

Ozark QRP Banner

The Official Newsletter of the Four State QRP Group

WQ5RP

August 2026 Edition

In This Edition: Brutus Bash, Arduino Circuit Simulator, Road Trip, Vail CW Adapter, Antenna Top Hat, Pi, Briefcase Surprise, KØFHG Portable antenna, Waterproofing Antenna Connections, SLQS FD 2026, Three States-Seven POTA Activations, Radio History

The Brutus Bash will be on Sept 11th and 12th, 2026. Camping, Radio, Great Food, Radio, Old Friends, New Friends and more Radio. Come and join the fun for the day or camp out and stay awhile!



Using a Dual-Lever Paddle by Chuck Adams, K7QO Revised September 10, 2013

The article is written for the purpose of showing you some techniques that you can use for dual-lever paddles for sending the International Morse Code for communications.

<https://morsecode.ninja/files/Chuck-Adams-K7QO-2013-Using-a-Dual-Lever-Paddle.pdf>

The End of CHU: Canada's Official Shortwave Time Signal Goes Silent in 2026

The National Research Council of Canada (NRC) has announced that the shortwave broadcast of Canada's official time signal station CHU will be discontinued on June 22, 2026. The roots of CHU stretch all the way back to the early 1920s. Experimental Canadian time broadcasts began in 1923 under the callsign 9CC before evolving into VE9OB and eventually CHU in 1938.

<https://radio-hobbyist.com/canada-chu-time-signal-shutdown-2026/>

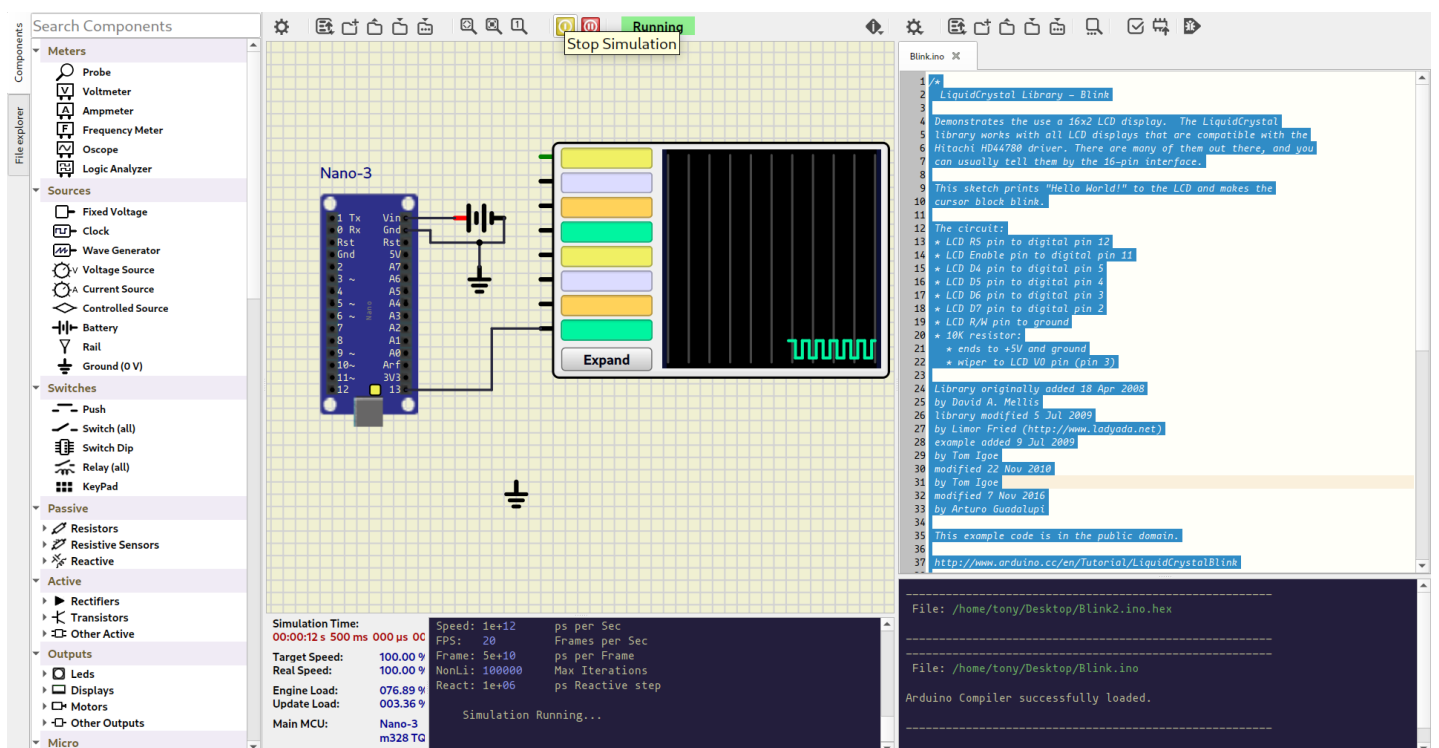
Two Hamfests centrally located to most members: Joplin, Mo on August 21-22 and Spark-Con in Sedalia, Mo sponsoring the Midwest ARRL Convention on October 9-10.

A Circuit Simulator that supports Arduino - Tony G4WIF

Anyone who has played with an Arduino will recall that when you first apply power there is an onboard LED that blinks. That LED is also connected to output PIN 13. This is because new Arduinos invariably come with the "Blink" sketch installed. "Blink" is one of the example sketches that can be subsequently reinstalled if you wish.

So when I discovered a video on Youtube of a free circuit simulator called SimulIDE that included actual "virtual processors", I started with a virtual Arduino Nano and I installed the blink sketch to see it working. Sure enough, the LED flashed and a virtual logic analyser showed the squarewave output.

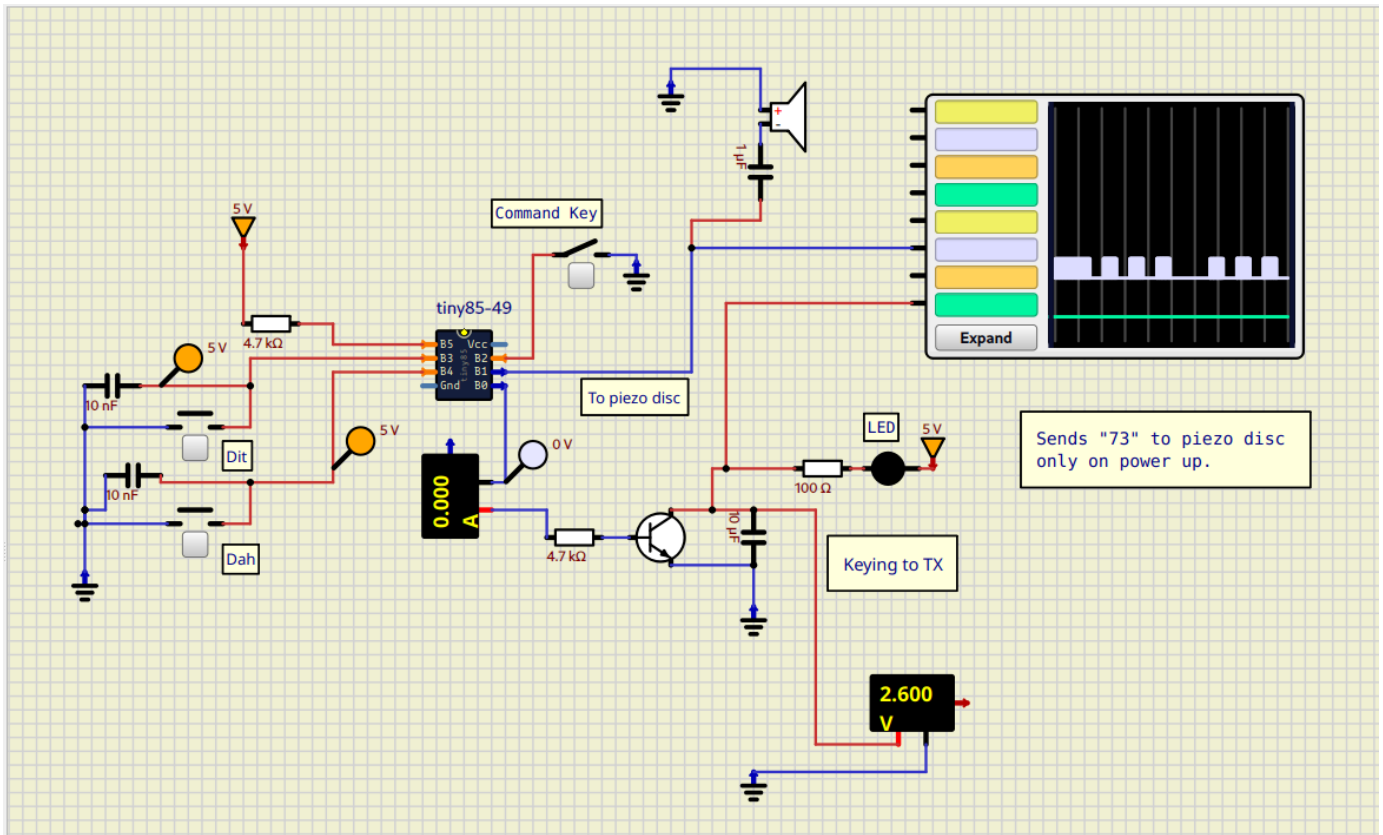
A video of that sketch running can be seen at this URL ⁽¹⁾.



In the left hand panel is a library of components and test equipment - such as signal generators, oscilloscopes and volt meters etc. The middle panel is where you draw your circuit and the right panel is where you can develop your code in C++, just as you can do in the usual Arduino Integrated Development Environment (IDE).

Of course, if you have already compiled your code in the IDE then you can install the hex code directly into SimulIDE.

Looking further at the provided virtual processors I spotted the very inexpensive ATTiny85 chips. I wondered how well they simulated. So I looked for a suitable project to try and I found one in the form of an electronic CW keyer ⁽²⁾.



The zip file in the above reference contains the hex code you would normally transfer into the real ATtiny85. It works just as well in the simulation.

Above you can see the test circuit. I used a couple of push buttons to simulate the paddle. There are two outputs from the project and one goes to a piezo buzzer for side tone. I monitored that output on a virtual logic analyser, as I did for the other output intended to key your transmitter. There are a couple of virtual voltmeters placed to monitor specific points in the circuit.

There is a video here ⁽³⁾ showing the circuit being powered up and the initial "73" being sent to the buzzer which indicates the keyer is ready. Then the video shows me pressing the "dit" and "dah" buttons - and the output then going to the transmitter.

If the command key is operated the keyer speed can be changed with the "dit" and "dah" push buttons.

If your PC has Linux Mint as an operating system, then SimulIDE is available from the built in Software Manager. Otherwise, you can find the Windows version at this website ⁽⁴⁾.

I am most impressed with this software which is both useful and completely free. While even more comprehensive simulators such as LTSpice have been around for a while, this is in my view far easier to use and visually more impressive.

References:

- (1) <https://youtu.be/5ytEf1EthaQ>
- (2) https://github.com/donfroula/ATTiny85_CW_Keyer
- (3) <https://youtu.be/7a8Zf-pUgKM>
- (4) <https://simulide.com>

Road Trip to the Northeast

de KCØPP

Our summer plans took us to the northeast, planning to visit Vermont, New Hampshire, Connecticut, Rhode Island and Massachusetts. States that we have not visited and probably won't be there again. So I thought this would be my opportunity to activate some new states on POTA. It was two days of just driving to get to the area.

For equipment I brought the Xiegu G90, 20 foot crappie pole, 28 foot wire for the antenna with a 4 foot counterpoise and homebrew 9:1 balun, 12 volt 5Ah LiFePO4 battery, key and other required accessories. I would normally use a 31 foot Jack Kite pole but it would not fit in the vehicle comfortably.

My first activation was the Lake Erie State Park (US-2092) in NY state. Located on the lake as you would expect. This gave my XYL and SIL (our travel companion) a good place to walk the grounds and check out the lake while I operated. I found a nice picnic table near some old trees and managed to get a wire over a limb. Not very high but should be adequate. I connected the equipment and was able to make contacts easily. After about 25 minutes I had my log filled.

We finally made it to Vermont and the next activation was Calvin Coolidge State Park (US-3109). This time I used the crappie pole to support the 28 foot wire as a Sloper. The conditions were better this day and it only took about 14 minutes to fill the log. The activity on the Sun must have calmed down a bit and I was glad to have conditions improve as it has been tough the previous month or so.

After visiting VT, we were off to NH. Traveling through the countryside we ended up near Mount Washington. A trip to the mountain by Cog Train took about an hour. There is also a road you can take to the summit. The elevation is 6,288 feet.

The highest point east of the Mississippi River. You would think what a great place to activate. Well, the Wx up there is always very windy. We had 30-50 MPH winds with an air temperature

in the 30's. So, I did not take the equipment with me. But beautiful scenery. On the way back we stopped at Moose Brook State Park (US-2665). I found a nice spot alongside of what they called a swimming pool, but was a fresh water, stream fed, clear pond. I set up the antenna again as a Sloper. Conditions were good and I had 13 contacts in about 22 minutes.

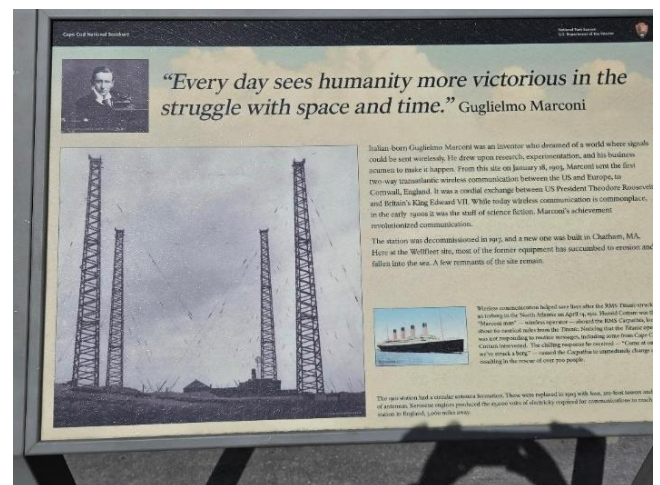
Looking at a map, I realized that I was only 10 miles from Maine. I thought an easy drive to activate another state. I found a national forest near our location so we headed that direction.



I usually go for state parks because they have nice picnic areas. National forests not so much, but I thought I would make the best of it. Driving through there were not many spots to stop. One overlook looked possible but there were no tables so we kept going. Almost to the end we found a historical building that had one table. So we pulled up and I started to unload the equipment. Right away there were these annoying bugs, larger than gnats, swarming around my head. But they were not too bad and I thought I could manage to operate for a short time. Well they must have a way to communicate among themselves and by the time I had the antenna and radio set up they were so thick it was hard to open your eyes. So everything got thrown in the car and we left. I stopped back at the overlook and there was a strong breeze which kept the bugs to a minimum. I planned to sit on a rock and operate from there. As the antenna went up, the breeze stopped and here come those annoying bugs. Ok enough is enough so I loaded up and left. So much for Maine on this trip. Later I found these are called black flies, smaller than a house fly. Also later that afternoon my ankles started itching. I looked down and had welts all around both ankles, probably chiggers or some similar bug. I always carry bug spray in my truck but we had the car and I didn't think about it. Oh well, chalk this up to lessons learned.

Our next stop took us to Massachusetts and the Marconi Wildlife Management Area (US-11638). This was the Marconi Transmitter Site located on Cape Cod; I thought what a cool place to operate from. However, the towers are long gone.

We got to the picnic area and I set up the antenna and was on the air in a few minutes. In less than 30 minutes I had 11 contacts in the log. This was a nice place to visit. We had a nice seafood dinner in Provincetown on Cape Cod.



Next off to RI. A small state that you can drive across in a short time. I activated Colt State Park (US-2872) between Providence and Newport. A very nice clean park. It was trying to rain that morning so I hurriedly set up and started to make contacts. I worked 13 stations with a little drizzle mixed in. I did work South Dakota which was my furthest contact to the west during this trip.

Finally made it to Connecticut where I activated Fort Griswold Battlefield State Park (US-1666). Conditions were tough, it took almost an hour to get my 10 contacts in.

The last two activations I set the antenna up as an L. About 17 feet vertical and the remainder horizontal across a picnic table.

All contacts were made on 20 meters CW with the 28 foot wire antenna. Not QRP, I ran 10 to 20 watts depending on band conditions. Contacts were mostly from the Mississippi River and to the east, and from Canada to Florida.

To date I have 25 states activated and all 50 including DC worked.



While in CT, it is well worth the visit to W1AW. The folks there are very accommodating. I received a tour of the labs in the office building and visited the W1AW building that houses several stations that you can operate from and the racks of equipment and transmitters that send out the bulletins and code practice.

Next year to the Northwest.

Vail CW Adapter — The Swiss Army Knife of CW Fun

Jeff Logullo, NØMII

Not so long ago I stumbled upon some nifty goings-on in the ham universe. And it was all about connecting two things together that I really enjoy: computers and CW. Turns out there's something here for everyone... and many of our members jumped at the chance to be part of a group buy. If you've been wondering "So now what?" let me make a starter list. Or if you're wondering what you're missing... it's not too late! Read on.

About the Adapter(s)

The central idea of all this is to let us connect our paddles (or bug, or straight key) to our computers via USB. Software running in your browser watches the USB port and recognizes paddle input. That software is essentially a PC-based electronic keyer. And so when you activate the paddles, your browser can respond by sending CW. That's it in a nutshell. But what happens to that code you're sending? All sorts of stuff!

And yes, that's adapters plural. There's a few different options that I discovered on this journey. The first was a homebrew affair made with an Arduino-style board. The next was an

inexpensive commercial adapter that translated paddle presses into USB keystrokes. The Vail family of adapters do this... but also offer an advanced mode of operation that leverages MIDI. This standard is all about connecting musical instruments to PCs with exquisite time precision. Sounds useful for Morse transmission? You betcha!

MIDI vs. USB Keyboard Mode

You do need to be aware of the dual personality of your adapter. It can help you understand if "things don't seem right" when visiting a particular web site or app. A quick power cycle (unplug, wait, re-connect) will let your adapter get a fresh connection and set its mode appropriately.

Oh: you'll want to use the Google Chrome browser, as it supports the WebMIDI standard and is recommended. Firefox and MS Edge may also work... feel free to give them a try.

Radio-free QSOs

"Oh no, he said it out loud! Mabel, fetch my powders!" Yes, I said it. A lot of us may think it heretical to consider having a ham radio QSO without getting on the air. I mean, we are hams, right? We are entitled! We can do this!

Or maybe not. There's a lot of things that have to take place, and be in place simultaneously, for this to happen. You need a radio. And an antenna. And maybe a tuner. And know how to make them all work. And a straight key. Or a keyer and paddles. Single lever? Dual lever? Mode A? Mode B? What band? What time? With whom? A total *stranger*? What if I make a mistake? Auggh!

Yep. I know the feeling. We all have. You are not alone.

And so: eliminating a good 75% of the above uncertainty lets you calm down and focus on the simpler and most rewarding aspect of the journey: learning Morse code and then practicing to hone your skills. By yourself or with a friend. Let's go!

Getting Started

The smoothest path is to use the Google Chrome browser on a Windows or macOS computer. Plug paddles into your adapter, connect its USB port to your computer, and you should hear "VAIL" in CW coming from the adapter's onboard piezo speaker.

About That Speaker

All the browser-based tools will play a pleasant CW sidetone from your PC speaker. And at the same time your adapter's piezo speaker will be playing a raspy sidetone as well. Different situations call for different sound methods and you'll need to experiment to see what works best for you, and when. If latency issues are making it hard to get your timing right, consider turning your PC speaker volume down to zero so you can focus on local sidetone. Or if you're using a site where you will be sending and receiving to and from others, you may prefer to mute the piezo speaker and just listen to your browser. To do that is simple: just hold down your dit paddle for 5 seconds. After the string of dits you'll hear a series of descending tones, and then silence. Your local sidetone will be off until the next power cycle.

Learning CW

With basic setup complete, visit the [Vail Adapter](https://vailadapter.com) site (<https://vailadapter.com>) and look in the "Tools | CW Training Tools" menu. Here you'll find a number of self-paced training tools. The [Vail CW School](#) promises a structured method of learning Morse code while your progress is saved and tracked. Plus that page has a collection of a dozen other tools, including a QSO Simulator, an AI QSO Bot (!), and the "Ben's Best Bent Wire" challenge.

Using one or more of the above tools may be all you need to start learning the code. But there's one other thing that will really help: dedication and regular practice. Daily practice for just 15 minutes a day — regular daily practice really pays off. Stick with it and see.

Practicing CW

Many of the learning tools are great for practice in sending and receiving. But there's also some nifty games too! And practice is practice, right? Personally, I love "Morse Invaders," which honestly should have been called "Morse Missile Command," but I digress. A series of words are descending from the sky. Your mission is to destroy them before they destroy you. Easy... at first. Accuracy is rewarded here. But keep pushing your speeds too. I love it!

Morse Invaders, Morse Battleship, Morse Air Traffic Control... more Morse stress than you can shake a stick at — all good fun and great practice! Look at the bottom of the "CW Training Tools" for these goodies. (Note: many of these will use your adapter in keyboard mode. Power cycle to get started.)

Live "On The Air" CW QSOs

Okay, here's where it gets real - and real fun. Visit the [Vail Repeater](https://vailmorse.com) site (<https://vailmorse.com>) and have a look around. There are several public "Channels" or "Rooms" where you can meet and have QSOs with others, from around the world. The repeater will buffer your transmission and send it to everyone else with MIDI accuracy so your timing is preserved. There is a short delay here, so it's good to send a "K" or "BK" to indicate you're switching from transmit to receive. Expect to wait a few seconds before hearing a response.

Remember that the folks here are likely learning, so be prepared to match speeds with them. And they will do the same for you. And by the way: some channels may offer a "Decoder" window so you can not only read what others are sending, but also see what it thinks **you** are sending. Don't use it to "cheat" - but it can help to check your copying and monitor your own sending.

What I am really looking forward to is setting up an "SLQS" channel on the Vail Repeater so we can meet and practice amongst ourselves. You can do this at any time, on the fly. Our Slack channel [#cw-practice](#) is a perfect place to coordinate some 1:1 or group activity.

Vail Zoomer

This may be the ultimate for Morse code classroom activity. The Vail Zoomer software integrates your Vail Adapter with the Zoom conference software. This gives us microphone audio, live video, and CW send/receive all tied together. I have yet to try this but I think we should investigate having some SLQS Zoom Nights for folks to try.

Other Topics

I've breezed past some surprises and stumbling blocks you may encounter. Can you use a Linux PC? Yes. Can you use a smart phone or tablet? Again, yes. But be prepared for some additional steps you might need to take to get everything working.

For example: Tom Brown and I discovered an issue on our iOS devices that sending was triggering some odd shortcut. We traced it down to a setting that, when using a hardware keyboard (which the Vail Adapter mimics), multiple control-key presses would trigger iOS to go into "dictation mode." We found the setting to turn it off, but it will only be visible if you have a keyboard or the Vail Adapter connected. Once it's disabled, you'll be good from then on.

This also implies that on iOS the Vail Adapter is working in keyboard mode rather than MIDI. That's true because iOS/iPadOS browsers do NOT support WebMIDI mode. It's a security thing. That also implies that you don't have to load the Google Chrome browser on an iPhone or iPad. Safari (the native browser) should work just fine... but the adapter will be in keyboard mode.

Additional Quirks

While writing this article I was tempted to gather all the details of these "advanced" or "alternate" scenarios. I'll hold off for now — that's good fodder for another PW article or two! Meanwhile if you've got questions you might drop into our #vail-adapter Slack channel. Links to the above-mentioned pages, along with docs and tips etc. will be there. There's a very active Discord with lots of community help, including live assistance from the team behind the Vail Adapter! And you can send an email to the [SLQS] reflector to get a thread going there.

Adapter Availability

The gang who got in on the group order got a nice discount. Wish you had jumped in? Well, it turns out I ordered a few "extra" adapters. These are available for current club members. And of course for anyone who's new to the club. If you'd like one, please drop me an email (jeff@logullo.com). Once they're gone, you can still get yours from the Vail Adapter folks. The model we ordered was the [Vail Basic](#). There are other options too, as well as info about building your own from scratch if you wish.

The Road Ahead

If you've got your adapter, give it a try. Let us know how it's going. Are you using the online Vail CW School? Played any games? Interested in setting up a "live" QSO with another SLQS member? Let's make it happen!

Briefcase Surprise

KK4ITX

This little guy weighs in just over 5#, contains a QRP Labs QMX+ (160-6), 4States awesome tuner, Bienno 3ah battery, 3d printed CW Morse SK, headphones, GPS, 20m shorty antenna, counterpoise, table clamp, coax cable and notebook.

To operate simply clamp the mount to the picnic table, attach the antenna to the BNC mount and the coax to the antenna. Everything inside the case is already connected and ready for the power button to be pushed.



How about a COMPLETE QRP station in a lightweight briefcase?



The antenna shown below is a homemade loaded 47" vertical built for 20m. It works well for its size. No magic hocus-pokus just works but isn't like a half wave of course. It used to be available in kit form from QRPGUYS but they have gone quiet now. It all fits in the front pocket of the case.



Below is the 3 ring platform that's constructed from a piece of luan about $\frac{1}{4}$ " thick and held in place by the 3 ring binder. The "Velcro" type straps are made from a Hobby Lobby item found in the sewing section, cut to size and held in place by 6-32 hardware. In the center I counter sunk to allow for two tuner feet and removed two others so the screws could be used to hold the tuner in place.



When I first got started in this QRP in the park business I would gather all my "stuff" and just put it in something to carry it to the site, as I got older, I started to forget things so I just kept them together and life is much better now. Now I have a very neat workspace and a cover if rain comes my way.

You can find a similar 40m antenna at QRPBuilders.

The 3ah battery lasts longer than I do in the field, 4-5hrs.

The briefcase was purchased at Walmart several years ago and repurposed.

The mount is $\frac{1}{8}$ " alum flatstock drilled as needed with counterpoise screw.

There's not much you can't figure out on your own but if you should have questions just send an email to me at kk4itx@arrl.net.

Have fun building!

John

KK4ITX

The KØFHG Portable Antenna for Field Operations

This vertical antenna is simple but effective. Can be erected in a few minutes. The coil dimension design is borrowed from the St. Louis POTA 20 antenna by NØWL, and wound on a PVC pipe as the form. The post is designed for electric fences and available from Farm & Home stores for just over \$2, Zareba step-on poly fence post - constructed with durable polypropylene and steel, each post features a step-on flange that includes an anti-rotation spike.

The top of the post can be trimmed so the PVC coil will slide over the post. A telescoping antenna is attached to the top. A wire runs down the post to the BNC connector mounted on a plate. On the plate is also a ground terminal for attaching the radials. The antenna in the photos was constructed for 20 Meters but could easily be constructed for other bands or even made into a multi band by adding a shorting strap.



Does an antenna top hat really work? de VA3KOT

John VA3KOT Antennas, Builder Projects, Miscellaneous topics, Outdoor Ops July 23, 2025 5 Minutes



Antenna "Top Hat" aka Capacitance Hat

There are several ways to shorten a vertical whip antenna, for example, a loading coil, linear loading (folding back all or part of the radiating element) and one that has intrigued me for quite a while - a capacitance hat, also known as a top hat.

A top hat (shown in this image) is a series of conductors erected horizontally, and connected to, the radiating element of a vertical whip antenna.

Top hats provide capacitance with respect to ground and are used for two main reasons:

1. To shorten the required physical length of a vertical antenna
2. To raise the maximum current point higher up the antenna

One significant disadvantage of using a top hat is that it adds weight to the top of the antenna. That may not be a problem for a fixed installation where a thick, rigid vertical element can be used. But for field expedient portable operations using, for example, a telescoping whip it can be a very bad idea indeed. Let me explain why.

I recently purchased a top hat designed for a PAC-12 antenna from AliExpress. I attached it to the top of my 18.5ft whip obtained from the same source. The top of the whip waved around in the air and clearly was not going to be a practical arrangement. These Chinese whips are made much lighter than similar products from other sources (e.g. MFJ-1979 which I also own) and consequently are not as strong. To be fair, the manufacturer would probably advise against abusing their lightweight whips in the manner of my little experiment. I guess I overstressed the thin top sections of the whip which subsequently parted company from the lower sections. I

attempted a repair which wasn't successful, so I am now the owner of a shorter whip which may see service in a future antenna experiment.



AliExpress top hat for a PAC-12 antenna. NB: I drilled a through hole in the hub to fit it on my tactical whip.

I own another whip - a "tactical", military style whip that is 9.5ft long. It is made from several sections of fairly rigid tube held together by shock cord. Although the sections taper toward the top, the uppermost section is still quite strong. When the top hat was attached to this whip, the whip bowed very slightly but appeared to be quite able to support the weight.

"Tactical" 9.5ft military style whip

The AliExpress top hat arrived in a surprisingly small package. It comprises a central hub secured to the whip by a small hex screw and four tiny telescoping whips that expand to 12 inches long. When fully assembled the top hat has a diameter of about 24 inches.



How did it perform?

I was a little skeptical about this arrangement. Could a small capacitance hat compensate for the short (9.5 feet) length of my whip on the 20m band? It was a shot in the dark and the short answer is no

it could not. But that isn't to say the top hat totally failed in its mission. In fact, it did make a difference as will be explained in a minute.

A small top hat alone cannot easily compensate for a very short antenna. There are ways to improve the top hat - such as adding a perimeter wire linking the tips of all the horizontal conductors, or even making the horizontal conductors longer. For rapid deployment in the field the perimeter wire is tricky to implement. The stock AliExpress top hat can be assembled and installed in about a minute; adding a perimeter wire makes the assembly more complicated - especially when backpacking the whole station into the bush.

Making the top hat's horizontal conductors longer introduces another complication. These conductors carry a very small current; if they are made much longer the current will increase (e.g. as in a Marconi T-Antenna) and they will radiate.

A much simpler, but less efficient, idea is to combine the top hat with a loading coil, and that is the route I took. I revived an old ham-made adjustable loading coil I had built for another project a few years ago. The loading coil had to be placed at the bottom of the whip for mechanical stability. Since this is also the maximum current point the coil will introduce i^2R loss, but compromises have to be made.



VA3KOT's trail-hardened FT-891 rig with ham-made adjustable loading coil and 9.5ft top-hat loaded whip

The end result was a base loaded 9.5ft whip with a 24-inch capacitance hat at the top of the whip. The adjustable coil enabled the antenna to work on 20m, 30m and 40m by simply adjusting the coil slider. Four 13ft radials were laid orthogonally on the ground at the base of the whip as a counterpoise.

Step One

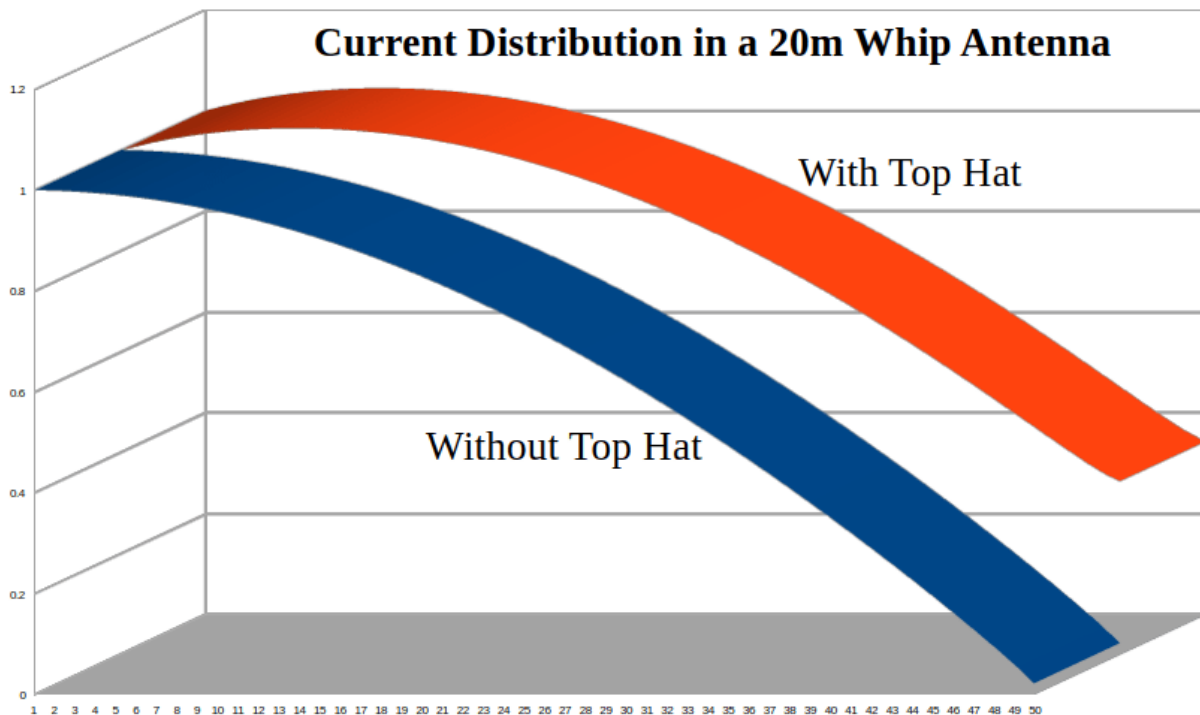
First, the top hat was left to one side and the coil slider was adjusted to find a match on each of the three bands of interest. I used my RigExpert antenna analyzer to measure the results, then when a match on each band was found, my trail-hardened Yaesu FT-891 was deployed and verified the results.

Step Two

The top hat was then installed and the tests repeated. Now the coil setting for each band was quite significantly different. The required inductance was reduced which means the i^2R loss was also reduced - that was encouraging. So the shortening effect of the top hat was verified, but what about the point of maximum current; was that raised too?

I attempted to model the antenna using EZNEC. I have to admit that I have only a very limited knowledge of antenna modeling, so I cheated a little. I modeled a full-size quarter-wave whip for 20m and looked at the antenna currents. Then I added the top hat to the model and looked at the antenna currents again. Would the top hat raise the maximum current sufficiently to get

it above the loading coil and thereby reduce losses in the coil? The following chart shows the results.



Bingo! (but no big prize)

As we can see by looking at the chart, the top hat does indeed raise the maximum current point. The model divided the whip into 50 segments and the current maximum is raised from segment 1 with no top hat, to segment 10 with a top hat. That means the point of maximum radiated energy is raised to a point 20% up from the bottom of the whip. Hallelujah.

But just a cotton-pickin' minute, the actual maximum current changes very little between the first and tenth segment so did we actually achieve anything useful? Well yes, we did actually. If we look at segment 50 on the chart, we can see that without the top hat the current drops to zero at the top of the whip. On the other hand, with the top hat installed, there is still significant RF current all the way up the whip - so the entire whip is contributing to radiation!

Did the maximum current point clear the loading coil?

I won't win a Nobel prize for this bit of non-science, but here is my analysis. If the whip is 9.5ft long, the loading coil is compensating for most of the other 7.5ft of a nominal 17ft whip. 20% of 17ft is 3.4ft so that falls well within the loading coil. Hence no, the current maximum will still be in the loading coil. If any reader can convert the above into real science, I would welcome your input.

This was interesting experiment and convinced me that top hats really do improve a vertical whip antenna. Will this arrangement actually be used in my field portable operations? Yes, for sure; the top hat has the effect of "de-compromising" (to some extent) a compromise antenna. When the prime mission is to carry a rapid deployment, field expedient portable antenna into the bush, remote from roads and parking lots, this antenna has earned its place in my backpack.

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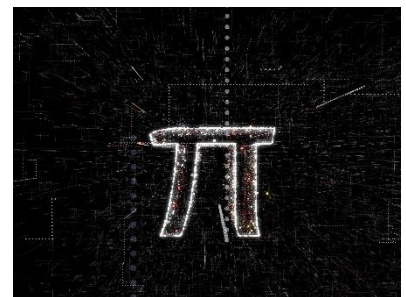
A New Formula for Pi Is Here. And It's Pushing Scientific Boundaries.

This breakthrough method optimizes complex computations like never before.

From Popular Science

<https://www.popularmechanics.com/science/math/a71855480/new-pi-formula-revolutionizes-mathematics/>

Mixing dB logarithmic calculations with complex numbers always makes me stop and pause a little. BUT considering a complex pi figure as described in the article could make things really interesting.



Shared by Daryl Reimer, N5NYT

Waterproofing Antenna Connections

By: Wes Spence, AC5K

I believe that waterproofing is something that is often overlooked by amateur radio operators when installing antennas. If not correctly sealed against water, the braid of coaxial cable can act as a wick to transport water in to the coax. Over time, this will increase loss and eventually lead to intermittent connections.

I started working in electronics on ships. The salt environment, vibration, and wind necessitates being very careful to protect antenna connections from the environment. The extreme measures we took on ships to protect antenna installations would be overkill for most amateur radio stations, but over the years I have developed an effective compromise.

What I do, is tape over connections with good quality electrical tape, making sure to seal everything against water. My next step is the key: I go over the tape with silicone RTV sealant. Silicone RTV comes in a tube like toothpaste and sort of has the same consistency. When it cures, it is like rubber. Sealing the connections in this manner will keep the tape from drying out and coming loose. What is also nice about my method is that if you are careful, you can cut through the silicone sealant and tape with a pocket knife and peel away everything to get to the connections later on for change or maintenance. Silicone sealant is easily found at home improvement and auto stores and is not expensive. Using this method will help assure your enjoyment of your antenna installations for years.



SLQS Field Day 2026

NFØR



The 2026 SLQS FD was another successful event. About 25 members attended and 5 or 6 guests. A last-minute decision was made to change our category from 4A Battery to 6A Battery. This allowed for a couple of SSB stations for the newer members and those who are not comfortable with using CW. Along with SSB and CW stations, we had VHF, Satellite and a GOTA station.



Set up began on Saturday morning. The FD committee already had the antenna farm layout planned so it was just a matter of getting them up in the air. On the west side of the pavilion, the antennas consisted of a 40 meter SGA (NVIS) at a height of about 8-10 ft with a reflector on the ground. To the north there were 10, 15 and 20 meter Delta Loops. To the south there were 20 and 40 meter Delta Loops. Most of the antennas were placed in a straight line end to end. This was to negate band to band interference. It also allowed a SSB station and a CW station on the same band at the same time. We experienced very little station to station interference. To the east of the pavilion, an 80 meter dipole up at about 40-50 feet. And pointing to the east was an EFHW inverted vee with the center 40+ feet for 80 through 10 meters for the GOTA station.

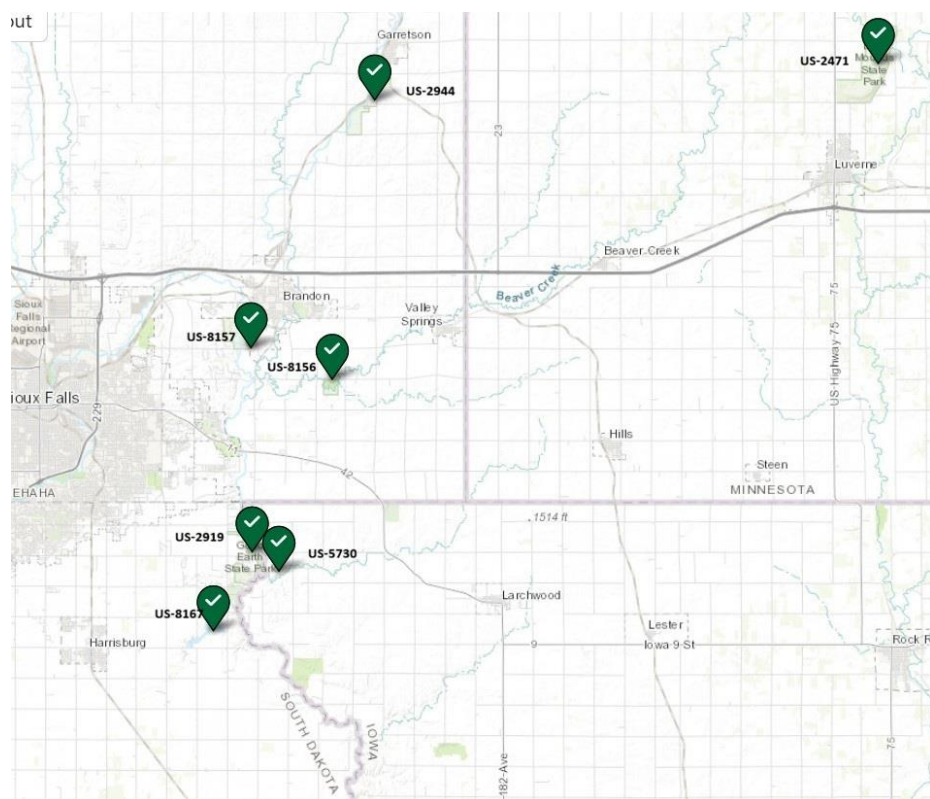
Equipment consisted mainly of Elecraft radios. KX3 and KX2. We also had 2 or 3 Icom IC-705 radios, a QMX radio and for VHF an Icom IC-9700. Most operators provided their own keys and headphones. Logging was done on Evolve laptop computers using the N3FJP logging software.

Our usual Field Day contacts were on CW but this year we added SSB for those not proficient in CW. Many FT8 contacts were made on 6 meters. Four contacts were made using 2 different satellites, one CW, one FM and two contacts on SSB. Our final score was 6,935 points, 588 QSO's

A big Thank You goes out to the FD Chairmen, KTØAA and KB5YZY and many others providing support. Also thanks to Bob, KØFHG for cooking lunch and dinner.

Three States-Seven POTA Activations What Fun! de ADØYM

When traveling I always try to add to my all time new one (ATNO) Parks on the Air (POTA) list. Opportunities are usually associated with family travel. We usually end up in northwest Iowa a couple of times a year. As a result, I continue to make lists of potential roves to maximize my ATNO opportunities during those trips. It can be frustrating as you can plot and plan but things do not always come together. I had an abbreviated version of this rove planned for last Christmas, but length of day and general bad winter road conditions thwarted that attempt. However, the plan came together during this mid-summer trip to the region.



Planned activations in MN, SD and Iowa for my POTA rove on 29 June 2026.

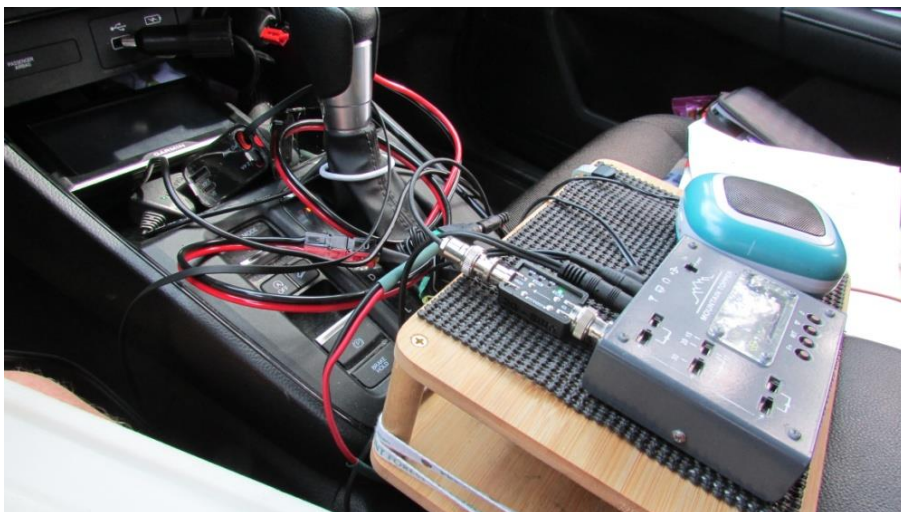
Early on the morning of 29 June 2026, I decided to once again take a shot at that three state POTA rove. I had a whole day break in planned family activities to take advantage of the opportunity. Most of the POTA's I have done to date have not required park permits. However, I needed permits for two of the three states, Minnesota (MN) and South Dakota (SD) on this rove. I was able to get the MN permit (\$7) on line but a similar attempt crash and burned for its SD counterpart (\$15) so I opted to take care of that at the first SD park entrance. It was a bit on the spur of the moment decision to go, but I had already thought about the route and had paper maps for backup. Past experience indicated I needed to be prepared for prairie wind and the potential lack of trees. Also being midsummer, I had to consider afternoon temperatures. In this case a heat index of 105 F was expected for the afternoon. That meant lots of water on board!

It was a two hour drive from my family base location in Spirit Lake, IA to my first activation site, US-2471 Blue Mounds State Park (SP), MN. About 25 minutes into the drive I realized I had picked up my battery from the charging station but failed to carry it to the car. Oh well. I was not too concerned as I had some alternatives available on board so I continued on to the park. I was very close when I encountered my first (unplanned) road closed/detour signs. I seem to always run into detours as part of any rove. Fortunately, I was able to back track only a mile or two before a parallel course was available. As a result, I came in from a different direction which had an entrance road into the southern end of the park. Wow an advantage having bought my park permit in advance. (I did not have to drive all the way around the park to the main entrance to obtain a permit.) The road climbed up an escarpment and put me high over the valley floor though it did not quite go to the crest. Wind was a sustained 35 mph with gusts. There were no trees on the parking lot so I opted to use my trailer hitch mount with a 33-foot push up fiberglass pole to support my W1VW linked vertical antenna. It is actually a few feet longer than the pole so I let about 20-inches of it flap in the wind at the top. That gave me the option of three bands, 40, 30 and 20 meters though all I used during the day was 20 meters. The bottom of the antenna was tethered to the trailer hitch so to minimize movement and to keep it from flopping in the wind. This antenna includes four 18-foot radials I placed beside and behind my vehicle in sort of an X pattern. It is a resonant antenna so no match box is needed though I have one available when funky things happen. This configuration ended up being my antenna setup for the entire day. Wind was part of being on the prairie so you might note the wind loading of the mast in all of the pictures for today's rove. It was a test of my trailer hitch pole mount which moved but did not fail. I think that the wind turned out to be an advantage as it pushed the antenna away from my vehicle. I have experienced some SWR issues with this particular antenna on 20 meters when the antenna and mast are more vertical. That is closer to the vehicle.

Equipment:

- LNR Precision Mountain Topper 5-Band [Mountain Toppers - LNR Precision Inc](#)
- Power Cord Adapter - Vehicle accessory to Power Poles
- N5IB Current Limiter / Voltage Control [A Current Limiting Accessory for QRP Power Supplies.pdf](#)
- Begali Traveler Paddle [Traveler - Begali's Web site](#)
- Trailer Hitch Adapter with PVC Stand Pipe for Push-UP pole support (homebrew)
- Push-Up Fiberglass Kite Pole (33-foot)
- W1VW Design Linked Vertical Antenna w/ four 18-foot radials [Amateur Radio Station WV1W](#)
- Forty-foot RG-174 Coaxial Cable with choke
- N6ARA MiniSWR [N6ARA MiniSWR - Assembled 20-80M - N6ARA](#)
- Sony ZX Series MDR-ZX110 Headphones [Sony ZX Series Wired On-Ear Headphones Black MDR-ZX110 Open Box Tested 27242867086 | eBay](#)
- Amplified Speaker (I only use this when visitors drop by.)
- Steno Pad
- Large (12" x 18") Kitchen Cutting Board for Lap Board
- Pentel P209 (0.9mm Lead) Mechanic Pencil

This is my basic station. I built a shelf that fits nicely in my vehicles console area. My battery (when present) and current limiter are housed under the top layer. I use a kitchen cutting board on my lap to support my paddle and notepad.



I started this activation with a used ten pack of AA batteries. It showed 11.2 VDC but after ten minutes of calling without success it dropped enough (< 8.0 volts) to result in a rig shut-down. OK, on to the next plan. I had some other battery/rig options but opted to use the vehicle accessory output. Fortunately, I had an adapter cable with me to make that possible. The downside of this choice was being limited to being in the vehicle for the rest of the day. However, I was able to leave the station in place and only needed to remove the antenna, mast, hitch and coax cable to move to the next location which saved some set-up time over the course of the day.



Blue Mounds SP - I backed into the parking place. Radials were placed on either side of my vehicle within my marked parking space and the other two out into the grass. It was a large lot which I initially had all to myself but then had company.

Operating with a consistent / reliable 12+ VDC power supply resulted in 12 QSOs in 14 minutes. Hearing no additional calls I signed off. Blue Mounds State Park SP was in the tri-state area making a three state rove in one day possible. Another reason for its choice was the presence of a bison herd which I hoped to view. I drove around to the opposite side of the park to the main gate to get location information for their viewing. Unfortunately, the staff was unable to provide me that information. They did suggest where I might try. I drove on into the park and stopped at a high overlook without success. I then drove all the way back around the park past the access road used for the POTA activation. Wonderful scenery but I was at the base of the bluff with what appeared to be a significant hike to the top. As it turns out, I ended up back at the activation site. It was still a hike, but I was already near the top. I walked past a closed lodge that would have been a wonderful spot to activate and continued to the enclosure fence. After some additional walking I was able to put eyes on a few bison all the way across the valley. They were too far for my camera to capture but I was able to claim success due to having binoculars along. The walk out was pleasant enough but a lot of time was used for this effort. Still, it was nice to enjoy the park beyond just a successful radio activation.



A picture of one of many a rock formations at Palisades SP. Note the red barn as a reference to my actual station location.

The next park on my list was US-2924 Palisades SP in North Dakota. This park was an addition to my original rove plan. There is much more daylight to work with mid-summer than during the winter when I originally had hoped to complete this rove. My route was a gravel road for more miles than I normally care to drive, but that was the route shown by my GPS phone app. It did place me in the midst of prairie I would not have experienced had I traveled I-90 which was some distance but clearly visible for most of that leg of the trip. At least there were no detours. I stopped at the main gate and purchased my ND daily permit for \$15. I confirmed it was good for the day and not park specific. I was pleasantly pleased with this park. You never know for sure what is available until after that first visit. I found an elevated parking lot overlooking Split Rock Creek which included a nice view of the Sioux quartzite spires which towered well above the creek. Again, it was very windy (35 mph plus gusts). Yes, the theme for the day.



This is my station location at Palisades SP. Note the wind loading of my mast and antenna wire. The barn shown on the right margin is the same as the one previously pictured.

The mast had quite a bit of an arc to it not because of the antenna but because of wind loading. The antenna actually became disconnected at the base from the feed line and flopped in the wind. It only took me eight minutes of calling to figure that one out. I should have known something was awry, but apparently my ZM-2 ATU antenna match box can provide an acceptable SWR for the BNC / UHF adapter which is the union between my antenna element and radials. The feed line connects to that connector. The antenna plugs into the other end of the connector via a banana plug and the radials attach via a large alligator clip. When I got out looking for problems the wire was suspended in midair. Once reconnected the match box was no longer necessary and I was able to complete 17 QSOs in the next 18 minutes. That's about as good as it gets! It would have been nice to have taken advantage of the streamside trees and picnic tables but again, I had to use the vehicle for a power supply. This was a park I would like to visit again.



Big Sioux SRA came complete with a shady parking spot. It was more of an urban park.

My next stop was US-8157 Big Sioux State Recreational Area (SRA). I was able to find a shaded parking spot oriented so the wind would push the top of the mast away from my vehicle. There was a nice gazebo nearby but was in use by some other folks. This was another straightforward activation in which I was able to complete 12 QSOs in 13 minutes. As soon as the calls ceased, I called QRT. It was a little before 3:00 pm CDT. I needed to pick up the pace, but fortunately band conditions were still consistently good. The remaining parks were relatively close to each other.



I had since learned to use the wind in my favor by the time I activated Beaver Creek State Nature Area. Just point the vehicle into the wind.

My next stop was US- 8156 Beaver Creek State Nature Area. It took a little over a half hour to tear down, travel and set up for this activation. It too had a pavilion and picnic tables available to activate from but I opted for a higher less used location. Instead, I set up on the northeast side of the park that was completely in the open and without amenities. I called until responses diminished and made 16 QSOs in 22 minutes.

At least there was confirmation signage at Blood Run State Historic Site.



My next stop also brought me to my third state (Iowa) location to activate. US-5730 Blood Run State Historical Site (SHS) was more challenging to find than the others. My general description had it located about a mile south of Larchwood, IA. Given the concept of section roads being nice grids in Iowa both north and south I thought I could drive to Larchwood and just head south. Not so fast as it turns out. I ended taking a very long trip around the general area. What saved the day was having printed the plat book page for the SHS. Even then, it seemed like a leap of faith when I turned into a farmstead and then just before getting to the front yard making a hard left to follow a lane with agricultural fields on either side. There was not a single road sign to indicate the site's location until I arrived at the parking lot. There was one sign that was good for a chuckle during my travels to this one. The welcome sign to Granite, Iowa included a request ... "Please Go Slow. Our population is already Low." The parking lot provided a nice overview of the SHS. Blood Run is a sacred site and ancestral home of the Omaha, Ponca, Ioway, and Oto tribes. There were no ruins to visit but still a nice place to visit due to its scenic vista. Propagation remained good so I was able to complete 12 QSOs in just 14 minutes. Again, a pause to my CQ resulted in my calling QRT. Having activated three states, I could have called it for the day. However, I had invested a lot of time just getting there and do not leaving nearby parks un-activated if there is time to work them. There would be no "orphan" parks to mop up on some subsequent trip.



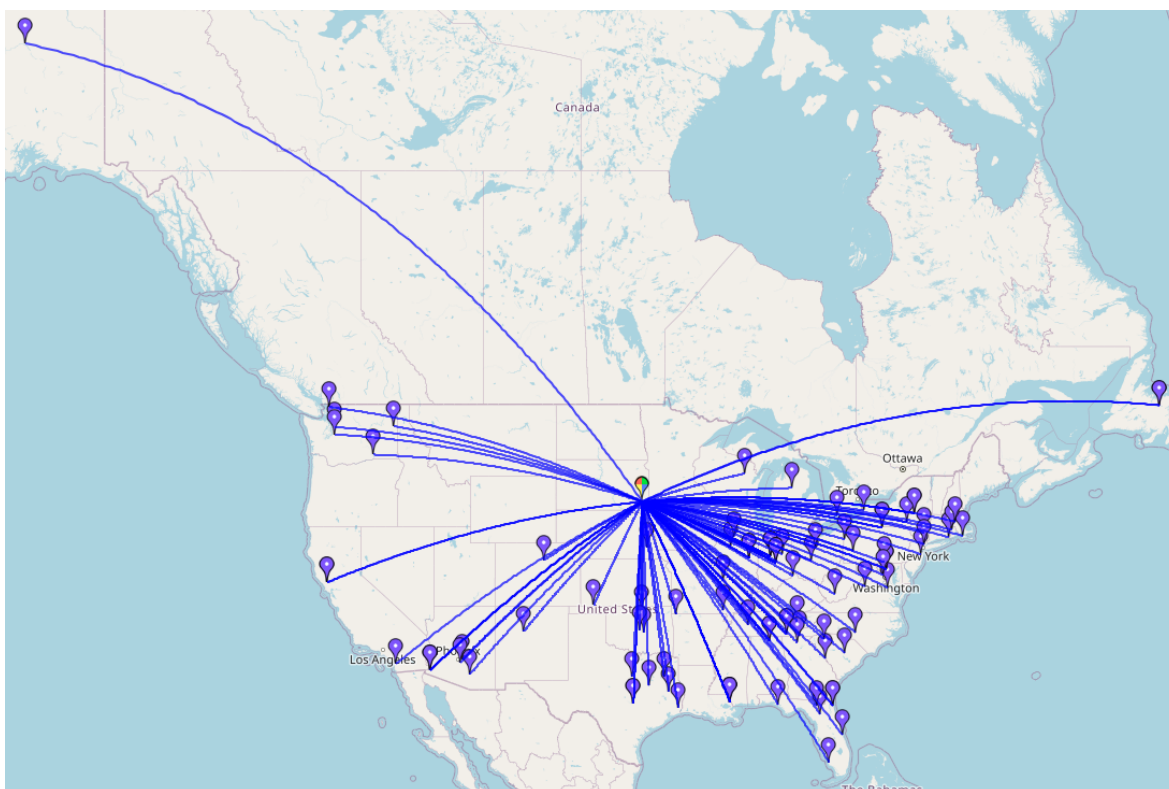
Even a little shade was welcoming at Lake Alvin SRA.

My next stop was a return to South Dakota. Routing required a bridge to cross the Big Sioux River to access US-8167 Lake Alvin SRA. I chose the upper parking lot which overlooked the swimming beach which based on the sounds below was a very popular and fun place. I had plenty of practice setting up. The sun was lower on the horizon and a tree line adjacent to the parking lot provided shade. The heat index had been above 100 F all afternoon so such conditions were welcome. I was able to complete 13 QSOs in 22 minutes. They would have been quicker but there was a six minute period of calling without response in the middle of the activation. That coincidentally corresponded with a gap in spotting on the POTA website.



Good Earth SP was one of the more developed sites I activated.

I could have cut off my rove at this point. However, I still had 68 minutes left to tear down and travel to my last planned activation for the day. It had been going well all day so I went for it. US-2919 Good Earth SP was next. Fortunately, it was not very far to drive so I was able to complete my first QSO with 45 minutes remaining in the POTA day. Again, good results with a total of 12 QSOs in 16 minutes. I briefly considered running on 40 meters for a few more but opted instead to walk some of the grounds around the Visitor's Center. The center was closed on Mondays and I was after business hours so that really was my only option. Regardless there were great interpretive signs and it was nice to take in some of the sights before the long drive back to home base.



Composite map of all the QSOs of my 29 June 2026 POTA rove. Again, all QSOs were on 20 meters.

I prefer to linger longer to work more stations but today's logistics required otherwise. I had four hours in travel there and back just to get to the selected parks. Even with the long summer day, it was ambitious for me to attempt seven parks in a single day. I have done more, but not with the overhead of a long drive to even begin. While it would have been desirable to call on other bands, 20 meters seems to consistently be the money band if I can only pick one. These quick activations still require about an hour on average to complete with reasonable band conditions. It was nice to have a cell phone and corresponding cell service in order to spot myself. That works a lot better than pre-scheduling on the POTA site which I have done but takes a bit and skill and luck to stay on schedule. Unexpected detours or poor directions can sabotage the trip. I was able to build in some time to enjoy several of the sites beyond just radio activity. That certainly is value added. I was able to meet my three states in one day goal and actually got to add a few extra activations into the mix. It was a fine day, though hot and windy, to play radio.



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Amateur Radio Club, Joplin, Missouri



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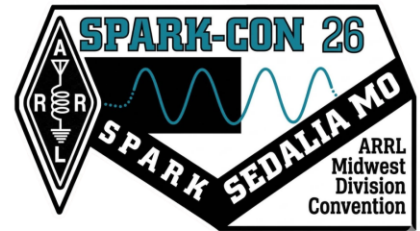
2025 Joplin Hamfest Logo



ARRL MIDWEST DIVISION 2026 CONVENTION

SEDALIA PETTIS AMATEUR RADIO KLUB

SPARK-CON



Event Highlights:

Vendor & Exhibitors - Explore the latest in amateur radio gear and technology.

- Swap Meet - Buy, sell, and trade equipment.
- Full Seminar Schedule - Learn from expert speakers.
- License Testing - Get your amateur radio license or upgrade.
- Get On The Air Special Event Station
- Air Mobile Contacts Saturday - Get a Certificate!
- Thousands worth in Prizes - Including hourly door prizes!
- Emergency Preparedness - Hands-on demos and discussions.
- Near Space Balloon Launch - A thrilling high-altitude experiment.
- Transmitter Hunt & Antenna Clinic - Test your skills in direction-finding.
- Hamfest Dinner - Friday Night from 6:00 - 8:00 PM.
- Grand Prize Drawing - Saturday at close of show(not present to win)
- Youth STEM Presentation and Seminars
- For other convention information, see QR Code

Hotel Booking: Hotel Bothwell (660-826-5588), Best Western (660-826-6100), Holiday Inn Express (660-826-4000) have blocks of rooms for this event ask for the Spark-Con block when making reservations

Missouri State Fair Camping: Full hookups (660-530-5600)

Location:

Missouri State Fair Grounds
2503 W. 16th St. Sedalia, MO 65301

Date: 10/9/2026 & 10/10/2026

HAMFEST / Seminars / Convention

All Run Through Times Below:

12:00PM to 5:00PM Friday

8:00AM to 3:00PM Saturday

Admission Fee: \$10

Talk-in: 147.030 -OFFSET, PL 179.9

SPARK-CON.ORG

Contacts:

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KEØQYA@yahoo.com

More information:

www.wa0sdo.org

FACEBOOK WEB PAGE



SCAN FOR MORE INFO

Radio History:

- **August 13** - 1912: Congress approves "Radio Act of 1912", first license authority.
- **August 14** - 1894: Hertz system of wireless signaling demonstrated at Oxford.
- **August 21** - 1924: U.S. radio operators go silent for signals from Mars.

Four State QRP Comfortable Nets

Meet each Wednesday night beginning at 20:00 Central Time. Add anything to the exchange that you wish, temp, rig, ant, etc.

Checking into all sessions is encouraged. We call it the "Clean Sweep".

CW - 8:00 pm Central time - 40 Meter Net on 7.122 +/- QRM ACØBQ/NCS

CW - 8:30 PM Central time - 80 Meter Net on 3.564 +- QRM ACØBQ/NCS

DMR - 9:00 pm Central time - DMR Net on Talk Group 31654 NØYJ/NCS

JS8 Net - 1700 UTC until 0030 UTC, NYØJ

Currently there is no PSK31 Net

Everyone is welcome to join in!

DMR Voice Net

Wednesday evening DMR Voice Net will be at (Thursday) 0300 UTC (9:00PM Central Time Wednesday/) Four States QRP has a Brandmeister DMR Talk Group (TG31654). Join us to discuss QRP, ask questions, or just ragchew. The Wednesday net is a directed net but any other time you may use the Talk Group to chat with other QRPers. Net Control operator is Bert NØYJ.

For information and help, check out the DMR subgroup on 4sqrp.groups.io

<https://4sqrp.groups.io/g/DigitalFM>

Second Sunday Sprint

Occurs on the second Sunday of each month, 7 to 9 PM Central

Any mode, any band (except WARC & 60 mtrs) -

- Suggested frequencies: standard calling freq. plus 7122 and 3564 (CW), and 3985, 7285, and 14285 (SSB).
as well as the usual QRP watering holes.

QSO's with the same station on different bands are allowed. CW and SSB portions of a band count as two bands.

- Calling CQ is suggested to be "CQ 4S"
- Exchange is "RST, SPC, member number (power if non-member)"
- 5 Watts max CW, 10 Watts PEP max SSB.

The station with the most contacts each month will be emailed a certificate. Furthermore, the top three stations with the most SSS contacts during the year will also receive certificates via email.

Scores are submitted via the grpcontest.com/4sgrp website (compliments of W8DIZ).

For full details, please download the [complete rules \(PDF\) here](#).

For questions, please contact **Walter (K5EST)**:

SecondSundaySprint@4sgrp.com

Thursday Morning

The Four State morning CW Net has been convened for members who like to start the day on the air.

We meet each Thursday morning at 8:00 AM Central on 7122 kc.

7122 has become the Four State 40M hangout frequency, and often members can be found there on any morning.

Editor's Note:

Articles are needed to make every Banner issue successful. If you have something of interest, please send it to the editor at the email address below. You do not need to send a finished article. You can send some comments, notes, etc. and I can put it all together for you. Pictures are always of interest. I prefer articles in **Word** format, that works the best, but I will try to work with what you have as I can. Some of the items of interest would be outings and/or operating events by yourself or a group, construction projects, radios, antennas, accessories, QRP Field Day, SOTA, etc. Anything QRP is welcome.

de KCØPP

editorqrpbanner@gmail.com

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