

THE SIGNAL

Newsletter of the Bella Vista area Radio Club

Arkansas' Largest Amateur Radio Club



- JS8 Call Highlights September Meeting
- Call For BVRC Office Nominations
- Mount Magazine Special Event
- Ham Radio During Hurricane Season
- HF Mobile Contesting – Part 1
- Discover the Excitement of FT8
- BVRC Annual CW Roundup
- DXCC DEN: Andorra

October 2024

Monthly Meetings: 1st Thursdays @ 7 p.m.
 Arkansas Law Enforcement Training Academy (ALETA)
 3424 S. Downum Road, Springdale AR
(HAM 101 Workshop for Newcomers @ 6pm preceding meeting)

Club Calls: N5BVA / W5NX

(Repeater Nets)

(Contesting & Special Events)

Repeaters: 147.255 +.600 khz offset, pl 162.2

444.100 + 5 mhz offset, pl 162.2

Website: www.bellavistaradioclub.org

WEEKLY NETS:

BVRC HAM 101 Net
Tuesdays @ 7 pm on the
WX5NAS Skywarn Link System:

Bentonville - 146.865, -offset, pl 103.5
 Springdale - 147.315, +offset, pl 97.4
 Fayetteville - 147.315, +offset, pl 110.9
 Huntsville - 443.625, +5 MHz, pl 97.4
 Green Forest - 145.310, -offset, pl

BVRC Legacy Net
Wednesdays @ 7 pm on the
BVRC Dual Linked Repeaters:

N5BVA/Bella Vista
 147.255, +offset, pl 162.2

N5BVA/Springdale
 444.100, +5 MHz, pl 162.2

BVRC 3830 Roundtable
Sunday Afternoons

4 pm during CST
 4:30 pm during CDT
 3.830 MHz



NEXT BVRC MONTHLY MEETING



Thursday, October 3, 2024 @ 7pm
Arkansas Law Enforcement Training Academy
3424 S. Downum Road
Springdale, AR

October Meeting Information

HAM 101 Workshop, 6pm preceding monthly meeting – BVRC newsletter editor Don Banta – K5DB will be on hand to share, especially for our newcomers to the club and hobby, the scope and benefits of the American Radio Relay League. This month's workshop is entitled "What the ARRL Is, What It Does, and the Importance of Becoming a Member." Whether you're a newcomer or veteran ham, if you are not an ARRL member and do not know that much about our national organization, don't miss this month's workshop.

BVRC October meeting, 7pm – For our October meeting, BVRC Treasurer Marc Whittlesey – WØKYZ will be at the podium to present a very unique program, "SDRs Made Easy". Mark will be giving a real-time presentation using SDRs to explore such topics as what SDRs are, the different types of SDRs, how to find and access web-based SDRs, things to note in using SDRs, using SDRs with browsers, and using multiple SDRs. Be sure and join us for what will be a super interesting program with Marc.

SEE YOU THEN!

BOARD MEMBERS

President

Jan Hagan – WB5JAN
ianhagan51@gmail.com

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Joe Hott – W5AEN
joe.hott@gmail.com

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N5BVA Trustee

Roger Dickey – KJ4QIS
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Board Member At Large and Public Information Officer

Tom Northfell – W5XNA
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don_c@hotmail.com

Education & Elmer 911 Committee

Chair: Vinson Carter – WV5C
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Nets Committee

Chair: Dana Widboom – KI5TGY
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Chair: Tom Northfell – W5XNA
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Social Media Committee

Chair: Rebecca Garrett – N5REB
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SEPTEMBER PROGRAM FEATURES

EXCELLENT PRESENTATION ON

JS8Call

BVRC's September meeting had to be moved up one week due to a scheduling issue and was conducted on Thursday evening, August 29, preceding the Labor Day weekend. Even with a holiday weekend on the horizon, BVRC members nonetheless demonstrated their enjoyment and excitement of amateur radio by packing the house once again.



This month's program was an outstanding presentation by BVRC member (and our ALETA facility host) Gregg Harrison – K5GKH. Gregg's program spotlighted one of the newer and growing digital modes – JS8Call. After Gregg had been introduced to the digital mode of FT8, he discovered this derivative of FT8 which enables an operator to actually converse digitally with another amateur, similar to conducting a "rag chew" QSO on the phone and CW modes. It also features many other operational options as Gregg pointed out. At the time Gregg discovered JS8Call, there were relatively no other members involved with the mode. So, everything that Gregg has learned about this fascinating mode has been either self-taught, or from other Elmers who are also passionate about the mode.

Gregg shared with attending members, the basic fundamentals of JS8Call:

- It enables weak-signal communications
- It uses the FT8 platform as its base
- It possesses the weak-signal characteristics of FT8
- It is designed for passing messages between stations in contrast to FT8, which only involves contacts
- It allows for real-time QSOs

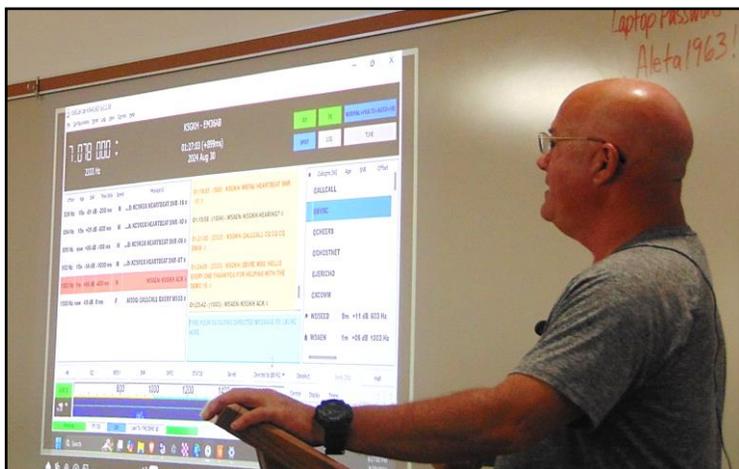
He then explained one of the main operating features of JS8Call – the “heartbeat”. “Heartbeat” is a term for a test transmission that is sent asking other stations asking them to reply with a signal report of how they’re copying your heartbeat signal. From that point, you can obtain a general idea of how your signal is being received to different geographical locations and also, if you wish, select a station that has replied to the heartbeat to engage a QSO with.

Gregg said JS8Call can come in very handy for operating off the grid, at Field Day, EmComm exercises, and when necessary, natural disasters.

Prior to the meeting, Gregg put up an End Fed Half Wave wire antenna which he ran to his nifty Yaesu FT-710 transceiver which was interconnected to his laptop. This enabled everyone attending to see a live, on-air, real-time demonstration of JS8Call and seeing Gregg communicate with a few stations (one of whom was BVRC Vice-President Joe Hott-W5AEN).....with only 5 watts output power. As with FT8, JS8Call shined in communicating with other stations with very low power.



Gregg – K5GKH



Gregg demonstrates JS8Call live

He also showed a very interesting tool, in obtaining a complete weather report message for wherever you are located, based on your grid square.

Gregg said he has made many interesting QSOs on JS8Call, some lasting for up to 2 hours. He said he has met many interesting individuals with this fascinating mode.

GREGG, THANKS FOR A GREAT PROGRAM! WE APPRECIATE YOU!

Preceding the September meeting was our monthly newcomer gathering, the Ham 101 Workshop. This month BVRC Technical Officer Tem Moore – N5KWL conducted an excellent session by introducing our newcomers to the topic of digital repeaters. Most newcomer Technicians to amateur radio acquire the means by which they can operate through our area repeaters, and especially the BVRC twin repeaters and the WX5NAS Northwest Arkansas Skywarn Link System, on which our weekly Tuesday and Wednesday night nets operate. Our workshop classroom was again almost full to experience Tem's presentation.

Tem related to the group there are three different types of VHF/UHF digital operation: D-Star, DMR, and C4FM.

Digital repeaters all use the internet to one extent or another. He said he has always leaned toward D-Star as it utilizes more of the radio portion and the audio signal on the platform is the best sounding. He did state that there's nothing wrong with using the other digital avenues, as many NW Arkansas hams operate on the other digital modes as well.

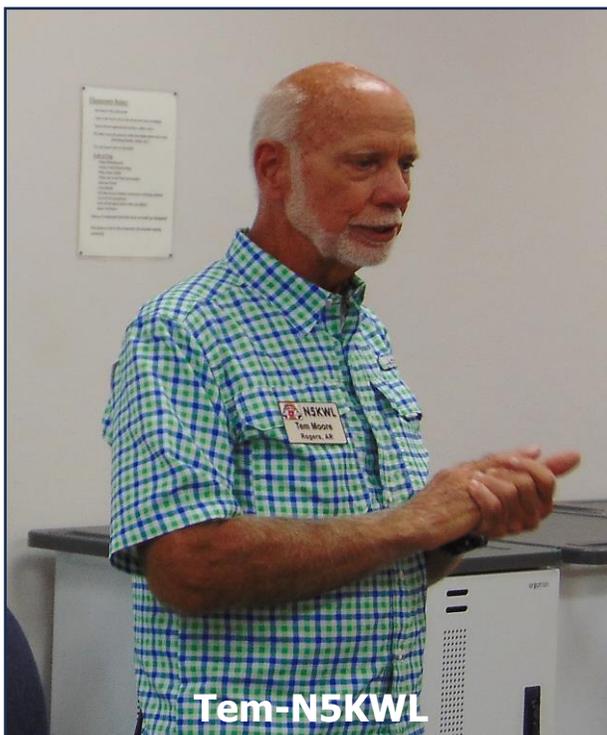
Tem gave a great on-air demonstration with a handi-talkie and mobile/base unit, as he conducted a contact with a ham in Nashville, AR through the Dodd Mountain D-Star repeater. Several attendees were amazed at the crystal clear and ultra-quiet signal they heard through digital means. Tem owns and operates several linked analog repeaters in our area, as well as three digital repeaters.

He advised the Workshop that if you decide to invest in a hand-held or mobile/base radio that possesses the digital mode it would be more costly, but you will be able to talk all over the world, sometimes with just a hand-held radio running 1 watt (depending on your location in regard to the digital repeater). Most area hams who

operate digital regard the extra expense as being well worth it.

BVRC is pleased and very grateful to have Tem as our Technical Officer. His hard work in maintaining our twin repeaters and keeping them on the air and operating doesn't go unnoticed.

Tem, thanks for another great Workshop, and we hope you'll be back soon with another great program!





Call For Nominations

Bella Vista area Radio Club is comprised of members enjoying all the various aspects of amateur radio. In addition to the many interests in enjoyed by members, our club prides itself on helping each other – and especially newcomers – with problems, quandaries, and solutions in making their ham radio experience the best it can be. The continued success of BVRC starts with our leaders.

From BVRC President Jan Hagan – WB5JAN

It is that time of year to prepare for BVRC Board Elections. The Board election will be held during the month of December as an online voting process and the results will be announced at the annual Christmas and Awards Banquet on December 5, 2024. Nominations for Board positions will be taken up through the BVRC club meeting on November 7, 2024.

BVRC Board positions include:

- President
- Vice President
- Secretary
- Treasurer
- Public Information Officer
- Technical Officer
- Repeater Trustee
- Member at Large*

* The Member at Large Board position is filled by the immediate past president of BVRC and is not an elected position.

All Board position descriptions are available on the BVRC website, under the "Our Mission" section that contains the BVRC Bylaws.

At this time, all current Board members have accepted a nomination to continue in their position for the 2025 year.

However, if you would like to run for a Board position or nominate someone who is interested in serving in an officer position and in favor of being nominated, please forward your nomination to BVRC's Election Committee Chair, Dave Mersky – K5TRT:

davemersky@gmail.com

Dave will compile the nominations up through the November 7, 2024 club meeting. Dave will then oversee the online election process for any Board position with more than one nomination.

If there are no other nominations for a Board position other than for the Board member currently serving, those unopposed Board members will be part of a consolidated confirmation vote to continue current Board unopposed members in their positions for another year. This consolidated confirmation vote will be taken at the December banquet.

Thank you for your membership in the Bella Vista Radio Club.



From the Desk of the President

Well, fall has arrived and with it comes, hopefully, cooler weather and several impacts on our amateur radio hobby and our Bella Vista Radio Club activities.

One of the first things to note regarding our local VHF/UHF communications will be the increase in signal strength many will experience due to the falling leaves. Full canopies of trees with full leaf growth will give way to bare tree branches allowing our VHF/UHF signals to travel unimpeded. New amateur Technicians licensed during the summer will likely notice stronger signals into local repeaters this fall.

Another impact of fall will be on our BVRC calendar. As we near the end of the year, our club will begin preparations for our Annual Bella Vista Radio Club Christmas and Awards Banquet held every December. Our BVRC banquet celebrates our past year's activities, awards several of our members for their contributions and achievements, allows us to enjoy a wonderful Christmas meal with the fellowship of our fellow members and their guests and finally, to announce and install our club Board of Directors for the following year.

Another fall activity involves developing our BVRC club meeting calendar of Feature Presentations and Ham 101 workshops for the next year. In addition, club events and activities are developed for our membership to enjoy in the coming year.

Yes, fall is a busy and exciting time for our club as we develop the experiences for our membership that makes our club membership fulfilling and a joy to experience.

Happy Fall everyone!

73 – Jan, WB5JAN





Welcome New BVRC Members!

**Kenneth Wright - AF5RO
Greenland**

**Joel Hurd - KFØROZ
Galesburg, KS**

**Eric Shrift - KJ5HLL
Siloam Springs**

AND SPEAKING OF MEMBERS...

In addition to BVRC's membership consisting of hams from multiple counties in NW Arkansas, NE Oklahoma, and SW Missouri, we have several members that have joined from locales which live a considerable distance from the NW Arkansas area.

One of those is Luke Williams - AE5AU from Alexander, AR. Alexander is located between Little Rock and Benton on Interstate 30, so Luke (of course) can't make all our meetings. But, he did grace us with his presence at the recent September meeting, with an impromptu demonstration of working the ham satellites!

THANKS LUKE!!!

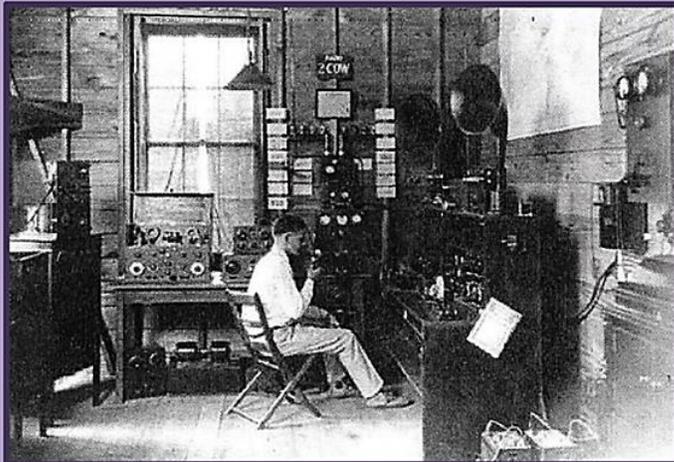
(Photo courtesy Mike-KJ5HPE)



Very Vintage Ham Radio

How about a great (and in very good condition) photo of the way it was way, way, way "back in the day"?

The classy shack of amateur station 2COW, circa 1927.



Mount Magazine Special Event Station Is A Success!

It was a super fun time with BVRC's Special Event Station from atop the highest point in Arkansas, Mount Magazine. The event took place in Cameron Bluff Campground inside Mt. Magazine State Park with three stations operating, much like Field Day – Phone (SSB), FT8 (Digital), and CW.

The exciting part about the event was the newcomers that attended. Mike Thompson – KJ5ERQ was one of the CW operators, Mike is presently a Technician but was a CW operator in the military and can still copy that code! Mike did an excellent job of operating. Joining Mike was Jeanne Harlan – W5GIJ who passed her General exam with the last BVRC General license class. Jeanne has operated in Rookie Roundup and BVRC Field Day, and now has added Mount Magazine to her operating history. Then, we had married couple Colin and Maghan Shaw, KI5BTK and KJ5HFX. At the BVRC July exam session, Colin upgraded to Amateur Extra while Maghan entered the ham radio ranks attaining her Technician license. It was great watching Colin and Maghan learning the “operating ropes” with the pileups. All the newcomers had a wonderful time with both operating, logging, and participating in a competitive operating atmosphere. It was a joy to have them aboard!

The remainder of the assemblage consisted of veteran operators and members.

The event tallied 202 QSOs on Phone, 206 on Digital, and 60 on CW. The results would have been much better had it not been for the sub-par band conditions. However, the band conditions for the event were decidedly better than was the case with our train mobile event in the spring. Even with the conditions being as they were, the event garnered 45 of the 50 states worked, the province of Ontario in Canada, and 15 DX countries! The club is working on special event stations for 2025, so keep watching The Signal for information and join us for our next fun and exciting excursion!

It was also great to work some of the folks back home in NW Arkansas as several home BVRC members made it into the log!

Here are some of the moments from the W5NX Special Event Station (photos courtesy WB5JAN and K5DB):



Don-K5DB at the CW station



Joe-WA5JD makes a SSB contact with Jeanne-W5GIJ logging



Adnan-KD0KCY with Dana-W5DGH and Robert-K5NZV at the Digital station



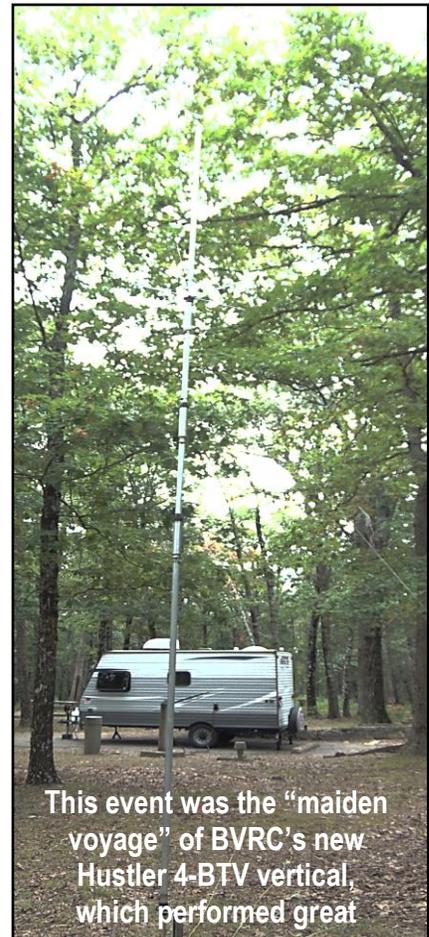
Dana-W5DGH racks-up another SSB QSO with Maghan-KJ5HFX logging



Colin-KI5BTK takes his turn logging with Dana-W5DGH operating



In addition to the club's two OCFD Windom antennas, two verticals were used, one of which was K5NZV's nifty homemade coil vertical show above



This event was the "maiden voyage" of BVRC's new Hustler 4-BTV vertical, which performed great



Mike-KJ5ERQ pauses in between CW contacts for a photo



Father and son Stephen-N5ZE and Brad-KJ5CWR enjoyed the operating excitement of the Mount Magazine SES. They were also invaluable with hot-spotting us on the internet as (amazingly) there was hardly any cell service on top of the highest mountain in Arkansas! Thanks guys!



At 5:00 pm Saturday evening, the crew was treated to a wonderful fare of hot dogs and bratwursts courtesy of our grill Meister Jan-WB5JAN (2nd from right), along with some super side dishes! We were also graced with the presence of Joe Dunn's XYL, Shirleen-KF5DUG (5th from left) ! (Photo by Adnan-KDØKCY)

BVRC VE REPORT

From Don Cooper - KC7DC, BVRC VE Coordinator
September, 2024



Congratulations!

**Joel Hurd – KFØROZ – Galesburg, KS
New Technician!**

**Gabe Coones – K5LZR – Farmington
New General!**

**Jacob Smith – KI5TDZ – Rudy, AR –
New General!**

Next month's test sessions:

- **October 12, 10 am – Shiloh Museum, 118 W. Johnson Ave, Springdale**
- **October 12, 2 pm – Bella Vista Public Library, 11 Dickens Place, Bella Vista**



For any of our members with General class or above license privileges, if you are interested in Emergency or Public Service communications you might be interested in this aspect of the amateur radio service.

The Atlantic hurricane season runs from June 1 to November 30 each year when tropical or subtropical cyclones are most likely to form in the North Atlantic Ocean.

This is from Sierra Harrop-W5DX, ARRL Letter – July 25, 2024:

ARRL National Association for Amateur Radio® encourages amateur stations to prepare for what the National Hurricane Center (NHC) has predicted will be a busy hurricane season. In addition to readying equipment to function during and after a storm's impact, local Amateur Radio Emergency Service® (ARES®) nets are encouraged to participate in hurricane reporting and relief nets.

Stations do not need to be in a coastal zone to participate. Propagation often shifts well inland, meaning ham radio operators throughout the continent can serve in times of need. "Monitoring and relaying traffic is a way to help with the nets and get real time information to the NHC, where it can be shared with the National Weather Service, FEMA, and other emergency response organizations to aid in a more rapid response and recovery," said ARRL Director of Emergency Management Josh Johnston, KE5MHV. Amateur radio plays a critical role in the warning and

recovery process of hurricanes. From providing surface observations which give forecasters at the National Hurricane Center ground truth, to providing communications when infrastructure is damaged, ham radio is as vital as ever.

The Nets

There is a robust ecosystem of communications networks that all work in tandem to provide coverage anytime a named storm is within a few hundred miles of land. These separate, but partner, volunteer organizations serve much of the Western Hemisphere on many different bands and modes. Much of the focus is to get information to and from the National Hurricane Center in Miami, Florida. Hurricane specialists rely on having an amateur radio station at the center, WX4NHC Julio Ripoll, WD4R, is the Amateur Radio Assistant Coordinator for the station. "These surface reports can be weather data or eyewitness reports (or heard on local VHF/UHF) and are very valuable to the hurricane specialists at NHC, as they fill in gaps of data that they may not have from other means, such as government weather stations, satellites, Hurricane Hunter aircraft, etc.," explained Ripoll. The NHC would like more hams to provide information if they are in an affected area. There are many ways to do it. The simplest is over high frequency (HF) amateur radio bands. There, you'll find a dedicated team running the Hurricane Watch Net. The net, which uses 14.325 MHz and 7.268 MHz, depending on propagation, is usually active any time a hurricane is within 300 statute miles of a populated landmass, or at the request of NHC.

In a recent Ham 101 Workshop, I gave a program on HF Mobile Contesting. Since then, I have received quite a few requests to place that presentation in *The Signal*. So for those of you who sent the request or voiced it to me, and for those who might not have been able to attend that workshop and might like to have the information, here's the first installment of our 2-part series on mobile contesting, in which we'll cover the equipment aspect. Next month we will cover the logistics side of mobile contesting.....

HF MOBILE CONTESTING PART 1



By Don- K5DB

Running mobile during a contest is more than just driving down the highway, whistling the Beach Boys' "I GET AROUND", and being a "tourist" enjoying watching the countryside go by.

If you're going to run contest mobile, be competitive, and do it right, you have to be sober about it. Serious contest mobiling is a grinding, stressful at times, tight schedule scenario that involves structuring, coordination, cool-headedness, and safe driving.....but it's REALLY fun.

The big word in contest (or any type of) mobile operation is **BACKUP**: Have a backup plan for any "hiccup" that happens out there on the road:

- Radio goes out
- Laptop goes out
- Coax or cable connector problems
- Battery runs down
- Other potential problems that you learn about over time

If you don't have backup, you may end-up driving back home with nothing to show for your mobile trip except a lot of gas and motel money spent for nothing.

This has never happened to me as I do my best in having a backup plan for any issue that occurs. My goal is to operate, not fix stuff out on the road during a contest. But if a problem does happen to occur, I have spare cables, connectors, batteries, etc. to enable me to keep operating. You know what ol' Ben Franklin said, "An ounce of prevention is worth a pound of cure." That's the equipment component.

The other big factor in HF mobile contesting is obviously your vehicle – good battery, good tires, belts, proper fluid levels, a fresh oil change, tune-up, etc.

Here's a basic mobile setup diagram in Figure 1:

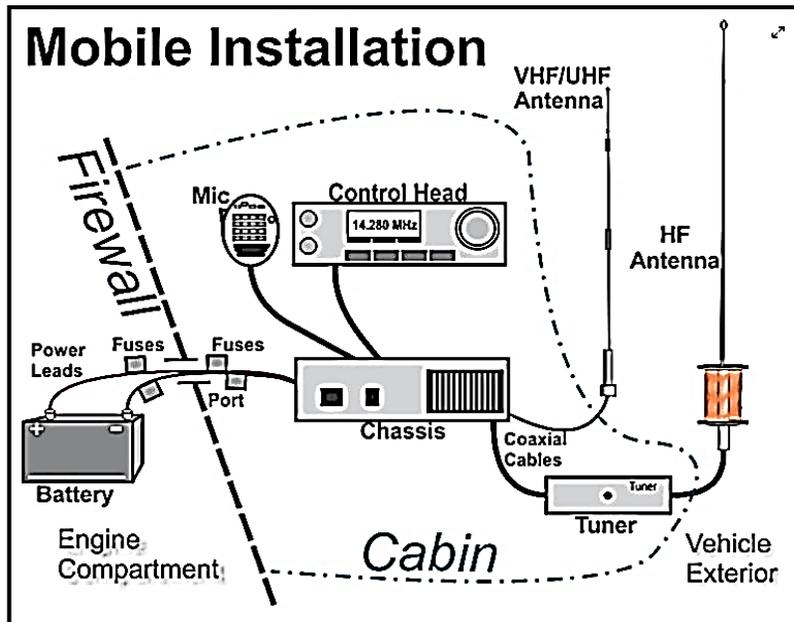


Figure 1

Generally, an HF mobile station will consist of:

- An HF radio (of course), with in-line fuses installed in the power cable
- The radio is powered by a battery rather than a power supply as in a home station
- An external tuner if needed (optional)
- A mobile HF antenna (mobile VHF/UHF antenna and radio optional)

Of course, just like a home station there are many different ways you can set-up a mobile station. What I'm going to discuss is what has worked for me, but it's not the only way.

Let's begin by looking at equipment first, and start with the paramount item needed (besides the radio, of course) for mobile operation.....



The first thing I want to say about powering the radio is – I have never, and will never, power my radio from the vehicle battery. I do not run anything off the vehicle battery except the vehicle. I use separate, independent batteries for the rig and laptop.

With the newer vehicles we now have, I do not want to chance some type of power surge or stray RF getting into the power cable that is junctioned with the vehicle battery cable and possibly getting into the vehicle's wiring system, thus interfering with the vehicle's onboard computer, or possibly even shutting it down.

- **LEAD ACID BATTERIES** – These are your everyday vehicle batteries you can purchase at Wal-Mart or any auto parts houses. It is a type of rechargeable battery that uses lead and sulfuric acid to generate electricity. It consists of a negative electrode (anode) made of spongy or porous lead, and a positive electrode (cathode) made of lead oxide. The electrodes are immersed in a sulfuric acid solution, which facilitates a controlled chemical reaction that produces electricity.

In the last 10-15 years or so, industry has developed the Absorbent Glass Mat (AGM) battery. This type of battery uses fiberglass mats that are sandwiched in between the lead plates, and saturated with battery acid to approximately 95% of its capacity.

But here's the catch – It is still a battery using lead and acid. The “long and the short” of lead acid batteries is this: These type batteries are basically designed to start the vehicle and run the lights, blower, radio, windshield wipers, etc. After reaching 50% discharge, they're done. They will no longer continue to supply 13.8 volts to the radio. Their output voltage drops very quickly at this point. If you have an older radio that does not have an automatic power cutoff circuit due to insufficient voltage, you could burn it up.

I maintain having an independent power source for the radio relieves the wear and tear on the vehicle's alternator. It also eliminates the need to idle the engine while stopped and operating on the side of the road (unless extreme hot or cold weather conditions are present), as when using the vehicle battery, hence less fuel usage.

This was my previous mobile power setup, using lead acid batteries (Figure 2):



Figure 2

I had a large deep cycle (marine) battery (1) to run the radio, a smaller deep cycle battery to run the laptop for logging (2), and a regular vehicle battery (3) for a spare in powering the radio or possibly needing to jump start the vehicle, which happened to me once! (Note my jumper cable bag.....backup!)

I used this setup for many years and it served me well. However, if I participated in a Saturday/Sunday contest, when I arrived at the motel I had chosen to spend Saturday night, I would have to lug the two main batteries into the motel room along with my Schumbacher battery charger to recharge them for Sunday's operating while I slept.

Needless to say, I had to set my alarm for a couple of times in the middle of the night to check on the charging level and switch the charger to the second battery when the first battery was charged. This was a tedious procedure because lead acid batteries are best charged when you “trickle” charge them using the lowest charging rate on the charger, and it's a slow process.

Then 3 years ago, I completely scrapped using lead acid batteries and switched to a whole new system using a whole new type of battery.

I now use Lithium Iron Phosphate batteries nicknamed “LiFePO4” batteries.

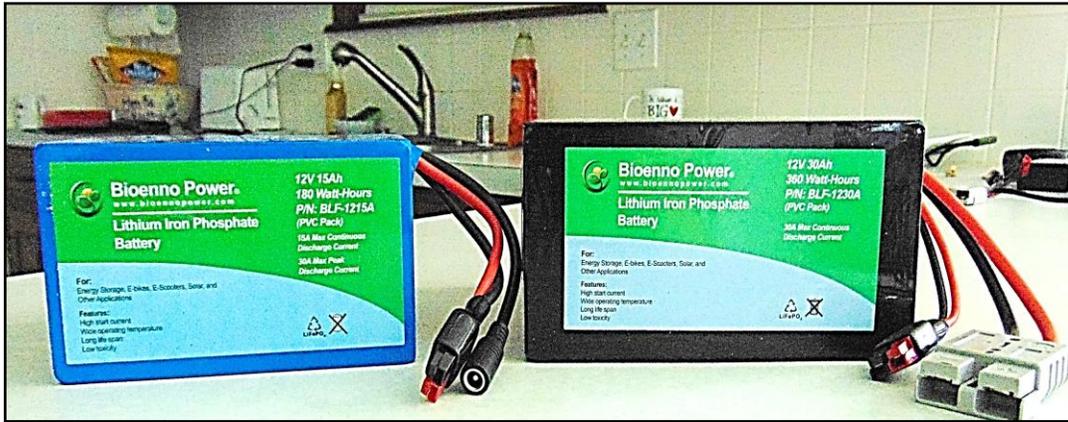


Figure 3

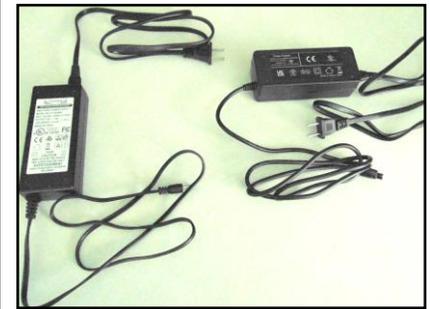


Figure 4

The nickname comes from the Periodic Table of the Elements designators: “Li” for lithium, “Fe” for iron, and “PO4” for phosphate. The advantages of using LIFEP04 batteries far outweigh the lead acid type:

- As you can see from Figure 3, the two LIFEP04 batteries I now use are compact enough that I could place both of them on my kitchen countertop for the photo. The blue 15 amp hour battery on the left replaces the deep cycle I used for powering my laptop and the black 30 amp hour on the right replaces the large deep cycle I used for powering the radio.
- The large deep cycle battery alone I previously used weighed about 40 pounds. The combined weight of the two LIFEP04 batteries is about 10 pounds, and I place them both in a plastic food storage container for easy carrying.
- Generally, lead acid batteries begin to deteriorate in 3 years, give or take. LIFEP0s will last for around 5-10 years, and with some of the high quality batteries, those will last 15 years or more. My LIFEP04s are just about 3 years old and still going strong.
- The best way to fully charge a lead acid battery is to “trickle” charge it (usually the 2 amp setting on a battery charger). Lead acids take 8-12 hours. LIFEP04s will typically fully recharge in 1-2 hours. However – do not charge them with a standard vehicle battery charger! You will have to purchase a special LIFEP04 charger (Figure 4), but it’s worth it.

My mobile setup today.....



Figure 5

I use the chargers only when my operating period has been during cloudy days. If sunny skies prevail, I keep my “big” LIFEP04 battery continually charging with a 125 watt solar panel and charge controller. (Figures 5 and 6.)



Figure 6



Figure 7

I still keep a regular lead acid vehicle battery in my mobile power arsenal (the middle case with the strap on it in Figure 5) in case I need to jump start my vehicle or some other scenario presents itself, where a lead acid battery is needed.

GROUNDING

When it comes to grounding, did you ever consider that you already have a ground of sorts? Yes, you do. – Your radio is connected to your coaxial cable. Your coax is connected to your antenna mount. Your antenna mount is secured somewhere to your vehicle chassis or body. So you are grounded.

However, you can also obtain a better ground by running a ground wire from the rig to the firewall or any part of the vehicle frame (when attaching your ground wire to the vehicle, be sure to find a bolt that is NOT painted.) By running a direct ground wire from the radio to the vehicle body, you eliminate alternator and vehicle computer module hash which works to a point, but doing that may still not remove all the noise.

If that's the case, use a grounding strap and ground the exhaust pipe to the vehicle frame (Figure 7). Why do this? – Because the exhaust system is bolted directly to the engine block and it's supported by insulated mounts. So, it can be "excited" just like an antenna and radiate pulse noise. By doing this step, it should eliminate the noise coming from the vehicle's processor and/or ignition system. DX Engineering has a kit available specifically for this purpose.



Figure 8

CABLING

Other than coax, your main cabling is going to be your power cable with which you route power from the battery to your main mobile station components (radio, laptop, mobile antenna tuner, etc).

To accomplish this, I use at least 10- or 8-gauge double-run red and black wire. For DC connections I use Anderson PowerPole connectors (Figure 9). You can't beat 'em. (See my PowerPole article in last month's issue of The Signal and you will see why they're the best.)



Figure 9

RADIO AND GEAR PLACEMENT

With all the diverse makes and models of motor vehicles, so are there myriads of different ways to set-up your mobile station. What I have done with my GMC crew cab pickup is just one of them.

I do not operate mobile-in-motion. I stop to operate. Therefore, I installed my station basing the installation to center around using the back seat of the cab. By doing this, other than drilling *one hole* in the floor of the cab directly under the seat for the routing of coax, power cable, and ground wire, I did not have to do any other modifications to the pickup.

I constructed a “mobile operating table” out of PVC and plexiglass (Figure 9). All I have to do is slide the top loop of the bracket over the passenger seat head rest (Figure 10), and I’m ready to go...no bolts, no hooks, etc.

I then simply took a 2x12 stud and cut it into a 12” square piece, painted it to roughly match the main inside color of my cab, and glued RV drawer no-slip mats to the top and bottom. The radio sets on top of this “pedestal” and I use mini bungee straps for extra stability to keep the radio from moving. I simply set the radio and its mounting board on top of the pickup console between the seats. The no-slip mats on the bottom of the pedestal grip the top vinyl cushion of the console and it goes nowhere. (Again, no drilling or extraneous mounting necessary.) My completed mobile station is shown in Figure 11.



Figure 9



Figure 10

THE ANTENNA

We now come to the most vital component of ANY ham station – mobile, portable, or fixed – the antenna.

There are many, many, many diverse types of mobile antennas for any mobile application you can think of. You can see many of them on the DX Engineering, Ham Radio Outlet, and Gigaparts websites as well as other websites.

I’m a “KISS” (Keep-It-Simple-Stupid) kind of guy, so I use an antenna that is totally MANUAL to change bands with. I do not use an auto band switching device or mobile antenna. That way,



Figure 11



Figure 12

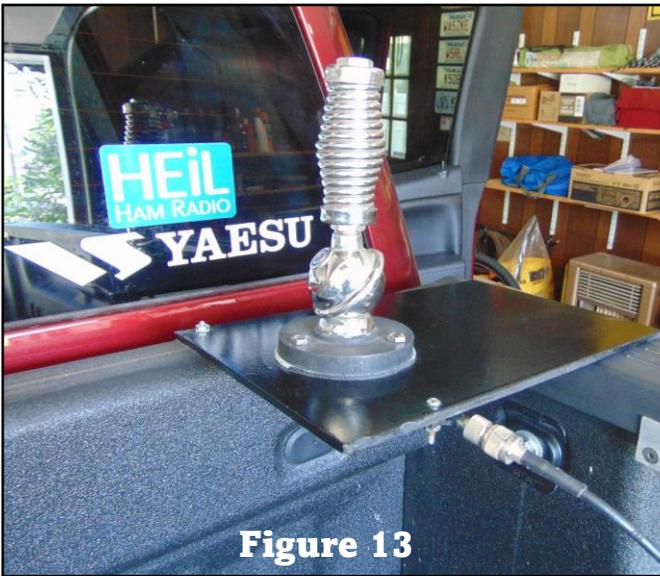


Figure 13

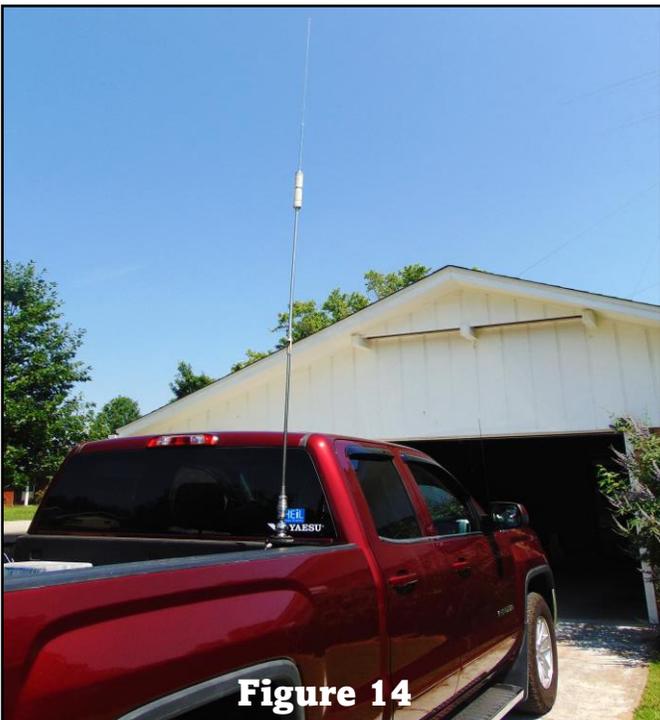


Figure 14

there is less chance of something going wrong (tuner all of a sudden will not tune, motor on antenna coil goes out).

When I operate mobile in a contest, my objective is to MAKE CONTACTS...not having to fix stuff. (But if you want to go with automatic equipment, that will be up to you, of course.)

For my antenna mount, Dr. Bill Durham – KG5ZCI came to my rescue with a method that was ingenious. He used a piece of flat steel stock with another piece of channel steel. He welded the two pieces together (Figure 12), then drilled a hole in an exact place on the channel stock, then tapped it for the mounting bolt. He then drilled 4 holes for my antenna spring mount to fit exactly and the mount is secured by its stock hardware. I then made a pigtail/SO239 jumper with which to attach my coax to.

All I have to do is go to the passenger side forward post hole in my truck bed, remove the stock tiedown loop and bolt, slip the channel portion of the bracket down the hole, then secure it with a SINGLE BOLT, and now my antenna is ready to go (Figure 13). No cutting, no drilling. (THANKS AGAIN, BILL!!!!!!!!!!!!!!!!!!!!!!)

So for the antenna itself (and again, this is just what works *for me*), I use the same setup I used 50 years ago as Junior and Senior in high school and later in college – the Hustler interchangeable resonator mobile antenna, shown in Figure 14.

The components needed are few and simple:

- The spring mount
- The mast, and
- The resonator(s)

The spring mount is shown in Figure 13. There are different masts Hustler makes to fit your application. I use the 54" break-over mast. I have a resonator for each band, 80-15 meters (I do not use 10 meters mobile as the other bands usually have the most activity, but a 10-meter resonator is also available.)

In my opinion, and especially if you have a pickup (you may have to configure a different setup with a car), the antenna is mounted more or less in the CENTER of the vehicle – not on the front or rear. By locating the antenna in the center, you

have the entire bumper-to-bumper area of your pickup under the antenna, and a larger radial field not only for the antenna to operate with, but also making it more omni-directional.

The mast screws into the spring mount, and the resonator for each band screws onto the top of the mast. The breakover mast model is in two pieces attached to each other by a tongue-and-groove section and pivot pin in the middle. This middle joint is secured by a knurled sleeve.

To change bands (Figure 15), you simply slip the sleeve off the joint and lower the sleeve down to the bottom of the mast, tilt the top section of the mast over, unscrew the resonator for the band you're changing from, screw on the resonator for the band you're changing to, lift the top section back in line with the bottom section and slide the sleeve back over the joint. You have changed bands.

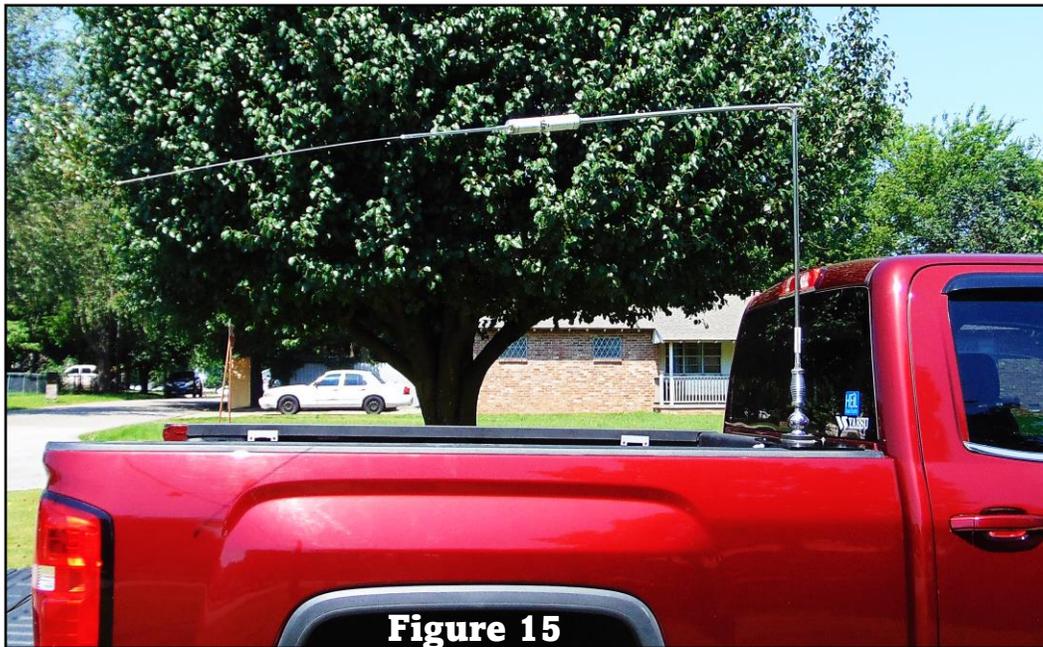


Figure 15

“Well, I don’t know about all this razzle-dazzle in changing bands. Seems like a lot of work. Maybe I’ll go the auto coil adjusting antenna route.”

Suit yourself, but I can change bands in 60 seconds or less. Besides, it’s a small bit physical exercise which never hurts anyone. Again, I’m just telling you what works for me.

And the results? – So far, I have worked stations on every continent except Australia: Europe, Africa, the Caribbean, South America, Asia, and of course, North America. (Australia’s next!)

By the way, I am not trying to be a sales rep for Hustler. Shop around for the antenna that will work for you. But remember when I said I used this same antenna system during my teenage/young adult years 50 years ago? Well, guess what – this mobile antenna system is STILL made and sold! That fact right there should tell you something about it. If you don’t mind to manually change band resonators, it is a GREAT antenna. ‘Nuff said on that.

I hope this information on the equipment aspect of mobile contesting has been helpful to you. In next month’s issue, we’ll conclude our topic with discussion on the logistical side – logging software, route planning, time table, etc.

Discover the Excitement of

FT8

(Reprinted with permission from ARRL On The Air magazine, July 2022, ©ARRL)

In some past issues of The Signal, we have included articles addressing advanced operational aspects of FT8. However, we have MANY new members constantly coming into BVRC whose knowledge of this digital mode may be limited and possibly even non-existent. So newcomers, this article is for you!

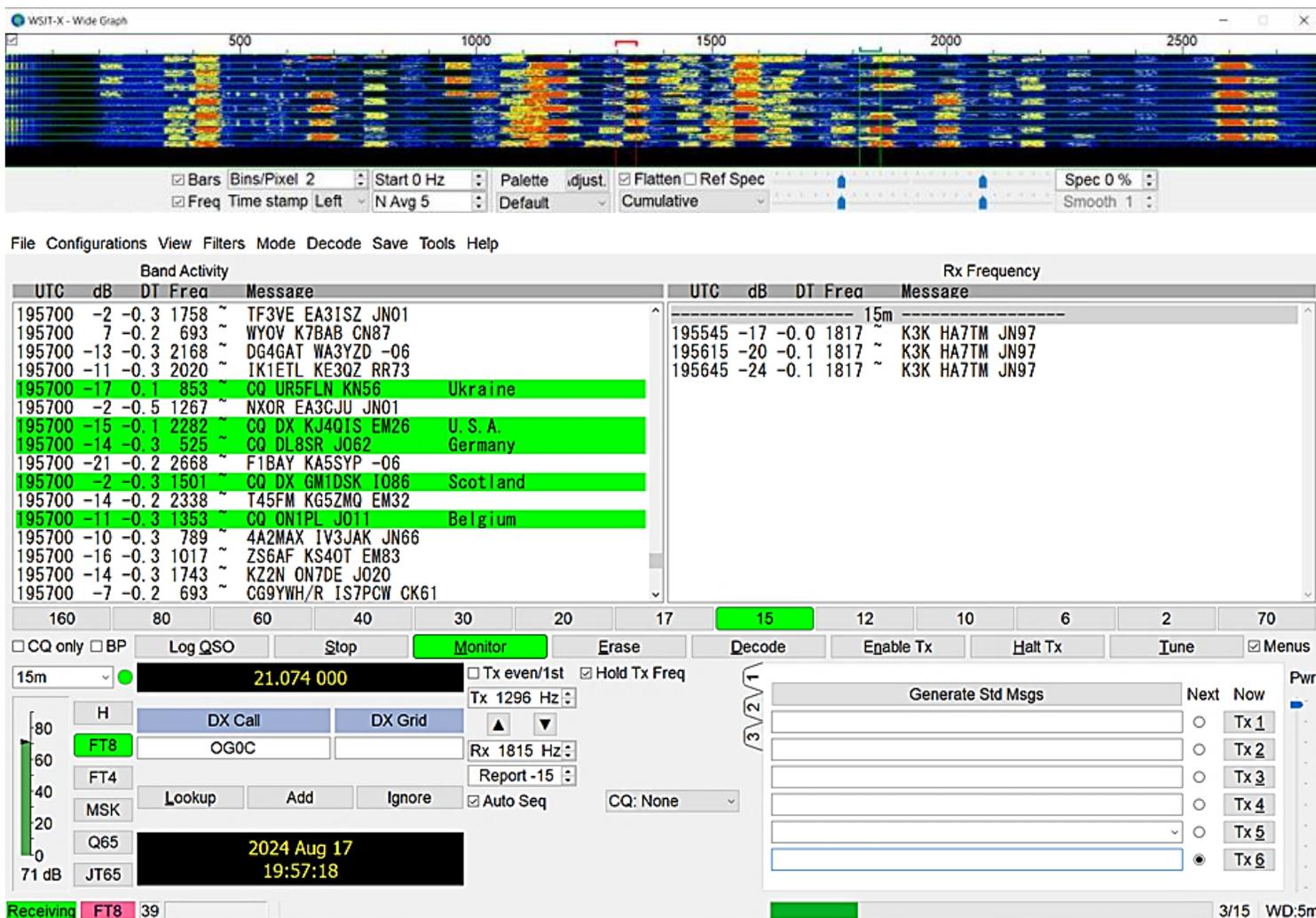


Figure 1: This is WSJT-X software operating in the FT8 mode. Stations highlighted in green are looking for contacts by calling CQ. The fuzzy yellow and red rectangles appear in the “waterfall” display on top, and represent individual FT8 signals. The frequency, date, and time, appear below the “Band Activity” window on the left hand side of the screen.

One of the most popular operating modes in amateur radio today doesn't involve talking into a microphone or tapping on a Morse code key. Instead, it is one of ham radio's many *digital modes* (a form of communication between computer-equipped stations), and it offers extraordinary performance. When used with outdoor antennas, it's possible to make contacts throughout the world. Even hams with indoor antennas, such as wire antennas in attics, can use this mode to make contacts spanning oceans and continents.

The mode is known as FT8, and it is provided by a free software application called *WSJT-X* that's available for Windows, Mac OS, and Linux. WSJT-X allows amateurs to operate not only FT8, but other digital modes as well. You can see FT8 in action in Figure 1.

No Conversations, Just Contacts

FT8 communicates only enough information for the exchange to qualify as a contact according to the rules of contests and awards. The exchange consists of call signs, signal reports, and station locations in the form of *grid squares*. For more about Maidenhead grid square, see

<https://www.arrl.org/grid-squares>
and

https://www.levinecentral.com/ham/grid_square.php.

FT8 has several advantages:

◆ **Objective Signal Reports.** *Signal reports* give you a true sense of how well your signal is being received. This is critical when testing antennas or seeing how well your signal is being heard around the world. The software automatically makes a signal-to-noise measurement and generates a report. Signal strength is expressed in dB (decibels). For example, a -25 dB signal is quite weak, while a +04 dB signal is strong.

◆ **High Performance.** Even in a minimal station, such as someone transmitting 5 watts to an attic antenna, can make large numbers of contacts, including contacts with stations in other countries.

◆ **Valid Award Contacts.** FT8 contacts count toward nearly all awards, including the coveted ARRL DX Century Club (DXCC) award.

◆ **Speed.** It is possible to complete an FT8 contact in less than 90 seconds.

Walking Through an FT8 contact

FT8 exchanges usually, though not always, follow a strict sequence. Here is an example of what you might see and what each line means (in italics). Note that when there is an exchange between two stations, the *transmitting* station's call sign is always the one on the right. In this example, EC5C in Spain makes a contact with WB8REI in the United States:

```
212145 6 0.1 2602 ~ CQ EC5C IM98 Spain
```

EC5C sends a CQ from grid square IM98

```
212200 -8 0.4 2601 ~ EC5C WB8REI EN80
```

WB8REI answers the CQ and tells EC5C that he is in grid square EN80

```
212215 9 0.1 2602 ~ WB8REI EC5C -15
```

EC5C replies to WB8REI with a signal report, indicating that WB8REI's signal is at -15 dB.

```
212230 -4 0.4 2601 ~ EC5C WB8REI R-08
```

WB8REI acknowledges the signal report from EC5C with a "R" (for "Roger"), followed by a signal report indicating that EC5C's signal is -08 dB

```
212245 8 0.1 2602 ~ WB8REI EC5C RR73
```

EC5C sends "RR73" which means "Roger, roger my signal report and 73". (meaning "best wishes")

```
212300 -21 0.4 2601 ~ EC5C WB8REI 73
```

WB8REI sends "73" conveying "best wishes" as well back to EC5C. The contact has ended.

Station Hardware and Software

To explore FT8, you'll need a SSB transceiver that is capable of operating on the high frequency bands, 160 through 10 meters. If your transceiver includes 6 meters, that's a bonus – you'll find FT8 activity there as well.

You'll also need a computer and a way to connect the computer to your radio. Many amateurs use devices known as *sound card interfaces* to perform this connection task. The Tigertronics Signalink and Rigblaster shown below are examples of good interfaces. Interfaces can range in cost from about \$120 to \$400 depending on the model you choose. You'll find them advertised in ARRL publications and at ham radio dealer websites. You will also need a special jumper cable to connect from your radio's data output port to the interface. These are available from dealers also.



Figure 2 : Two examples of quality performance sound card interfaces. There are others also.

Newer transceivers now have built-in interfaces. (Check your radio's specifications to see if yours has one.) If you are lucky enough to own one of these radios, all you'll need is a USB cable to connect the radio directly to the computer. Figure 3 on the next page shows the three most popular ways to connect a computer to a transceiver for digital operating.

Finally, you will need to download and install the WSJT-X software from this website:

https://sourceforge.net/projects/wsjt-x-improved/files/WSJT-X_v2.7.1/

(This is the latest version of the software.)

From the Editor:

A VERY IMPORTANT NOTE AND WARNING!

After downloading the WSJT-X software, **DO NOT – REPEAT, DO NOT** – connect your USB jumper cable from your computer to the radio yet!!!!!!

Before you do any connecting of any kind, you must first go to your radio manufacturer's website and download and install the driver files for your radio to your computer. There is a tab or section on their website, where you can find these files. Also, make sure you download the correct files for your model of radio, as there will be several different types of files. If you're in doubt, call or e-mail their technical support and they will help you with the correct file. After you download the file and install it on your PC, **THEN** it is ok to connect the jumper cable.

IF YOU CONNECT THE JUMPER CABLE BEFORE DOWNLOADING THE RADIO'S DRIVER FILES AND IF YOU'RE RUNNING WINDOWS ON YOUR COMPUTER (which is more commonly the case), WINDOWS WILL ASSIGN IT'S OWN DRIVER FILES TO THE COMPUTER. THIS WILL CAUSE AN INTERCONNECTIVITY PROBLEM WHICH WILL PREVENT PROPER COMMUNICATION BETWEEN YOUR COMPUTER AND TRANSCEIVER, AND YOU WILL HAVE SERIOUS PROBLEMS!!!

Just remember to download the radio's driver files from the manufacturer's website and install them first, and you'll be fine.

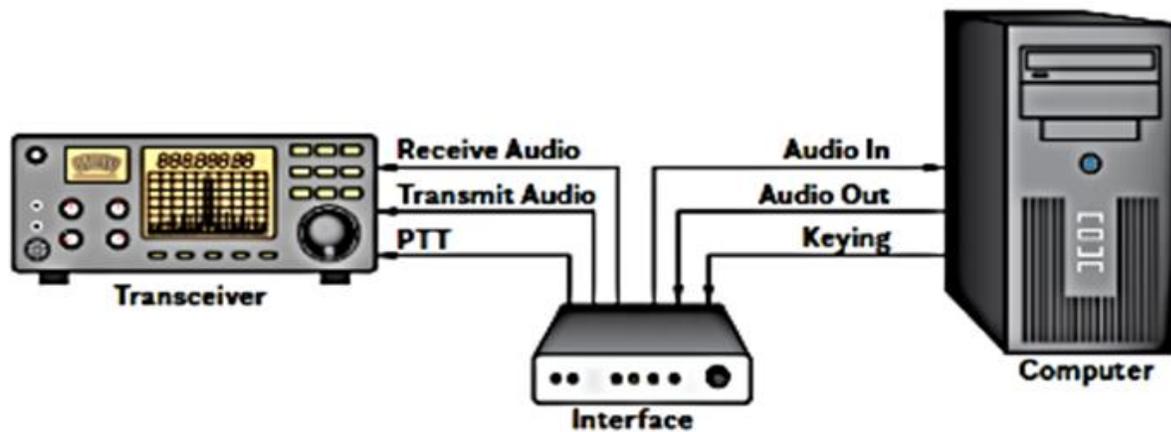
Setting up your station equipment and software for FT8 isn't complicated, but that discussion is beyond the scope of this article. Read the WSJT-X user manual, which you can download from here: <https://wsjt.sourceforge.io/wsjt-doc/wsjt-main-2.6.1.html>

If you still have problems or questions go to BVRC's Elmer 911 form, complete the form and submit it, and someone will get back to you with whatever help you are needing in getting your digital station set up:

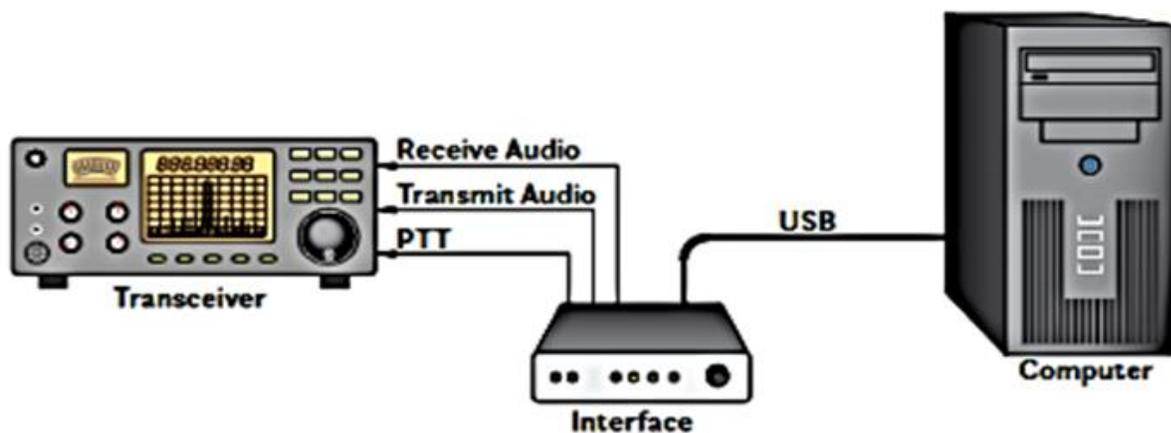
<https://bellavistaradioclub.org/elmer-911/>

Figure 3:

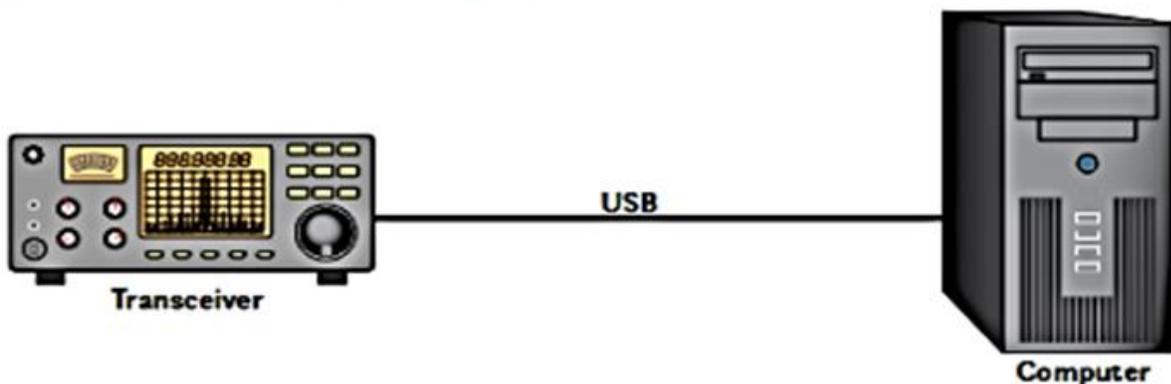
Three of the most common configurations for interfacing your transceiver with your computer.



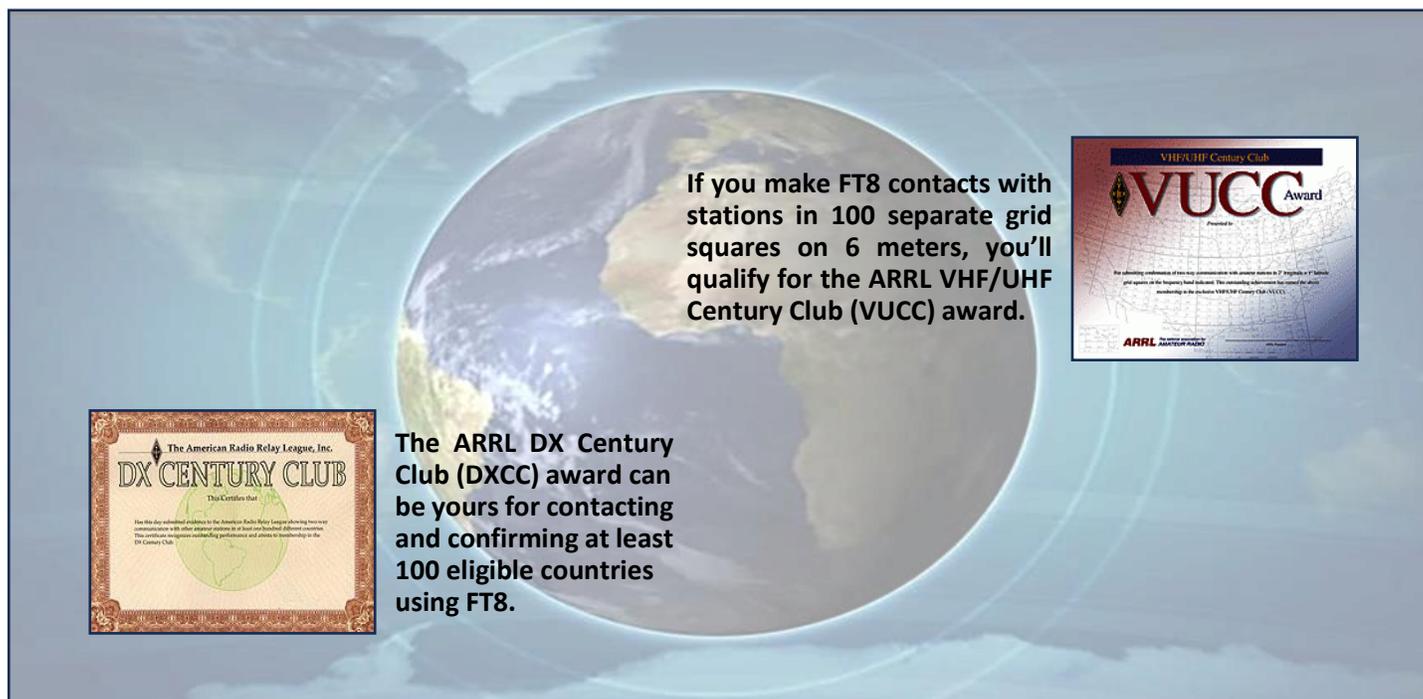
The most common setup for many years was based on an interface that took transmit and receive audio from the computer's sound card, along with transmit/receive keying from one of the computer's COM ports and passed everything to the transceiver in a way that kept the signal lines isolated. This type of interface is increasingly uncommon.



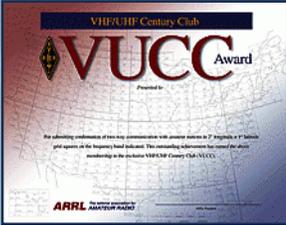
Many of the interfaces available at the time this article was written are USB devices. A single USB cable plugs into the computer. Not only is the computer's sound card not used, the interface contains its own sound device. In turn, the interface supplies transmit audio to the radio, processes receive audio from the radio and handles transmit/receive keying.



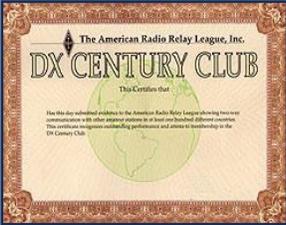
The future will likely see the disappearance of the interface entirely as transceivers incorporate their own computer interfacing. Today, several moderate- to higher-priced radios have added this feature.



If you make FT8 contacts with stations in 100 separate grid squares on 6 meters, you'll qualify for the ARRL VHF/UHF Century Club (VUCC) award.



The ARRL DX Century Club (DXCC) award can be yours for contacting and confirming at least 100 eligible countries using FT8.



Timing is Everything

If you are seeing FT8 signals in your WSJT-X waterfall, but the software can't seem to decode their information in the Band Activity pane (left pane), there is a good chance that your computer clock needs a little adjustment. The WSJT-X software depends on time synchronization to know when to expect data signals to be present, and to respond accordingly. Your computer clock doesn't need to match the clocks of other stations exactly, but it must be synchronized within less than 2 seconds – the closer the better.

A very handy tool for this is the free time-synchronizing application *Dimension 4*, which you can download at: <https://dimension-4.en.softonic.com/>. Install the application and set it up so that it loads and runs constantly in the background whenever you start your computer. It also has a "Sync Now" tab to manually command it to synchronize with one of the many time stations worldwide, if you choose to do so.

FT8 is for Technicians, Too!

If you hold a Technician license, you can enjoy FT8 on 10 meters (**only**). With the present Solar Cycle 25 right now around its peak, you're guaranteed plenty of FT8 activity on the common 10-meter FT8 frequency of 28.074 MHz. Even when the band seems devoid of signals, you can almost always find some FT8 activity at this frequency. And when conditions improve during *band openings* – times when signals are heard at greater distances – you'll see and hear FT8 signals from all over the world. (If you wish to operate FT8 on the other HF bands, you will need to upgrade to the General license.)

The 10-meter band is basically a daytime propagation band, so night time contacts will generally not be possible. But during daylight hours you can have a lot of fun on this band with FT8. There are amateurs with indoor antennas who have used FT8 to earn their initial ARRL DXCC award on 10 meters alone! The award requires confirmed contacts with 100 separate DXCC countries (also known as *entities*). Collecting this many contacts can take a substantial amount of time (even years for some operators), but when 10 meters is cooperative, you can use FT8 to rack up that many contacts in a matter of only weeks or months. (Editor's note: If you find you really enjoy FT8 on this band, go study for and pass your General license exam...you will then have FT8 privileges on all the HF bands!)

And don't forget that as a Technician you also have access to the 6-meter band. Many HF transceivers include 6 meters, and all you need is a basic wire antenna to have a blast on this band. FT8 operators hang out at 50.313 MHz. This frequency may be silent much of the time, but when the band opens, get ready! You'll be making FT8 contacts over hundreds, and sometimes even thousands, of miles. Many of these contacts may count toward your ARRL VHF/UHF Century Club award – the most prestigious VHF/UHF award in amateur radio.

ANNOUNCING THE 4TH ANNUAL BVRC CW ROUNDUP!!!



Date: Thursday, October 10, 2024
Time Period: 7pm – 8:30 pm local time (0000-0130Z, October 11)
Frequency: 3.540 – 3.560 kHz

Operating classes: **CLASS A** – BVRC member – Experienced CW operator
CLASS B – Newcomer or newer CW operator (BVRC member or non-member)
CLASS C – Non-BVRC member – Experienced CW operator
CLASS D – Listeners who copy only (log calls of participating stations you heard)

CQing: Send “CQ CWR CQ CWR”

Exchange: Signal report (including operating class) / QTH (your location) / name

Example: You are a newer CW operator and you are in a QSO with K5XYZ whose signal is readable, their signal strength is registering a ‘7’ on your S-meter and their signal tone is good. Your [example] callsign is W5ABC, you live in Bentonville, and your name is Albert. You would then send something like:

K5XYZ DE W5ABC (K5XYZ this is W5ABC) BT (break)

RST IS 579 B 579 B BT

QTH IS BENTONVILLE, AR BENTONVILLE, AR BT

NAME IS ALBERT ALBERT BT

HW CPY? (How did you copy my transmission?)

K5XYZ DE W5ABC K (Over)

The other station would then reply with their information using the same format. After the exchanges are completed, short informal remarks can be made during the QSO if desired, after which the contact would end with something like:

TNX FER QSO (thanks for the QSO)

GL ES 73 (Good luck and best wishes)

K5XYZ DE W5ABC SK (end of contact)



Description of event: *This 1½-hour event is not a contest.* Rather, it is a celebration of our area newcomers new to CW, returners to the mode of CW, and listeners. Also, it is an invitation to our veteran CW operators to enjoy helping the newcomers in making live, on-air CW contacts. There are no points scored, and no results or standings posted. **You do NOT have to be a member of BVRC to participate.**

A handsome certificate will be issued to each participant submitting a log entry from the event. (See above)

Send logs *no later than Saturday, October 19*, to Don Banta – K5DB:

Regular mail log: Don Banta

3407 Diana St.

Springdale, AR 72764

Electronic log: arsk5db@gmail.com

Attach Cabrillo file: [call].log

CW OPERATORS NEEDED FOR ARRL SWEEPSTAKES CLUB COMPETITION



Once again in 2024, Bella Vista area Radio Club will be submitting individual BVRC member CW Sweepstakes scores into a cumulative club score entry for BVRC.

The annual ARRL Sweepstakes is the 2nd largest amateur radio contest in North America (Field Day being the largest). It is so large that the modes of CW and SSB have their own weekends of operation. CW Sweepstakes takes place during the first full weekend in November, and CW Phone (SSB) occurs during the third weekend in November.

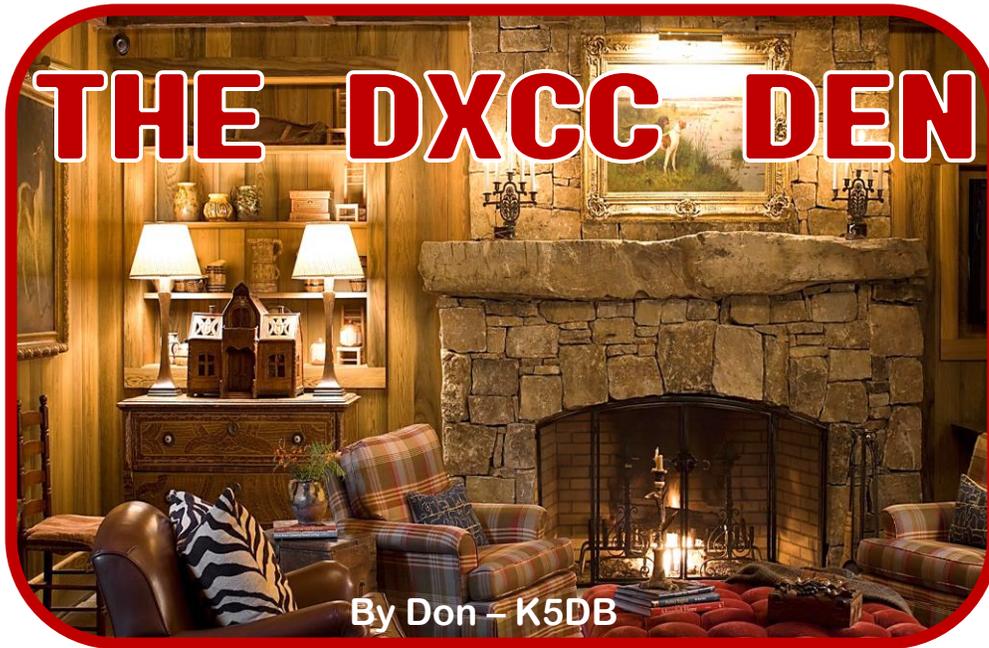
All interested experienced operators are asked to participate in the CW Sweepstakes and help BVRC submit a good club score.

If you intend on operating this year's CW Sweeps, combining your personal score with BVRC's aggregate score would be GREATLY appreciated! When you submit your score via the ARRL contest portal, simply list BVRC as your affiliated club.

The ARRL CW Sweepstakes will be held this year from:
2100 UTC Saturday, Nov. 2 – 0259 UTC Monday, Nov. 4.

If you are planning on operating the 2024 ARRL CW Sweepstakes, please contact Chuck – KM5G at: korzendorferc@gmail.com by Oct. 15, so that you're callsign can be recorded and submitted to ARRL as a participating club member per the Sweepstakes submission rules.

Thanks in advance for your help!



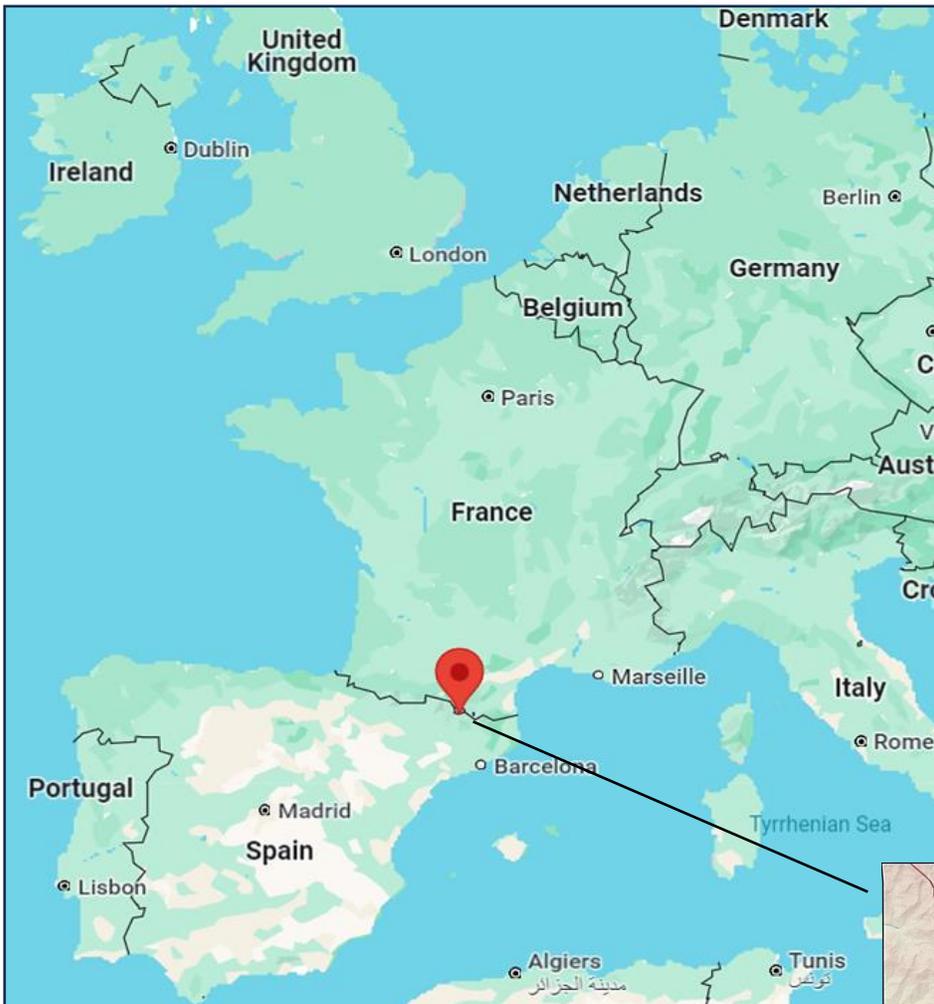
By Don – K5DB

This month's featured country:

Andorra

Primary Callsign Prefix: C3

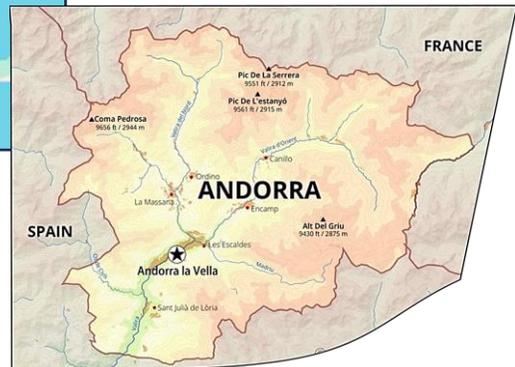
This month our DXCC travels veer away from our travels to remote, uninhabited islands and take us to the European continent to visit the tiny country of Andorra. – Its official name being the Principality of Andorra, it is a small sovereign landlocked country in the eastern Pyrenees mountain range which straddles the border of France and Spain. Hence, Andorra is bordered by France to the north and Spain to the south. Believed to have been created by Charlemagne, Andorra was ruled by the count of Urgell until 988, when it was transferred to the Roman Catholic Diocese of Urgell. The present principality was formed by a charter in 1278. It is currently headed by two co-princes: the bishop of Urgell in Catalonia, Spain and the president of France.



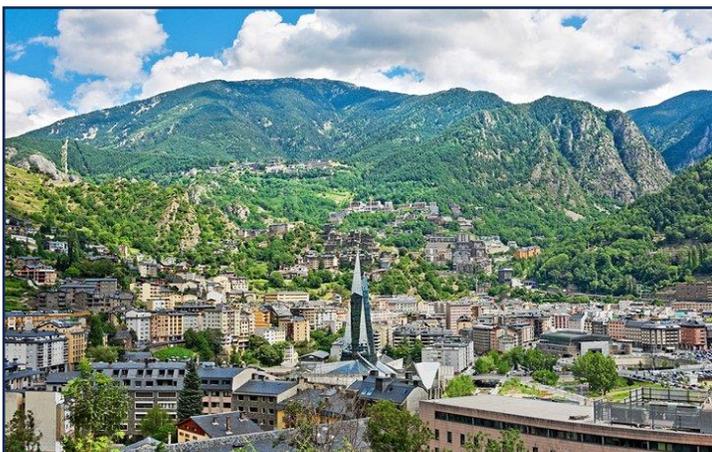
Location of Andorra

Andorra is the world's 16th-smallest country by land and 11th-smallest by population. Its capital and largest city, Andorra la Vella, is the highest capital city in Europe at an elevation of 3,356 feet above sea level. The official language is Catalan, but Spanish, Portuguese, and French are also commonly spoken. It's population in 2021 was 79,034.

Due to its location in the eastern Pyrenees mountain range, Andorra consists predominantly of rugged mountains, the highest being the Coma Pedrosa at 9,652 ft, and the average elevation of Andorra is 6,549 ft.



Andorra has alpine, continental and oceanic climates, depending on altitude. Its higher elevation means there is, on average, more snow in winter and is a ski resort destination for many. It is slightly cooler in summer. The diversity of landmarks, the different orientation of the valleys and the irregularity relief typical of the Mediterranean climate makes the country have a great diversity of microclimates that hinder the general dominance of the high mountain climate.



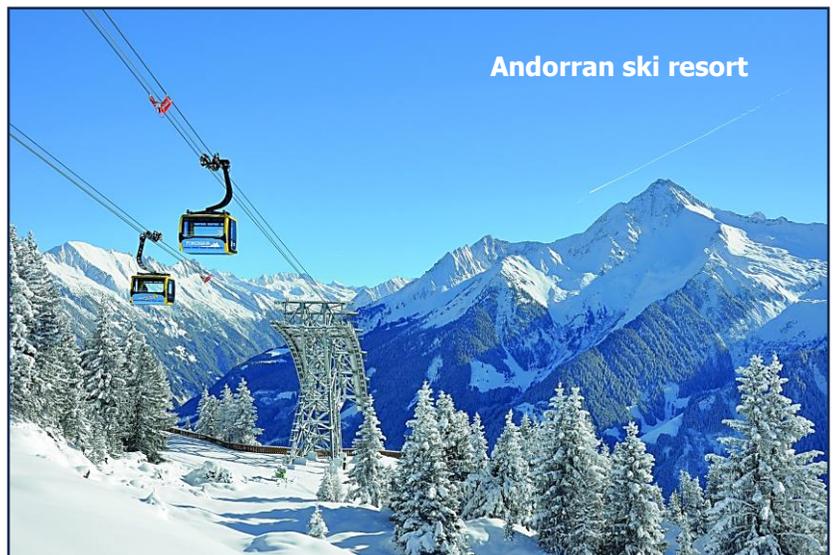
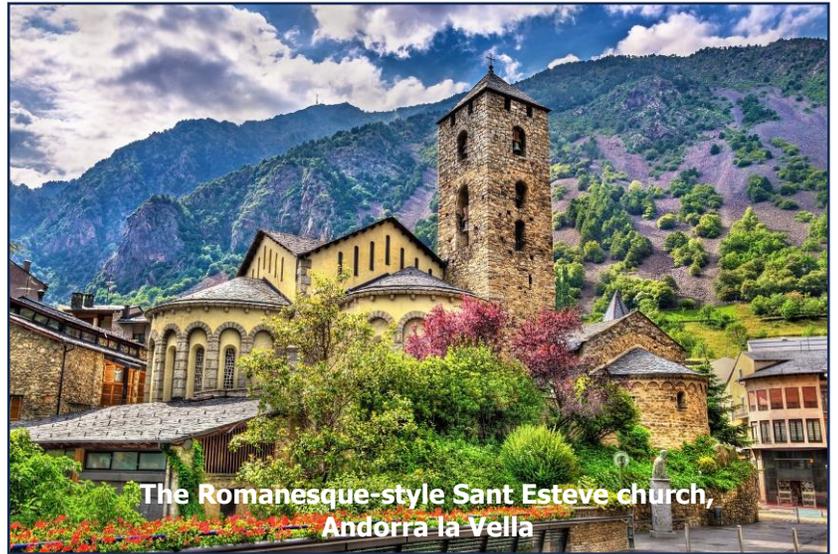
Andorra la Vella in daylight and nighttime hours

The URA is a national non-profit organization for amateur radio enthusiasts in Andorra with the official name, The Unió de Radioaficionats Andorrans. (In English, Andorran Amateur Radio Union.)



The URA operates a QSL bureau for those members who regularly communicate with amateur radio operators in other countries. It represents the interests of Andorran amateur radio operators and shortwave listeners before Andorran and international telecommunications regulatory authorities. URA is the national member society representing Andorra in the International Amateur Radio Union.

Currently, there are 171 licensed amateur in Andorra. It is still fairly rare, but over the years with its amateurs being moderately active, it sits at #218 on the current Club Log DXCC Most Wanted list. Personally, I have worked and confirmed it on all the bands except 160-, 80-, and 40-meters. But, this has been over a span of 25 years which is indicative that you don't hear it on the bands every day. (I hope to complete working it on the low bands this winter.)





ARDAM C37AC
WAZ 14 - ITU 27
JN02SM

RADIO ANDORRA



This First air time from the new association **ARDAM** is a tribute and honoring to the former **RADIO ANDORRA**



CITY OF ENCAMP. Is 7/8 September 2013 and "MERITXELL" the Andorran National Holiday

License of Jean-Marc PRINTZ

In 2018, a new club was formed, the **Associació Radioaficionats Divulgant Andorra al Món**, and went on the air with their new call sign **C37AC** on Jan. 1

Here are photos of a couple of the more active Andorran hams, plus one of my QSL cards. If you haven't worked this DXCC entity as yet, it will be a nice addition to your worked countries list when you do.



PRINCIPAT D'ANDORRA
WAZ 14 - ITU 27

C 3 1 S G

Confirming our 2 way QSO with:

I.A.R.U. Regio 1

to Radio: **K5DB**

DATE	TIME	MODE	BAND	RST
15.06.2002	23:44	SSB	20m	59

Santiago GUILLEN SANCHEZ
P.O. Box nº 1035
Andorra la Vella
Principat d'Andorra (Europe)

YAESU FT1000MP
73's
 PSE QSL TNX QSL

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