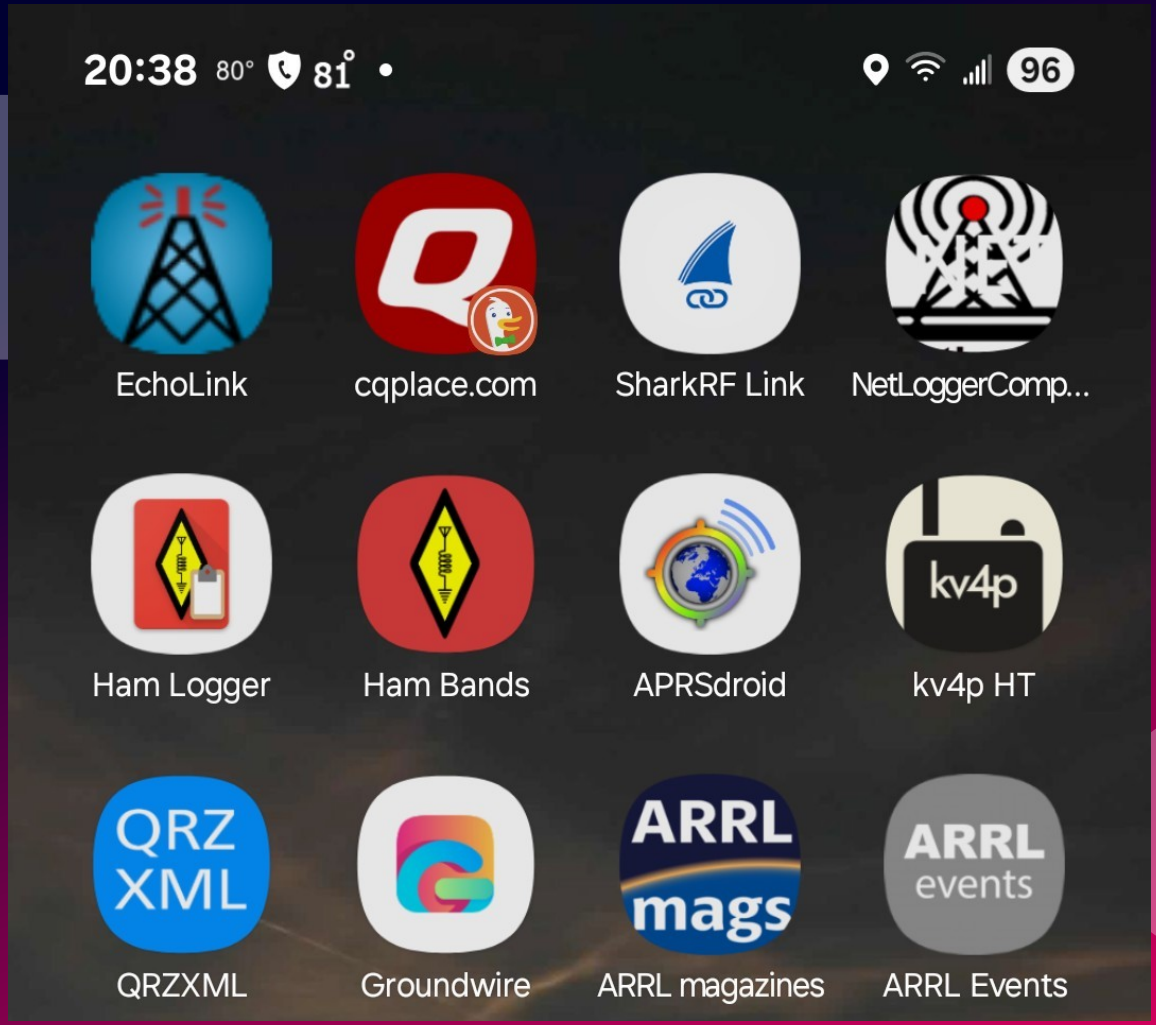
Doing Ham Radio Demos And Railroad Mobile

- If using a HotSpot, such as the SharkRF OpenSpot 4 Pro, or the SharkRF M1KE, you just need your smartphone and that device to get on the air. In years past, at a "Hammin' In The Park" or Field Day demo (most of these have gone away, due to COVID-19), you could set up RF, internet radio, or both.
- One can also demo these at a high school ham radio club...students are more worried about paying for college tuition, books, dormitory fees, etc., than having to purchase ham radio gear, once they get their license.
- Another option is operating "Amtrak Railroad Mobile", via "internet radio", from your Sleeping Car compartment. Use of a headset mic is required. From 10pm to 7am local time daily, is QUIET TIME on the train, and you basically can't operate during these times (the sleeping car compartment walls can be "paper thin"). If deemed a distraction by your fellow passengers, or by the Conductor, you risk being removed from the train at the next station stop, whether it's your final destination or not. Your ticket is confiscated, and your reservation is canceled; where you basically are now "on your own" to get transportation, and you may be banned from traveling via Amtrak again.

Before You Can Operate Internet Radio

- Before being granted access to these modes, you will need to provide an ORIGINAL COPY (PDF) of your current amateur radio license to the administrators. Do NOT send a REFERENCE COPY, or your application will be REJECTED!! Full details are on each site.
- I'll note the URL for program downloads, etc., where available. Options I will cover include Echolink and Echolink Web (the latter via a web browser), CQ200 (VoIP Only), D-Star, DMR, Fusion, and NXDN with BlueDV, the SharkRF OpenSpot 4 Pro and the M1KE, D-Rats, OutPost Packet Message Manager, Winlink 2000, APRSIS32 and APRSDroid, AmateurWire and HamsOverIP, and the KV4P HT Android Utility.
- Most of these can run on an Android phone (screenshot on next page).

Amateur Radio Apps On Android Smartphone



Echolink And Echolink Web (the latter via a browser)

- Developed by Jonathan Taylor, K1RFD, this allows either single user setups (from a desktop, laptop computer, or smartphone app) to connect to other single user setups, simplex links, repeater links, or conference servers. You will need to allow your device to use your microphone.
- Available via desktop or smartphone app, or via a web browser. The desktop app uses a direct connection (TCP and UDP Ports 5198 through 5200 must be opened in your router)...the latter two connect via a proxy server. A textbox chat window is available in any version.
- A “test server” is available to test your speaker and microphone settings.
- The latest Windows version (desktop or laptop) and the Echolink Web (browser) version allow you to “Call CQ”.
- Valid US Technician License or higher, or the equivalent, is required.
- https://www.echolink.org (Echolink)
- https://www.webapp.echolink.org (Echolink Web)

CQ 200 (VoIP Only – No RF)(formerly CQ100)

- Developed by Doug McCormack, VE3EFC, this is acessible via one's web browser on the their desktop, laptop, tablet, or smartphone.
- No download of an app, or installation is required.
- Simulates operation of voice and data (CW, PSK31, etc.) on a "Virtual Ionosphere" on portions of 80, 40, 20, 15, and 10 meters.
- "Doubling" is impossible...when one station is keyed up, all others on that frequency are "locked out" from transmitting.
- Usage is $39 per year (US Funds, as of late 2025). New Users get a 90 day free trial to use it around the clock. After the trial expires, free usage is from 0000 to 2359 UTC on Sunday.
- Any valid amateur radio license class can use the service.
- https://cqplace.com

Blue DV and the Shark RF OpenSpot Hotspots

- Blue DV was developed by David Gootendorst, PA7LIM, and working with either a ThumbDV from Northwest Digital Radio, or a DV Mega Stick 30 from Gigaparts, you can access D-Star, DMR, Fusion, and NXDN. You can also send and receive APRS messages.
- The ThumbDV from Northwest Digital Radio and the DV MegaStick are around $120. But, these are far cheaper than most D-Star HT's.
- ThumbDV: https://wuwt.myshopify.com/products/thumbdv
- DVMegaStick30: https://www.gigaparts.com/dvmega-dvstick-30.html
- The SharkRF OpenSpot 4 Pro and the M1KE are over $300, but they both can be set up via an app, or via a web browser. They do additional modes that the BlueDV program does not. Both are charged via a USB cable. https://www.sharkrf.com

D-Rats

- Originally done by Dan, KK7DS, it's now developed by Maurizio, IZ2LXI, and Marius, YO2LOJ. It allows messaging, chat, and file transfers in real time. Full details on setup are in the Mode Overview file, at http://www.wx4qz.net/elk.htm -- a list of selected D-Rats nets are within the noted file at that URL as well.
- A newer version is available in the D-Rats group on groups.io
- It offers real time chat, file transfers, Winlink 2000, and email. For messages, text only – no HTML.
- Note that I use RMS Express for Winlink 2000 (n5vlz@winlink.org) and a forwarding address for email (n5vlz@duck.com) – any other emails are sent to the station once they connect.
- As of late 2025, the only 2 "nodes" available are Alabama and Saint Tammany. Both are used for early checkins to the Tuesday evening Alabama and Arklatex D-Star Nets.

Outpost Packet Messenger

- Developed by Jim Obehofer, KN6PE, Outpost can be used either via RF, or telnet access.
- Downloadable at https://outpostpm.org
- The ipserial client is used for individual serial connections, while the iptelnet client is used for individual telnet connections. The latter are recommended when using The PCL Net, noted below.
- A file on setting up Outpost for connecting to the NS2B Packet BBS in Penfield, New York, is located at http://www.wx4qz.net/elk.htm – also on that page is information on "The PCL Net". You will need a PDF viewer to view those files.
- The PCL Net meets on Mondays at 8pm US Eastern Time; but during weeks where there are "U.S. Holidays" (Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, Christmas, and New Years Day), the net will NOT meet on that particular Monday.
- Contact Bob, NS2B, to ns2b@arrl.net for access and password.
- Bob, NS2B, is the Sysop...while Daryl, N5VLZ, is Net Control and Scribe.

Winlink 2000

- Using Winlink Express, RMS Express, or related program you can send messages via RF or over a telnet connection.
- The program is shareware, and registration is highly recommended.
- At times, when you load the program, it will announce updates of either the message forms, or the program itself. It's recommended you take care of the updates before proceeding.
- You can send messages via Winlink only, Radio Only, or peer to peer processing. Text only – no HTML. File attachment size is limited.
- Download at https://winlink.org/user

APRS and APRSDroid

- For those who operate APRS, there is a Windows app that'll work on Windows 32 and 64 bit systems, and on your Android phone. However, neither of them are in development, due to various issues. If you look on aprs.fi, the handicapped symbol (wheelchair) is my approximate physical location in southwest Little Rock.
- You can download the program at http://aprsisce.wikidot.com/downloads
- That page also tells you how to get a passkey to use the program.
- It is a quick way to send messages to fellow ham radio operators, if you don't have a rig and a TNC to do APRS.
- APRS Thursday from 0000 to 2359 UTC Thursday. At times, over 800 stations worldwide, checkin. Details are at https://aprsph.net
- My APRS ID is N5VLZ-10

AmateurWire and HamsOverIP Ham Phone Line

- HamShack Hotline shut down as of Aug. 29, 2025. In its place are 2 other similar utilities...Ham Over IP, and AmateurWire.
- You will need to provide your name, callsign, email address, an ORIGINAL copy of your amateur radio license, and your DMR ID if you have one, when you apply for access. If you submit a “Reference Copy”, your application for access will be REJECTED!!
- You use the GroundWire app ($10 initial fee) to set up AmateurWire, once you’ve received your logon credentials, and you don’t need “a hard phone”. My AmateurWire Number is 1577. My HamsOverIP number is 101797. Both are on my smartphone, so I will get back to you as soon as I can.
- AmateurWire: https://amateurwire.org/
- HamsOverIP: https://hamsoverip.com/
- Many nets allow connections - *99 to transmit, and # to unkey.

KV4P Accessory Turns Android Phone Into An HT

- Designed by Vance Vagell, KV4P -- for Android users, a new accessory turns your Android phone into a VHF HT. Version 2 is already assembled, and is easily set up. The adapter costs $70 plus tax, but it’s a neat idea.
- kv4p HT is a homebrew VHF radio that makes your phone capable of voice and text communication completely off-grid with at least a Technician class amateur radio license.
- The radio simply plugs into the USB C port on your Android smartphone and transforms it into a fully-fledged handheld radio transceiver. It's completely open source (GPL3): the Android app, ESP32 firmware, PCB designs, and 3D printer files.
- It's small enough to fit in your pocket and take anywhere, and since it has no internal battery it's the perfect radio to put in a go-bag or your car's glove compartment.
- Details are at https://www.kv4p.com/
- A link to a YouTube video with more details is at the URL above.

Other Selected Ham Radio Android Phone Apps

- Note that some of these require a fee when obtained from the Google Play Store:
- Netlogger Companion and NetScraper -- works just like Netlogger. You can't "run a net" with it, but can check into one.
- HamLogger -- allows portable logging on the phone if you're using your Android for your ham radio stuff.
- HamBands -- quick reference chart of the US Ham Radio License Privileges, similar to what ARRL has.
- QRZ XML -- if you have a QRZ XML subscription, you can look up data, just like you were on the QRZ website. This does NOT include the license class of the callsign you've searched for.
- ARRLMags -- With your ARRL Membership, view QST, QEX, etc. via your smartphone.
- ARRL Events -- Used at ARRL Conventions or the big hamfests -- they've used it at Hamvention in Xenia, Ohio…and will be using it at Huntsville, Alabama.

How To Contact The Author, Daryl, N5VLZ

- Email to n5vlz@duck.com or to vhfnetmanager@qcwa.org
- On any of the nets I run (see the hyperlink on my QRZ bio for info)
- Winlink Email to n5vlz@winlink.org
- D-Rats via a note to N5VLZ
- APRS via a message to N5VLZ-10
- HamsOverIP (101797) and AmateurWire (1577).
- Facebook: @wx1der (look for the Train Conductor's Outfit).
- Packet: N5VLZ@NS2B.#WNY.NY.USA.NOAM
- Echolink and CQ200, at various times during the week – sked requests are welcome.
- Website Feedback to http://www.wx4qz.net/fbk.htm

Final Questions And Comments

- A list of selected D-Star, D-Rats, and Echolink nets are at the hyperlink off of my bio on QRZ.
- They are in the 4 US Time Zones, in Excel or PDF format.
- Several other ham radio files are there, including setting up Netlogger, Outpost, D-Star, D-Rats, and other modes.
- There are also 2 versions of ham radio humor. One is text and graphical memes file, over 21 megabytes and 135 pages in size...a text only version is 45 pages smaller, and only 425 kilobytes in size. The latter was suggested by Jim Samanich, AB0HM, a blind ham from Courage Kenny Handi-Hams.

73 and Thanks For Viewing This Presentation!!