Full Quieting

The Official Journal of The Bellbrook Amateur Radio Club

January 2024 — Issue 29

In This Issue

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From the President & Editor

Welcome to 2024! I'm glad to have made it another year and that you are here with me!

We had our election in December, with just a few changes in leadership. I'll be your President another year, but that will be all, so it's time to groom a suitable replacement! I feel good about the things BARC has accomplished in 2023, it's due to the dedication of many hardworking folks. Hopefully 2024 will continue our efforts toward making BARC one of the best amateur radio clubs around.

This issue is a little lighter in page count than most, everyone's entitled to take some time around Christmas to focus on their faith and family. In spite of that, there are some things that you'll find interesting. I wrote a description of a smaller POTA battery box that is more portable than the large one I talked about last July. I wrapped up the DMR series with an article on how to build a small hotspot running DPSD. We have some thoughtful ideas on what we want to educate ourselves with in 2024.

Don't forget we have Winter Field Day on Saturday, January 27th at the Paw Paw Shelter, Hills and Dales Metropark, Dayton, OH. We'll have a fire, food, and radios, so come out, even if only for a short while.

Just like the fortune cookie says, "May you live in interesting times." For better or worse, 2024 will be an interesting year. Hang on, it'll be a wild ride! Let me know what you'd like to see written up in Full Quieting to guide us on our journey together!

73, Ray Hitt, **N8VMX**
BARC President & *Full Quieting* Editor

Your views are important to BARC and to *Full Quieting*

Please make yourself heard at the club, via email, and on the air...

2024 BARC Officers and Directors

President: Ray Hitt, N8VMX
Vice President: Jim Totten, WA8HUB
Secretary: Jim Gifford, N8KET ***(New Call)***
Treasurer: John Westerkamp, W8LRJ
Senior Director: Jim Lusk, KC8EFD
Junior Director: Bob French, AC8ZU

2023 Coordinators

Clubhouse: Jim Lusk, KC8EFD
Comm Center: John Westerkamp, W8LRJ
Contesting: Ken Gunton, W8ASA
Education: Paul Sharp, WS8R
Emergency Preparedness: Jim Lusk, KC8EFD
Field Day: Glenn Rodgers, W8IO ***(New Call)***
Full Quieting Editor: Ray Hitt, N8VMX
Hospitality & Librarian: Natinka Siwecki, KD8NUA
IT: John Westerkamp, W8LRJ
Lunch Bunch: Jim Totten, WA8HUB
Net: Paul Sharp, WS8R
Public Service: Don Parker, KB8PSL
QSLs: Roger Hoffman, WB9BXT
Repeater: Russ Roysden, N8NPT
TechNight/Workbench: Trevor Clarke, K8TRC
Webmaster: John Westerkamp, W8LRJ

BARC Net: Every Sunday, 8 PM Local

147.045 (+) (118.8 PL enc and dec) [Alt = 443.675]

Directions to BARC Clubhouse and Comm Center

Rooms 1 & 3 Lower Level Sugarcreek Elementary School

51 S. East Street, Bellbrook (One block east & one block south from the traffic light in downtown Bellbrook)

Enter at South end of building

Member Interviews

BARC wants to hear from you!

Whether you're a long-time BARC member or a brand new one, young or old, please tell us about yourself. Here are some simple guidelines, although you're free to use whatever format you're comfortable with.

This page is all about you. It's your chance to let BARC members to get to know you better.

Here's are a few sample questions to help get you started, but you can write whatever you want.

Please send us some pictures of anything you want BARC to see (you, station, antennas, pets, family, anything)

- When you were first licensed?
- How did you learn about Ham Radio (HR)?
- Why did you become a Ham?
- What are your current HR interests?
- What are you most passionate about regarding HR?
- Tell us about your stations (past, present, and future)
- What was the most exciting thing that happened to you in HR?
- What do you do for a living?
- Would you like to say something about your family?
- Do you have other hobbies or interests?
- Any other comments for BARC?

What's Up BARC?

Ray Hitt, N8VMX

Announcements regarding any member news including: new equipment, antennas, grandchildren, children, pets, operating news, etc.

Welcome New BARC Member!

Fred Stockwell, KE8ZPN, Technician

Congratulations Upgraded Amateur Radio Operators!

Thomas Ewry, *KE8SOX*, Amateur Extra

Mark Gates, *KE8TAX*, General

Tom McClory, *KE8FWZ*, Amateur Extra

New Call Signs!

Jim Gifford, *N8KET*

Glenn Rodgers, *WI8O*

BARC does POTA… and Winter Field Day… will you?

Have you tried **P**arks **O**n **T**he **A**ir yet? Our upcoming Winter Field Day (Saturday, 27) is the perfect time to "dip your toes in the snow" and see how much fun it really is! The draw back… yes, it's cold in January… which is why we are holding it at the Paw Paw Pavilion (Hills & Dales Metropark, Dayton)… where we'll enjoy standing around a large fireplace, enjoying a tasty Pot-Luck for nourishment, and setting up & playing radio. It's kinda "what we do".. and a great way to see if you're into POTA, and if a new operator… a fantastic was to get on the air and get excited about HF! It's simply another fun event with no pressure and a great way to spend a Saturday in January! Want to learn more? Checkout: winterfieldday.org

For Sale: Yaesu FRG100 SW receiver (NOT a transmitter). It works well on the HF bands. $40 OBO.

Jim Gifford *N8KET*
937-718-6126
kd8apt@gmail.com

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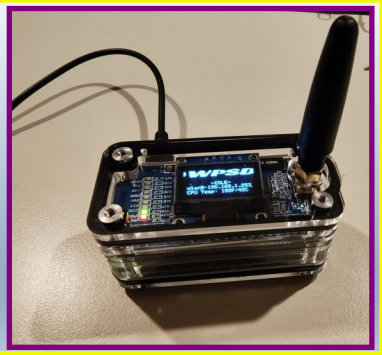
What's Up BARC? (continued)

...And Pepto for when you're trying to get everything working

Larry Baker, KB8EMD, has 3 hotspots up and running. The one with the 3.5" screen is a DMR unit for the house, another is a DMR unit with battery for portable operation, and the last is YSF (Yaesu System Fusion) unit with battery for portable operation. These all work with the Wi-Fi at Larry's home QTH, his Android cellular hot spot, and his friend's house.

{Editor: I totally understand the need for Pepto after writing up a series on hotspots the past few months! }

N8VMX's Portable Hotspot



Ray Hitt, N8VMX, just built up this very portable hotspot based on the Raspberry Pi Zero 2W and the N5BOC LoneStar MMDVM board. It's still undergoing testing but has been used a few times on the 1130 DMR Net on Talkgroup 310557 {join us!!!}. Read more about this later in this Newsletter on page 17

(Continued on next page)

What's Up BARC? (continued)

1130 DMR Net—Monday through Friday 1130AM on DMR Talkgroup 310557

If you haven't joined us for the 1130 DMR Net, please give it a try!

The **1130 DMR Net** is a very informal net with rotating net control, currently it's been John W8LRJ, Ray N8VMX, Jim WA8HUB, but more are welcome to join in. The topic is DMR, amateur radio in general, what you've been up to, or whatever's on your mind. Nets usually run 30 minutes, but can go up to an hour if there's lively discussion. Unlike the other DMR nets where you check in and that's it, we go back around and give everyone the floor for as long as they like. This is a good way to make sure your DMR skills are up to par, your audio's OK, your hot spot isn't flaky, and so on. And it gives you a chance to get to know your amateur radio fellow travelers a little better. Please join us!

This talk group is accessible many ways; through your own DMR Wi-Fi hotspot, through Tim Procuniar, N8NQH's, East repeater in Bellbrook or West repeater near Carillon Park, or a local Brandmeister repeater near you (see map). Setting up your DMR radio to talk on this talk group is explained quite well on Tim's website. If you need technical help, please contact W8LRJ, N8NQH, KB8EMD or N8VMX for assistance, we'd be glad to help.

Officer, Director, and Coordinator Inputs

Education: Paul Sharp, WS8R: See column on page 12.

Secretary: Jim Gifford, N8KET: I took notes at our planning meeting, minutes at our general meeting and distributed to members. We just had our election, and it was a hard-fought campaign. I also researched and obtained a Special Event call sign (W2W) for December 17, 2024, club event commemorating the Wright Brothers' first flight. More to come throughout the year. I am also actively looking into club shirts, hats, and sweatshirts. I look forward to perform secretarial duties AGAIN next year. Happy New Year as we LEAP into 2024.

BARC January 2024 Event Calendar

Tue Jan 2 2024

6:30pm POTA Meeting..... Where: BARC Clubhouse

Thu Jan 4 2024

7pm Planning Meeting..... Where: BARC Clubhouse

Sun Jan 7, 2024

8pm Weekly Net..... Where: 147.045+ (118.8 Hz tone)

Mon Jan 8, 2024

6:30pm Flex Users Group..... Where: BARC Clubhouse

Tue Jan 9, 2024

11:15am Lunch Bunch..... Where: Chic-Fil-A, 5301 N Cornerstone Center

Sun Jan 14, 2024

8pm Weekly Net ..... Where: 147.045+ (118.8 Hz tone)

Thu Jan 18, 2024

7:30pm General Membership Meeting..... Where: BARC Clubhouse

Sun Jan 21, 2024

8pm Weekly Net ..... Where: 147.045+ (118.8 Hz tone)

Tue Jan 23, 2024

11:15am Lunch Bunch..... Where: Culp's Café, 1000 Carillon Blvd

Thu Jan 25, 2024

7pm Dinner & Movie Night..... Where: BARC Clubhouse

Sat Jan 27, 2024

12pm Winter Field Day ..... Paw Paw Pavilion, Hills & Dales Metropark

Sun Jan 28, 2024

8pm Weekly Net ..... Where: 147.045+ (118.8 Hz tone)

BARC Movie and Dessert Night

We're BAAACK! That's right, the BARC Movie & Dessert Nights officially begin January 25, 2024. Our movie for January is a fun light hearted film from 1987, **The Adventures in Baby Sitting**! Also note that in April we have a Double Feature: **The Meg & The Meg 2**. You can stay for one or both of these action packed films.

Upcoming Dates for Our 2024 BARC Movie & Dessert Nights:

January 25, 2024	**The Adventures in Baby Sitting** (Adventure, Comedy, Crime)
February 22, 2024	**Murder on the Orient Express**
March 28, 2024	
April 25, 2024	**The Meg & The Meg 2**
May 23, 2024	
June 27, 2024	**The Call of the Wild**
July 25, 2024	**Father Goose**
August 22, 2024	
September 26, 2024	
October 24, 2024	

All movie nights are held on the fourth Thursday of each month January through October at 7:00 PM in the BARC Clubhouse. We take November and December off for the holidays.

At each movie night we pop up *fresh* BARC's famous popcorn!

We welcome RECOMMENDATIONS for MOVIES so please send them our way.

Have a very Happy New Year and we'll see you in January at the Movies!

Tink/KD8NUA

Lunch Bunch

Jim Totten, WA8HUB

Hello my fellow lunch lovers. Time for the 2024 New Year, and time to renew our lunch meetings for this new year. To recap: Our club meetings are on Thursdays. The Planning meeting is the first Thursday of the month and the General meeting on the Third Thursday. Our Lunch Schedule is the second and fourth Tuesday of each month. If a scheduled Tuesday gets slammed by some unforeseen event the lunch is just cancelled. The invitation messages will go out Wednesday or Thursday of the previous week.

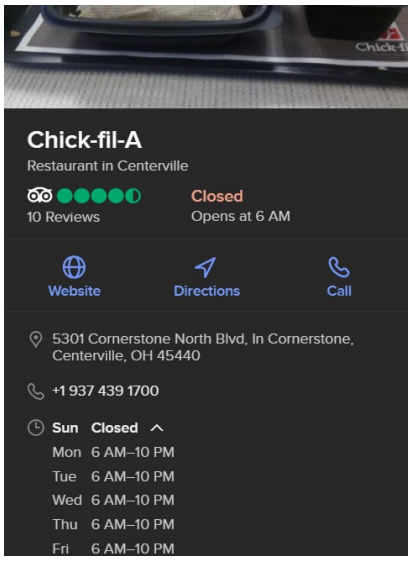
Now, how will the lunches be selected? Accompanying this information page is the same chart in last months *Full Quieting* listing our current set of restaurants. The restaurants are listed in the order most popular (at least for the first few) and with a balance variation. No two chicken restaurants in sequence. This published list is the order we will select each lunch day. You now know what the whole order is and know what's coming next.

We had some great lunches in October: Rooster's Wings , and The Golden Corral Grill and Buffet, both in Beavercreek. Rooster's Wings menu contains much more than wings. The Golden Corral Grill and Buffet is back. The Carrot Cake is to die for. November is Thanksgiving month. November 23rd is Thanksgiving Day. The Yaffa Grill (Mediterranean Food) was our choice. Nothing was scheduled for December but Tim, N8NQH generated a Bunch Lunch at the Wandering Griffin Brew Pub on December 7th .

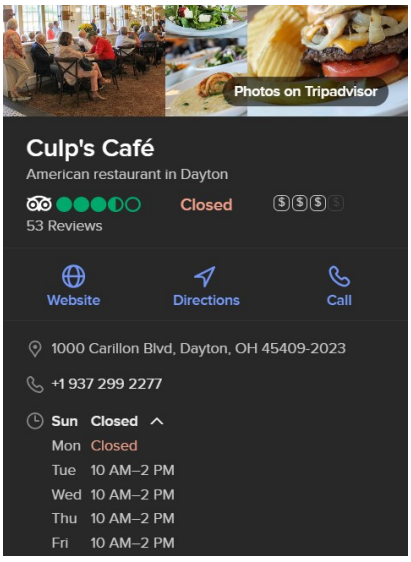
January 2024 has some surprises. Our first lunch on January 9th is the Chic-Fil-A in the Cornerstone Center. Location is at the intersection of Wilmington Ave. and Feedwire Rd. The second lunch is on January 23rd at the Culp's Café in Carillon Park. This is a first. Address is 1000 Carillon Blvd Dayton, OH 45409. You can get to Culp's without going into the park and paying fees. Their regular hours are 10 – 2.

That's a wrap for this month. Happy eating. ***73, Jim,*** **WA8HUB**

Tuesday, January 9, 11:15am



Tuesday, January 23, 11:15am



Lunch Bunch 2023 List

Jim Totten, WA8HUB

Date	Restaurant	Address	City	Phone Number
7/25/23	Cherry House Cafe	1241 Meadowbridge Dr.	Beavercreek, OH 45434	(937) 320-6200
8/08/23	Another Broken Egg Cafe 7:00 am to 2:00 pm	2453 Esquire Dr.	Beavercreek, OH 45431	(937) 912-5074
8/22/23	China Garden Buffet	112 Woodman Dr. Airway Shopping Center	Dayton, OH 45431	(937) 781-9999
9/12/23	First Watch 7:00 am to 2:30 pm	5245 Cornerstone North Blvd	Sugarcreek Township, OH 45440	(937) 732-9013
9/26/23	Submarine House	3195 Dayton-Xenia Rd.	Beavercreek, OH 45434	(937) 429-8650
10/10/23	Roosters Wings	2430 N. Fairfield *The Shoppes at FC*	Beavercreek, OH 45431	(937) 702-9500
10/24/23	Golden Corral Buffet and Grill	2490 Commons Blvd.	Beavercreek, OH 45431	(937) 613-5478
11/14/23	Yaffa Grill Mediterranean Food	2844 Colonel Glenn Hwy	Fairborn, OH 45324	(937) 429-4959
01/09/24	**Chic-Fil-A**	**5301 Cornerstone N Blvd,**	**Sugarcreek Township, OH 45440**	**(937) 439-1700**
01/23/24	**Culp's Cafeteria**	**1000 Carillon Blvd**	**Dayton, OH 45409**	**(937) 293-2841**
02/13/24	City Barbecue	2001 E. Dorothy Lane	Kettering, OH 45420	(937) 200-1006
02/27/24	Marion's Piazza	1320 N Fairfield Rd.	Beavercreek, OH 45432	(937) 429-3393
03/12/24	Red Robin	2671 Fairfield Com-mons Blvd.	Beavercreek, OH 45431	(937) 320-9800
03/26/24	Beavercreek Pizza Dive	4021Dayton-Xenia Rd.	Beavercreek, OH 45432	(937) 431-8669

Education Coordinator Update

Paul Sharp, WS8R

Last year we tried a new approach to our Education Program—that was to coordinate all or most of the monthly programs, Tech Night, Operating Afternoon, and other events so they all had a common theme / topic. That sounded good in theory but did not work out well in practice, so we are not going to use that approach for this year. Out with the new way and in with the old way!

We will continue the Parks On The Air (POTA) Special Interest Group and the Flex User Group on a monthly basis.

This year in an e-mail and at the Dec 23 General Meeting, we asked the BARC members tell us what topics they would like covered. As of 28 Dec 23, I have received 6 responses. My plan is to meet with the Education Committee in early Jan 24 to review these topics and any other topics, and make a selection of which topics to include and if possible who and when to present them. We would present these at Operating Afternoon, Tech Night, or any special event.

Here are the responses:

From George Sucich, KE8SNS:

1. More on antennas, especially for those living with HOAs.
2. A club within our club for those who want to improve their CW skills wherein we could practice together on the air.
3. Operating features of ICOM 7300.
4. Operating QRP on SSB- hints.

From Roger Parrett: Gnuradio by GNU Radio is a free software development toolkit that provides signal processing blocks to implement software-defined radios and signal processing systems. It can be used with external radio frequency hardware to create software-defined radios, or without hardware in a simulation-like environment.

From Jim Totten: Allstar and EchoLink.

From Glenn Rodgers: John's December presentation was great… what about having a "hands-on" education day of Fox & Hound, or a day of working Split?

From Tom McClory: My thoughts are focus on "get on the air" perhaps even a repeating topic pattern.

Two thoughts — 1) Decide on a theme or, 2) Follow the lead in the ARRL On The Air magazine. The benefit of #2 is the mental effort is reduced.

For #1 have 4 rotating quarterly themes, for example: **Q1**— VHF/UHF for new techs , **Q2** — HF SSB basics for new generals; **Q3** — HF digital modes; (including PSK-31, SSTV, RTTY), **Q4** — more exotic UHF/VHF modes including satellites, DMR, Fusion, EchoLink, any digital data modes common for emcom maybe even mesh stuff. Then repeat with one month each quarter a fresh topic and the other two months repeating themes to draw in fresh licensees. Somewhere squeeze in POTA SOTA contests, dx, etc.

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Education Coordinator Update (continued)

As for specific topic? I've been contemplating RTTY. Building antennas. Fox hunting. Prepping to be ready for the club's proposed special event station.

Here is a list of additional topics for Operating Afternoon, Tech Night, or any special event.

- How to operate, use, and interpret antenna analyzers.
- Different coax and connectors, when and how to use them.
- Soldering and crimping, hands on.
- Basic and advanced soldering techniques.
- Understanding and operating digital modes, including FT-8 and FT-4.
- POTA spotting, contacting and logging.
- DMR operation.
- Knots for the ham.
- Working contests and logging.
- DX expeditions, how to find them, and how to work them, split, radio etiquette.
- A hands on review of how to operate the ICOM 7300 and patch panels, radio etiquette.
- Grounding and bonding.
- How do antenna work, where do the electrons go, what is SWR.
- Different types of antennas, their uses, advantages and disadvantages.
- Filters, what are they, when and how to use them.
- Tour of BARC roof top to see the antennas.
- Allstar and EchoLink.

73, Paul WS8R

POTA Update for January 2024

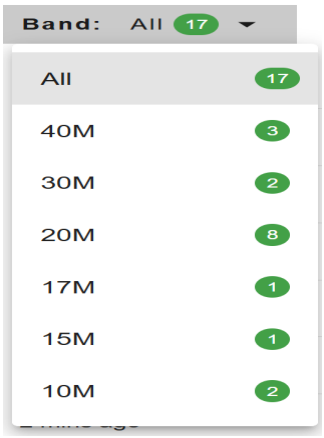
Paul Sharp, WS8R

What is a POTA and why should you use your valuable electrons to contact a park? Like all things in ham radio, it is a fun activity. You can enjoy it from the comfort of your shack or set up in a park and start transmitting. There are 2 parts to POTA: the activator and the hunter. The activator sets the radio equipment up in a POTA recognized park, calls CQ, answers the thousands of anxious operators and then submits a contact log. The hunter sits in their warm shack, answers the activator's CQ and moves on to the next one. POTA is not a contest, but is a special event with lots of pileups and interesting conversations with the activators about the park they are in and the equipment they are using.

To get started, I recommend you log into the POTA website, explore it, and sign in to establish an account: https://parksontheair.com/.

Once you have established an account, go to https://pota.app/. Here you can see many of the POTAs that are activated and waiting for your call.

There is a lot of information to see and to use to make contacts. For instance, you can see all of the parks that are operating on all of the bands, or you can select the just the band you are interested in. This screen shot shows all the bands and how many parks are operating on each band. This is helpful to select the band that has the most parks operating.



For more options, in the upper left corner you will see this helpful screen. Click on the 3 horizontal bars and ham radio magic appears.

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There are many awards you can receive for being a faithful POTA operator, be it as a hunter or activator. Here is an award from Mark Crabtree, N8PEP, my first mentor and good friend. Mark has made over 2,000 contacts as a hunter!!! These were made with a G5RV and various wire antennas with no more than 200 watts, and a lot of spare time.

If you are interested in learning more, please check out these web sites:

https://docs.pota.app/ Info about POTA.

https://www.youtube.com/watch?v=odegfaGczAc An introduction to POTA.

https://www.youtube.com/watch?v=7wM7T2VuzVA Getting started with POTA.

https://www.youtube.com/watch?v=WQNayyncaHg , info about hunting.

To learn more, please join us for our monthly POTA meeting on **Tuesday, 2 January 2024 at 6:30 PM** in the BARC Clubhouse.

73, Paul WS8R

Yet Another Battery Box

Ray Hitt, N8VMX

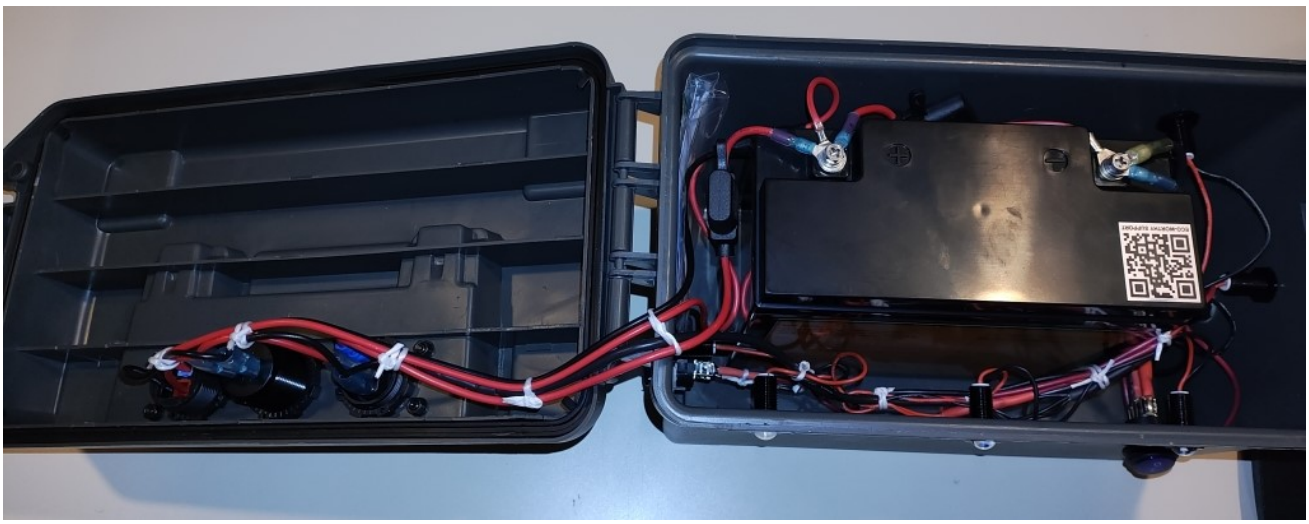
Last summer, I built a 50AH $LiFePO_4$ (Lithium Iron Phosphate) battery box (see the July 2023 *Full Quieting*, Page 16). It's nice, and will run things a long time. However, I didn't want to uproot it for little things around the QTH or a short POTA event, so I decided to build a 30AH little brother to the 50AH big brother battery box. Here it is...

I stuck with the basic 50AH design but did make some minor changes. I still use a power switch on top to cut power to the PowerPole and USB plugs, but because I'm limiting the current to 20A max, I got rid of the high current relay. I have fewer accessory plugs; just one PowerPole (red/black), another PowerPole (cyan/black) to connect to an external charger (AC or solar). I kept a 12V cigar lighter plug on the back, they're always useful.

Something I added that was not on the 50AH battery box is LED spot lighting. I have a single "EagleEye" LED on the left, back, and right sides, but put three of them on the front for when you need extra lighting. These LEDs will run for a VERY LONG TIME and are great for power failures or working pre-dawn or post-sunset POTA.

This battery box is far lighter at 10.35 lbs - much easier on the arms. Knowing me though, I will probably take them both on POTA!

73, Ray N8VMX



Special Event Stations

Paul Sharp, WS8R

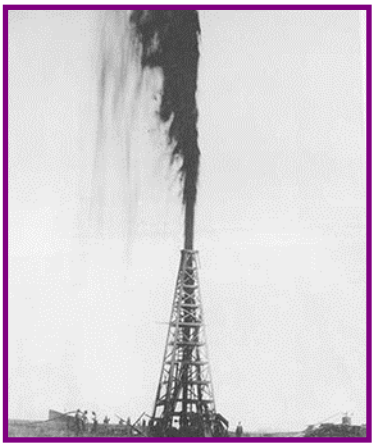
Here are 2 links you can follow to find many SES that suit your varied interests. I may repeat and update some of these links as there are only a few many sites focused on SES.

http://www.arrl.org/special_events/search/page:2/model:Event.

https://www.qsl.net/va3rj/spevents_dx.html.

Here is my pick of the litter of SES that I think will be of interest to my fellow BARC members. Something for everyone! BARC has a few members who were / are in the US Military, for you history buffs, there is a reenactment, an oil gusher in Texas, and discovery of gold in California, and as a special treat there is Winter Field Day with BARC. Such a deal, all for the price of yearly dues!

01/06/2024 | Second Seminole Indian War Reenactment, Jan 6-Jan 7, 1300Z-2200Z, K2S, Bushnell, FL. Hog County Amateur Radio Association - K4HOG. 14.045 - CW 14.250-260 - PH 21.325 - PH 28.450 - PH. Certificate. Gene King, KI4LEH, 4655 NW 68th Blvd., Lake Panasoffkee, FL 33538. Times are daily. This event/reenactment commemorates Dade's Battle of 1835 during the Second Seminole War. Taking place at the current location known as the Historic Dade Battlefield State Park in Bushnell, Florida. This will be the first time our association or any amateur club has set up a Special Event Station. K4HOGFL@gmail.com or https://k4hog.org.



01/13/2024 | 123rd Anniversary of the Lucas Gusher, Jan 13-Jan 14, 1400Z-2200Z, K5S, Beaumont, TX. Beaumont Amateur Radio Club. 14.250 7.250 3.870 14.074. Certificate. Beaumont Amateur Radio Club, 4839 Hwy 326N, Kountze, TX 77625. E-certificate also available. k5s.lucasgusher@gmail.com or www.w5rin.com. Here is the information about this event: The Lucas gusher at Spindletop, Texas, January 10, 1901: This was the first major gusher of the Texas oil boom. On January 10, 1901, at a depth of 1,139 ft (347 m), what is known as the Lucas Gusher, or the Lucas Geyser blew oil over 150 feet (50 m) in the air at a rate of 100,000 barrels per day (16,000 m3/d) (4,200,000 gallons). Nine days passed before the well was brought under control.

01/13/2024 | Last NVA MIG Shot-down by USS Midway F-4 (12JAN73), Jan 13, 1700Z-2359Z, NI6IW, San Diego, CA. USS Midway Museum Ship. 7.250 14.320; PSK 14.070; DSTAR on PAPA System repeaters. QSL. USS Midway Museum Ship, 910 N Harbor Drive COMEDTRA, San Diego, CA 92101. www.qrz.com/db/ni6iw. Our own Joe Muchnij, N8QOD, was there and can tell you exactly how this historic event took place.

(Continued on next page)

Special Event Stations, (continued)

01/20/2024 | 110th Anniversary of Cambridge Amateur Radio Association, Jan 20, 1600Z-2200Z, W8VP, Cambridge, OH. Cambridge Amateur Radio Association. 14.240. Certificate. Jim Shaw, 46006 King Street, Caldwell, OH 43724. The Cambridge Amateur Radio Association celebrated its 100th anniversary on December 4, 2023. A certificate will be available. Send certificate requests along with QSL info to ab8pjlshaw@yahoo.com. www.w8vp.org.

01/22/2024 | Distance Challenge at QuartzFest, Jan 22-Jan 25, 0000Z-2359Z, W7Q, Quartzsite, AZ. Northern Arizona DX Association. All bands, all modes. Certificate. See, website, for instructions. This is an operating event happening during QuartzFest. No QSL or Certificate. www.nadxa.com.

01/27/2024 | Discovery of Gold in California, Jan 27-Jan 29, 1700Z-0100Z, AG6AU, Coloma, CA. El Dorado County ARC. 7.248 14.248 21.348 28.348. QSL. El Dorado County ARC, PO Box 451, Placerville, CA 95667. https://edcarc.net.

01/27/2024 | Winter Field Day with BARC, Jan 27-Jan 28, 1900Z-1859Z, W5BCS, Bryan, TX. Bryan Amateur Radio Club. 7.250 14.270. QSL. Bryan Amateur Radio Club, PO Box 4442, Bryan, TX 77805. https://w5bcs.radio.

Answers to Amateur License Test Questions (from page 22)

Technician	General	Amateur Extra
T0C13 (B)	G1E05 (C) [97.115(a)(2), 97.117]	E0A11 (C)
T7B03 (D)	G4A01 (B)	E1B04 (C) [97.13, 1.1305-1.1319]
T8C07 (D)	G4D08 (C)	E7E09 (A)
T9B05 (D)	G4E02 (D)	E9B06 (C)

DMR – Setting Up a DPSD Hotspot

Ray Hitt, N8VMX

Last month, I described how to set up a Pi-Star hotspot. This month's DMR article will give an overview of how to set up and use a DPSD hotspot. DPSD is an alternative to Pi -Star that is more recent, has more features, and is updated quite frequently. WPSD is written by WØCHP and a volunteer design team. WPSD is an acronym that stands for "WØCHP Pi Star Dashboard". It runs on the same hardware as Pi-Star and can be found at https://w0chp.radio/wpsd/#download-wpsd.

In this article, I'll briefly summarize the procedure to build up a DPSD hotspot. I'm building a new Pi Zero 2W hotspot running DPSD and will write and take pictures as I go. I'm writing at a high level because I can't do justice to the excellent WPSD user manual at WPSD's web site. I'll follow their procedures in this article; please refer to their User Manual for more detail, you'll be up and running in no time.

Preparation

To prepare to install DPSD, you need several things. You need a DMR (or YSF) radio – without a digital radio having a hotspot makes no sense! You need a Raspberry Pi or similar computer. I'm using a Pi Zero 2W but you can extend these steps to any Raspberry Pi-compatible computer. The list of compatible hardware is in the WPSD User Manual. You also need a modem – this is the device that plugs into the computer and converts the digital waveform into transmit RF; as well as receives the radio's RF signal and converts it back into digital audio that is sent over the computer's Wi-Fi over the Internet to the DMR servers. Most models these days are MMDVM types. I'm using a higher-end "Lonestar" Simplex MMDVM from N5BOC. You'll need an 8GB or higher microSD card. I use 64 GB which are commonly available and inexpensive. You'll also need a computer to create a boot image on your microSD card (and to review the WPSD User Manual as you build your hotspot).

Installing the Software

The normal Raspberry Pi setup procedure is to use another computer to download a software image that is then placed bit-by-bit on a microSD card which will become the boot drive on the Raspberry Pi. It is possible to do use a SSD (solid state drive) too, but that seems out of scope for a DMR hotspot. The hard drive usage will not be extreme so using a microSD card should be fine.

I recommend you use the procedure I described last month for installing an image using the Raspberry Pi Imager. This process is also explained quite well in the WPSD User Manual. Download the image file appropriate for your needs from this list. Mine is "WPSD_RPi_Latest.img.xz". Use your

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PC running the Raspberry Pi Imager and write the file to your microSD card. Take it out of your PC and put it into the Raspberry Pi awaiting the next step.

***** Special Note to Bridgecom SkyBridge users ***** There is a specially written version of WPSD available for both the SkyBridge MAX and the older Skybridge Plus. Use "WPSD_SkyBridge-Max_Latest.img.xz"

Initial Boot

With the microSD card inserted into the Raspberry Pi, the hotspot is ready to boot. Note that the first bootup takes quite a while because it is performing administrative tasks, expanding the file system and so on. Be patient. You will need to use a PC to log onto its webpage, connecting a monitor directly on a WPSD hotspot won't provide any useful information.

If you created a Wi-Fi config when you created your microSD card image, after you wait long enough (at least 5 minutes for the first boot), you can log into http://pi-star.local/ from your PC. If you changed the name of the pi-star host to something else in the Raspberry Pi Imager (I did), you can use that name instead. I named my host "wpsd3" (and wpsd1 and wpsd2 and so on to give them unique names), so my login for this new hotspot is at http://wpsd3/local/ .

If you didn't add a Wi-Fi config to your microSD card image file, then if you wait at least 5 minutes, you should see a new Wi-Fi access point show up called "*Pi-Star-Setup*". Log into that open Wi-Fi and go to http://pi-star.local/ from your PC. Scroll to the bottom of the page and look for "*Wireless Configuration*" and select "*Configure Wi-Fi*". Scan for your desired networks or directly enter them in. Once this is entered, "Reboot with new Wi-Fi Settings" and you should be able to log into the hotspot from your existing Wi-Fi.

When you reboot, you'll be asked for a login. The default is user: *pi-star* and password: *raspberry*. There was an option to set another user and password up in advance in the Raspberry Pi Imager, you can log in using that username and password as well.

General Configuration

There are some basic configuration things that must be entered before the hotspot can be used; such things as your callsign, DMR ID, whether it's simplex or duplex, its frequency, and more. Follow the details in the user manual to fill in these items. If you're converting your hotspot from a Pi-Star software installation, these configurations should match what you had in Pi-Star. However, you can't upload a Pi-Star backup into WPSD, you must enter the values manually. Don't worry, it doesn't take too long. If you see an entry you don't understand, it's best to leave it as default until you read up on it in the User Manual. It's worth mentioning that the User Manual is a living document and currently has a lot of information on DMR and YSF setup, but nothing yet on D-Star, P25, NXDN, or M17 digital formats.

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DMR – Setting Up a Pi-Star Hotspot (continued)

Further Installation Help

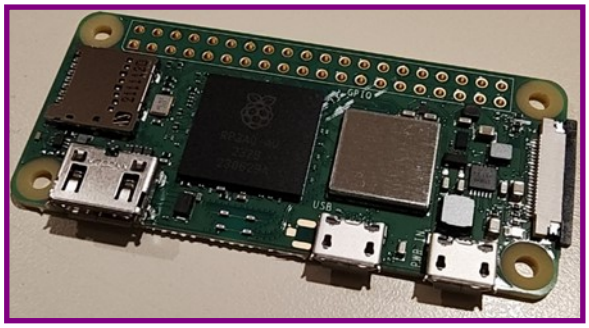
I opted out of providing some sample WPSD screens, they are long scrollable web pages and not well suited for a newsletter article. You can find all of them at WØCHP's home page.

I'm cutting the installation discussion short here, but if you need more help or support online you can read the FAQs, understand known issues and incompatibilities, join their Facebook Group or Discord server. I can also provide tech support, as can other DMR users in our club. Please reach out!

Raspberry Pi Zero 2W Case Assembly

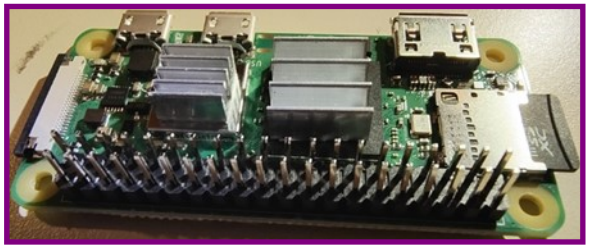
I mentioned earlier that I was using a Raspberry Pi Zero 2W for this WPSD installation. I chose this computer because it's cheaper than a Raspberry Pi 3 or 4 and is about 1/3 the size. I wanted a very portable hotspot to use when travelling.

Here's the Pi-Zero 2W as shipped. Notice there are 40 holes where the header needs to be soldered to connect to the N5BOC MMDVM modem.

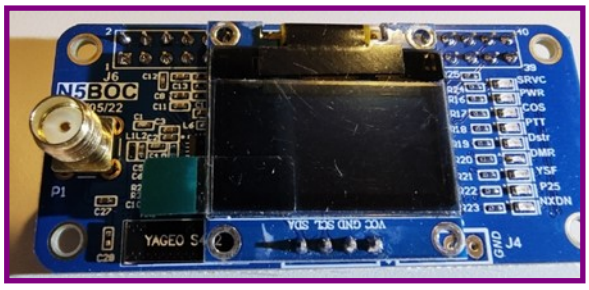


The Pi-Zero 2W supports Wi-Fi but has no Ethernet port. The three connectors along the bottom (left-to-right) are micro-HDMI (display – not used here), USB (used with an adapter for optional GPS), and USB (power only).

Here's the Pi-Zero 2W with the 40-pin header and heat sinks installed. Notice the heatsink fins run lengthwise across the board; this coincides with some cooling slots in the case. Make sure these heat sinks are firmly attached so that they don't come loose and hit the modem card just above them.



This is the N5BOC MMDVM modem top side view. Just attach your favorite antenna to the SMA connector. I recommend a very small antenna; this has surprising range. You can optionally order this with a ceramic patch antenna without the SMA connector, and without an OLED display. The display is not as scratched as it appears — I haven't taken the plastic protection off the display yet!



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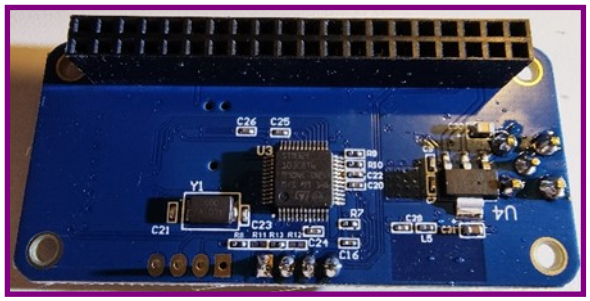
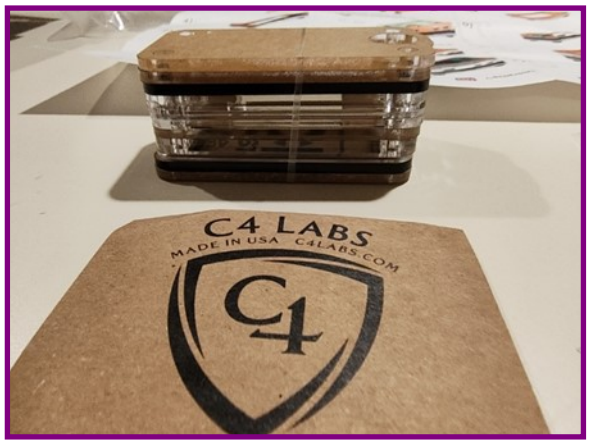
DMR – Setting Up a Pi-Star Hotspot (continued)

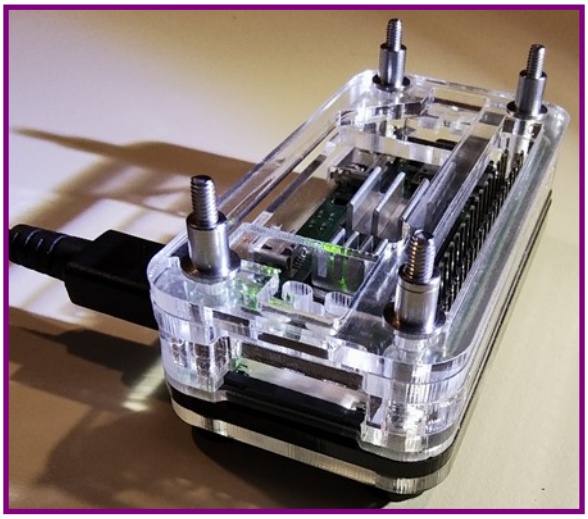


This is the N5BOC MMDVM modem bottom side view. Notice the STM32 microprocessor. This design features the RF components on the top side and the digital components on the bottom side, and a large ground plane separating them. This, along with other features, should improve performance over a standard MMDVM modem.



I chose a C4Labs Raspberry Pi Zero/Zero W, JumboSPOT or Lonestar MMDVM hotspot case. These cases are fun to build, they consist of a stack of precision-cut plastic layers that are assembled to build up the case from bottom to top.

So, that's exactly what I did, start at the bottom and work my way up. The case was shipped with a rubber band around the parts that were already stacked in order. You do have to carefully scrape the protective adhesive-backed paper off some of the parts, this can be done with some plastic spudger or pry tools.



Here's the case partially built up. I assembled the bottom and installed the Pi-Zero 2W and stopped assembly at the point where the N5BOC modem would be installed. Having not yet received the modem, I installed WPSD and configured it as much as I could with no modem and checked the heat dissipation. Heat was not an issue, the CPU never reported a temperature above 51° C.

Here's the final assembled hotspot in operation. Mine will spend all its time in DMR mode, I don't have a YSF, P25, NXDN, or M17 radio (yet!).

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DMR – Setting Up a Pi-Star Hotspot (continued)

Looking at C4labs' website, I noticed this same case come in clear, woodgrain, and lime green color options. This one is "black ice", a rotten choice for this time of year if I must say so myself. But I like how it looks.

Pro Tip – Config for Multiple Prioritized Wi-Fi networks

When you set up Wi-Fi according to the WPSD User Manual, there's only one Wi-Fi network entry. I've found a reliable way to set up multiple Wi-Fi networks in the hotspot. This is a generic tip that works for all Raspberry Pis whether or not they are being used as a hotspot. The Wi-Fi networks are prioritized, meaning that the highest priority Wi-Fi network is tried first, then the 2nd highest, then the 3rd highest, and so on. Also, if a Wi-Fi network goes down, the hotspot automatically scans down the list in priority order until it can connect. This is handy if you are getting set up for a trip and want to use either your car's Wi-Fi hotspot or your phone's hotspot to connect your DMR hotspot to, and not your home Wi-Fi that you'd normally use.

```
ctrl_interface=DIR=/var/run/wpa_supplicant
GROUP=netdev
update_config=1
ap_scan=1
fast_reauth=1
country=US

network={
        ssid="phone 4G/5G hotspot"
        psk="WiFi password 1"
        id_str="0"
        priority=90
}

network={
        ssid="car WiFi hotspot"
        psk="WiFi password 2"
        id_str="1"
        priority=80
}

network={
        ssid="Home WiFi"
        psk="WiFi password 3"
        id_str="2"
        priority=70
}

network={
        ssid="hotel WiFi"
        psk="WiFi password 4"
        id_str="3"
        priority=60
}
```

Use the Advanced Editor in the WPSD Dashboard by going to "Admin" -> "Advanced" -> "Full Editors" -> "Wi-Fi". This will display your *wpa_supplicant.conf* file located in the */etc/wpa_supplicant* folder. A template of my modified file is shown to the right. I have 4 sample entries, but there's no limit to the number. Replace my dummy *ssid* and *psk* passwords with your network names and passwords. Note that the *priority* is such that a higher number equals a higher priority. I sorted them in priority order for ease of comprehension, but the priority is driven by the "*priority=xx*" setting, not the order in the file.

If you should end up on a network by mistake, the only way to get onto another network is to drop the network you're on, or reboot your hotspot. I suppose you could issue a Linux command to drop the WiFi, and re-enable it but it's just easier to reboot. Make sure your desired network or hotspot is up first.

73, Ray, N8VMX

Amateur License Test Questions

In honor of our Amateur Radio Training classes, here are some questions pulled from the Technician, General, and Extra question pools. Try to answer them and see how you did. ***Answers are on page 16.***

Technician

T0C13

Who is responsible for ensuring that no person is exposed to RF energy above the FCC exposure limits?

A. The FCC

B. The station licensee

C. Anyone who is near an antenna

D. The local zoning board

T9B05

What happens as the frequency of a signal in coaxial cable is increased?

A. The characteristic impedance decreases

B. The loss decreases

C. The characteristic impedance increases

D. The loss increases

T8C07

What is Voice Over Internet Protocol (VoIP)?

A. A set of rules specifying how to identify your station when linked over the internet to another station

B. A technique employed to “spot” DX stations via the internet

C. A technique for measuring the modulation quality of a transmitter using remote sites monitored via the internet

D. A method of delivering voice communications over the internet using digital techniques

T7B03

Which of the following can cause radio frequency interference?

A. Fundamental overload

B. Harmonics

C. Spurious emissions

D. All these choices are correct

(Continued on next page)

Amateur License Test Questions (continued)

General

G4A01

What is the purpose of the notch filter found on many HF transceivers?

A. To restrict the transmitter voice bandwidth

B. To reduce interference from carriers in the receiver passband

C. To eliminate receiver interference from impulse noise sources

D. To remove interfering splatter generated by signals on adjacent frequencies

G4E02

What is the purpose of a corona ball on an HF mobile antenna?

A. To narrow the operating bandwidth of the antenna

B. To increase the “Q” of the antenna

C. To reduce the chance of damage if the antenna should strike an object

D. To reduce RF voltage discharge from the tip of the antenna while transmitting

G4D08

What frequency range is occupied by a 3 kHz LSB signal when the displayed carrier frequency is set to 7.178 MHz?

A. 7.178 MHz to 7.181 MHz

B. 7.178 MHz to 7.184 MHz

C. 7.175 MHz to 7.178 MHz

D. 7.1765 MHz to 7.1795 MHz

G1E05

What are the restrictions on messages sent to a third party in a country with which there is a Third-Party Agreement?

A. They must relate to emergencies or disaster relief

B. They must be for other licensed amateurs

C. They must relate to amateur radio, or remarks of a personal character, or messages relating to emergencies or disaster relief

D. The message must be limited to no longer than 1 minute in duration and the name of the third party must be recorded in the station log

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Amateur License Test Questions (continued)

Amateur Extra

E1B04

What must be done before placing an amateur station within an officially designated wilderness area or wildlife preserve, or an area listed in the National Register of Historic Places?

A. A proposal must be submitted to the National Park Service

B. A letter of intent must be filed with the Environmental Protection Agency

C. An Environmental Assessment must be submitted to the FCC

D. A form FSD-15 must be submitted to the Department of the Interior

E0A11

Which of the following injuries can result from using high-power UHF or microwave transmitters?

A. Hearing loss caused by high voltage corona discharge

B. Blood clotting from the intense magnetic field

C. Localized heating of the body from RF exposure in excess of the MPE limits

D. Ingestion of ozone gas from the cooling system

E7E09

What occurs when an excessive amount of signal energy reaches a mixer circuit?

A. Spurious mixer products are generated

B. Mixer blanking occurs

C. Automatic limiting occurs

D. A beat frequency is generated

E9B06

What is the elevation angle of peak response in the antenna radiation pattern shown in Figure E9-2?

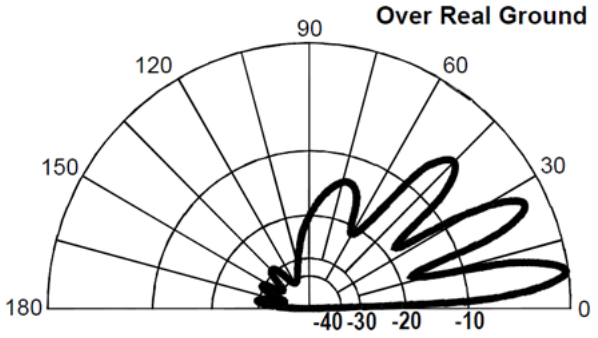
A. 45 degrees

B. 75 degrees

C. 7.5 degrees

D. 25 degrees

Figure E9-2



Editorial Policy and Style Guidelines for *Full Quieting*

Editorial Policy

Full Quieting welcomes articles from BARC members on any ham radio subject that is relevant to BARC. Our focus is our BARC members. We will not reprint items or articles that are easily available by other means (web, magazines, etc.).

Most articles will be "how to" or "what I did" articles that focus on technical or operational subjects such as a construction (antennas, equipment, stations, etc.), the use of hardware or software, operating in unique/ challenging circumstances, or a memoir.

Full Quieting will also consider an occasional article on policy issues regarding the various national licensing/ regulatory agencies and/or amateur radio associations so long as the article is relevant to BARC members and constructive in tone and recommendations.

Although all *Full Quieting* articles represent the experiences and points-of-view of their authors and not BARC, articles that focus on policy issues will be specifically labeled as a reflection of the author's opinion.

Regardless of subject, when you submit an article you acknowledge that you are the original author or creator and you grant publication rights to BARC. Anything you submit remains your property and you may have it published elsewhere without the need for permission from *Full Quieting*.

Style Guidelines

Language: English is the official language of *Full Quieting* and all articles should be submitted in English. Don't be concerned if English is not your first language: just tell your story in your own voice and use translating tools such as Google Translate to help if necessary.

File format: Submit your article as a Word, Word Perfect, OpenOffice or text file attachment to an email. A shared document available for download (such as a Google Doc) is also okay. **Do not submit as an email or PDF file**.

Pictures and other graphics: Do not embed pictures or tables in the article. Please submit as an email attachment or a shared image available for download. Please reduce the file size of the images before you send them to *Full Quieting*. Large files can be attached to a series of emails. Keep file size in mind regarding publication quality: for example, a half page image in the final PDF version of *Full Quieting* should be at least 400 pixels wide. If a photograph or graphic was taken or created by someone else, you should have their permission to use it and the permission of anyone identifiable in the image**. If you capture images from the web, provide a citation (URL) for that source and make sure the source does not prohibit use of the image in *Full Quieting*.**

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Editorial Policy and Style Guidelines for *Full Quieting*

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Use these style conventions

- We are hams, not Hams, and our hobby is ham radio This is a change to our original format
- The name of our organization is: Bellbrook Amateur Radio Club or BARC
- The code we use is Morse (capitalize the M)
- We use Yagi antennas (capitalize the Y)
- Q codes should be capitalized: QRM, QSB QSY
- The plural of QSO is QSOs, not QSO's
- Modes should be capitalized: CW, SSB, FT8, RTTY
- Bands are written as 10 m, 15 m etc.
- The abbreviation for a Silent Key is SK.
- You might have had an Elmer, not an elmer

Bruce N7RR has provided a two-page check list of common International System of Units (SI) formats and abbreviations.

Use these formatting conventions:

- Set all borders to 1 inch. The preferred font is Calibri, 12 point.
- Do not use tabs or spaces at the beginning of a paragraph
- Use only a single paragraph or carriage return at the end of each paragraph
- To enhance readability, use two spaces after the period at the end of a sentence.

Misc BARC Info

REGULARLY SCHEDULED NETS

Daily (Sunday through Saturday) 1030, 1615 and 1845 Ohio Single Sideband Net (OSSBN) Primary: 3972.5 KHz LSB Alternates: 3968 & 7272 KHz LSB

Weekdays (Mon-Fri) 1130 DMR Net Brandmeister Talk group 310557. Accessible via hotspot, 444.875 (+) CC13 TS2(Dayton East), 444.4375 (+) CC11 TS2 (Dayton West)

Sundays 1900 Newcomers & Elmers Net (Cincinnati) 146.670 (-) (123.0 PL)

Sundays 2000 **BARC Weekly Net 147.045 (+) (118.8 PL) [Alt 443.675 (+) (118.8 PL)]**

Sundays 2100 Miami Co. Voice & Data Net (Data Net follows Voice Net) 145.230 (-) (no PL)

Winlink Tuesdays GCARES Winlink Net Any time on Tuesdays Eastern Time Send To: W8LRJ, Cc: KE8FMJ W8GCA-10 445.010 (S), W6CDR-10 145.010 (S)

Tuesdays 1900 Dayton Veterans Admin Amateur Radio Club Net (W8DVA) 443.850 + 107.2 pl

Tuesdays 1915 Ohio ARES HF Net W8SGT Net Control at OEMA HQ Primary: 3902 KHz LSB (+/- QRM) Alternate: 7240 KHz LSB (+/- QRM)

Tuesdays 1945 Ohio Digital Emergency Net Primary: 3584.5 KHz USB (1500 WF) Alternate: 7072 KHz USB

Tuesdays 2000 MoCoARES Weekly Net 146.640 (-) (123.0 Hz PL) (Except—No Net on last Tuesday of even months (MoCoARES meeting) (Except—On 2nd Tuesday: Voice and Data Net on 444.250 (+) (123.0 PL)

Tuesdays 2030 Greene County DMR Net Primary: 444.875+, Color Code 13

Tuesdays 2100 GCARES Net (Voice & Data) 146.910 (-)(no PL) [Alt = 442.725]

Ohio Winlink Wednesdays OH ARES Winlink Net Any time on Wednesdays Eastern Time Send To: K8EAF, Cc: W8LRJ, KE8FMJ W8GCA-10 445.010 (S), W6CDR-10 145.010 (S)

Wednesdays 2000 Ohio District 3 ARES Net (West Central Ohio Regional Net) Primary: 145.110 (-) (67.0 PL) Alternate: 146.820 (-) (77.0 PL)

Wednesdays 2000 Beginners Net (Dayton Area) 444.875 (+) (94.8 PL)

ZOOM-Basic Setup & Configuration

Here's a link to the Zoom Video Tutorials: Zoom how-to video tutorials – Zoom Help Center

Also see: "Join a Meeting" and the "Joining & Configuring Audio & Video" tutorials for new users. Send questions or problems to John, W8LRJ ASAP but BEFORE the next meeting.

BARC Fundraising Opportunity — Kroger's Rewards Program Please use your Kroger Card when shopping at Kroger's and support BARC. If you haven't signed up and need help, bring your Kroger Card to the next BARC meeting, and we'll help you get registered (contact the BARC Treasurer).

ARRL Discounted Membership Offer One of the benefits of club membership is the opportunity to become an ARRL member at a discounted price. BARC is an ARRL affiliated club and receives a commission for new first-time ARRL memberships transacted through the club. BARC passes on this commission (discount) as a club membership benefit to promote ARRL membership. BARC members currently receive a $15 discount on a NEW first year ARRL membership cost when placed through the Club. Please contact the BARC Treasurer for details.