



ZERO BEAT

Our 76th Year as an ARRL Affiliated Club

Meeting Update!

The Holyoke Hospital meeting room is opened to us once again. In-person meetings are back! Need directions? hcra.org/meeting-location

February 2024

From the editors desk:

The February issue has great things inside between the regular club meetings, which, if you didn't already know, are back in person. Plus, there are several local Hamfest listings scattered in this issue. Mark those calendars now!

The regular club meeting schedule has been re-configured to show January through December (minus July and August), with the upcoming meeting information highlighted in yellow. You can't miss it, as it's on the very next page.

Alan, AB1XW, has submitted a really cool article about the new CW training game he has written; don't forget to check it out on [page 10](#).

There's lots of good reading in this month's "From the President's Shack" and much more in this issue. Share The Knowledge Zoom meetings are back, so be sure to check out the STK schedule on [page 3](#).

Bill, W1FMX, is back this month with a multi-part article about restoring an early Heathkit SB-200 amp. With Bill's expertise, it's sure to be a wonderful series of articles. Follow along, beginning on [page 15](#) and in future articles.

The switch to groups.io has been going very well. There will be no future club announcements from the old email reflector. The Groups.io tutorial will remain in Zero Beat for the next few issues. If you're interested, it's on [page 12](#).

I've got lots of ideas for future issues, but if anyone has an article to contribute, I'd be more than happy to publish it. After all... Zero Beat is only as good as those who contribute and read it each month.

73, Ken - KD1KU

Welcome New Members

Nunzio Bruno - KC1TYF

Whats Inside

Club Meeting Schedule	2
STK Zoom Schedule	3
From the Presidents Shack	4-5
ARES & Skywarn Updates	7-8
YL POTA Party	9
Less is Morse	10-11
Groups.io Tutorial	12-14
SB-200 Amplifier Redux	15-17
Nuts and Volts	18
What is UTC or Zulu Time?	19-21
Zero Beat Classifieds	23
HamToons - RF Humor	24
Clublog Update	26
ARRL Club Commission	27
Dots & Dashes	28
HCRA Stuff	29
Local Nets & Happenings	30

February 2nd Meeting

The February club meeting will feature our very own Gary Thomas, AA1UE. Gary will be discussing everything about APRS, or, as it's better known, the Amateur Packet Reporting Service, plus digital modes and modern-day packet systems. Doors open at 7 pm, and the meeting begins at 7:30 pm. See below if you need complete directions.

Regular club meetings are held at the Holyoke Medical Auxiliary Conference Center at 575 Beech Street, Holyoke, MA, 01040. **Need directions? Click <http://www.hcra.org/meeting-location/>**

Upcoming Club Meetings and Guest Speakers



The January guest speaker is Marvin Turner, WOMET, who will be talking all about Winter Field Day. Marvin is the WFD president and also a brand new resident of the WMA section of Massachusetts.



Our February meeting's guest speaker is HCRA's very own Gary Thomas, AA1UE. Gary will be speaking about APRS, digital, and modern-day packet. This is sure to be an extremely interesting presentation with so much to offer; don't miss it!



The March guest speaker will feature everything you always wanted to know about DMR but were afraid to ask, by Steve Shore, WA1ZEV. You don't want to miss this meeting along with Steve's presentation!



The annual HCRA Show and Tell is back once again! Enter your projects, kits, or whatever you've built and win prizes! Last year's Show and Tell was a massive success. Get started building your kits or projects today.



In keeping with the portable operations from last May, our guest speaker for May is Mindy, KMINDY, in person! Mindy will be discussing everything all about her adventures in the POTA and SOTA worlds.



Field Day preparations and more. We need someone to volunteer to lead the Field Day team! 2024 Elections too, please consider running for a Board of Directors position. HCRA is a much better club when everyone's involved!



Guest Speaker to be Announced Soon!



The October meeting will feature HCRA member Jeff Bail, NT1K, as this month's guest speaker. Jeff will be talking about everything you always wanted to know about 3D printing and Ham Radio. This meeting is not to be missed.



HCRA's annual auction is back in person at the November meeting! Ham Radio Gear and Related Accessories Only! Absolutely NO computers, monitors, or PC parts! The 2023 auction was a huge hit; don't miss it this year!



The annual HCRA Holiday Party at The Steaming Tender Restaurant on December 9th. Join us for a night of good food, good friends, and fun to be had by all who attend. Watch for more details on when you can sign up!



SHARE THE KNOWLEDGE MEETINGS

STK Zoom Meeting Schedule for 2024

Share the Knowledge Zoom meetings are back in 2024 for everyone's enjoyment!

Club President Larry, W1AST, has been working hard to find and host these exciting presentations! Have a topic to suggest? Maybe you'd like to give a presentation? Contact hamop.w1ast@gmail.com

January 9th @ 7pm	<i>All About Raspberry Pi</i>	<i>By Aaron, KF1G</i>
January 23rd @ 7pm	<i>D-Star, How it compares to DMR & Fusion</i>	<i>By Terry Stader, KA8SCP</i>
January 30th @ 7pm	<i>Everything about WRTC 2023 in Italy</i> https://us02web.zoom.us/j/86545047538?pwd=WDF6bTU2dUxXTkh2N1VPaIR5UEVIZz09	<i>By Dennis Egan, W1UE</i>
February 8th @ 7pm	<i>Everything about End Fed Antennas</i> https://us02web.zoom.us/j/89627540799?pwd=Uk1rbDQ4cmdpb1JvK0REYm5uY3NOQT09	<i>By Greg WA1JXR</i>
Feb 22nd @ 7pm	<i>Linux and Ham Radio</i> https://us02web.zoom.us/j/87601560527?pwd=T3FyN1A3ZDZrR2UwNVp6V2wrN2NkZz09	<i>By Andy, KB1OIQ</i>
	<i>To Be Announced!</i>	
March 12th @ 7pm	<i>1st time at the New England Forest Rally</i> https://us02web.zoom.us/j/86348549953?pwd=RFdzUTY2OXZkV1VJdZlGekRsSEZ4dz09	<i>By Phil Lord, K1PRA</i>

Our 76th Year as a ARRL Affiliated Club



Clublog Video How-to

Some members might not know what Clublog is or what it can do for you. If you missed it, this is your chance to watch it again.

Watch this video, and you'll know what it's all about.

<https://www.youtube.com/watch?v=qI2IKcQRNbE&t=299s>



FROM THE PRESIDENT'S SHACK

BY LARRY KRAINSON, W1AST

February 2024

A little over 21 years ago, a member of the HCRA board approached me about joining. I said no. But it started me thinking about it. The next year, I was asked again, and I replied only if I could take the At-Large position.

Fast Forward 20 years, and I am still on the board. I started At Large, moved to ZeroBeat Editor, moved to Program Director, Vice President, and now President.

Which have I enjoyed the most? Program Director easily fills that bill. Being able to take my curiosities about all things ham radio and turn them into guest speakers is easily the most fun and rewarding position. I have heard people say it's the most difficult, but I disagree. I think my most rewarding years on the board were as Program Director, with President second.

So, why mention this now?

This June, I am stepping down as President and HCRA board member. It's been a fun 20 years, and it's time for me to step back and let others run the club. It's also time for me to move onto other things in ham radio and spend more time with my family.

Around 18 months ago, I took on the position of Western Mass ACC (Affiliated Club Coordinator). In this role, I've worked with the clubs in WMA (including the HCRA), and I want to work a lot more. It also gives me more time to work with my friend Ray, AA1SE (who is the WMA Section Manager). There are other things too, along with other committees that I am already on and want to spend more time working with. Stepping down from the HCRA board creates the time to do this.

Now is the time for you to start thinking about joining the board. If you have ideas, an interest, or curiosity, please give it a try and run for a board position. Here is the link to the club bylaws, which explain the responsibilities of the positions: <https://hcra.org/by-laws>

Paul, NF1G, is the club secretary and also has a list of responsibilities that each of the board members has written down. You can contact him to see what he has on his list for the position you are interested in. Of course, there are things beyond what the bylaws show. But nothing is too difficult. The club needs **YOU** to volunteer to make it better. You have four months to think about it. Elections take place at the 2024 June meeting. Contact the current board if you are thinking about running for a position.

We are still looking for someone to bring a laptop to each meeting so we can simulcast the meeting on Zoom for those who cannot make it in person. It's just once a month for a few hours. Please contact Larry, W1AST, at hamop.w1ast@gmail.com, if you are able to do this. There are members who cannot be out in public and want to attend the meetings. Can you help the club accomplish this?

Field Day is just 4 months away. The club needs a Field Day organizer. This person will organize the whole activity. But they can easily delegate to others by having a volunteer for food, publicity, antennas, rigs, logging, and shelters. It takes a team to do this the right way, and this is how we have done it in the past. I have a spreadsheet that you can use to track everything, including volunteers. It makes everything simple. The Field Day site has already been reserved for this year.



Continued on page 5

FROM THE PRESIDENT'S SHACK

BY LARRY KRAINSON, W1AST

I will be 1000 miles south of here at my sister's wedding on June 22nd. I hope to run some QRP portable Field Day from South Georgia or North Florida. It's impossible for me to organize Field Day. **Others need to step up to ensure the HCRA has participation this year.**

Boxboro = Northeast HamXposition. A Northeast Ham Radio Convention. Dayton, Hamcation, Huntsville, and Visalia. All large ham radio conventions, with the closest to New England being 750 miles away.

New England had a convention called Boxboro for many, many years. Gradually, the hotel became run down, and other issues cropped up. The convention moved to Marlboro, MA, just a few miles away from Boxboro. It is now called the Northeast HamXposition.

I am on a few committees for the HamXpo. We are working to grow HamXpo into the largest convention in the northeast! Last year, we put together 89 forums. That's more than all the other conventions combined.

This year, we are hard at work to bring many more vendors in. We are starting the HamXpo on Thursday night this year with a comedian. Friday will now have forums all day, along with specialized groups and forums dedicated to those groups. We're working on enhancing the flea market by bringing in one or more MakerSpaces. There is more being planned that I cannot yet mention. The goal is to be the Hamcation of the Northeast within a few years.

Please support the HamXpo. It will not go from a local convention to a major convention overnight. It will take a few years. But you need to attend to show your support and help it grow.

HamXposition needs your support. Plan on attending, the fun starts Thursday night, August 22nd, and runs through Sunday, August 25th. I will be there for the whole show, staying in the hotel, attending the Friday and Saturday night banquets, and having fun. I'll be in my HCRA shirts and hat which should be easy to spot, with an orange backpack on my back. I hope to see you there: <https://hamxposition.org/>. Put it on your calendar now. Make your reservations to stay for the weekend and have fun now. This will be my third time spending the whole weekend. It's so much more fun than going home at the end of a day. I highly recommend it.

Do you want to look sharp at ham events and club meetings? You can order HCRA polo shirts, button-down shirts, fleece vests, windbreaker jackets, and hoody sweatshirts, all with the club logo and your name and call. You can also purchase a hat with the club's logo. They are available at every club meeting. See George, KC1V, to purchase one for yourself.

We also have name badges with the club logo, your town, and the ARRL logo, if you wish. These can be ordered for only \$13 each. It's time to wear your HCRA swag, look good, and be recognized! Order now from hamop.w1ast@gmail.com.

The club has outgrown the basic features of the email reflector. On January 6th, the club started officially using the new group: <https://groups.io/g/hcra>. On groups.io, messages can be posted with web links and photos; we can do polls; update the calendar; and more. All in one place. All for the members of the HCRA. There are full directions in the latest Zero Beat, and those directions will be in every issue of Zero Beat into the future. It's very easy to sign up and then select what kind of emails you would like from the group. Please sign up, as club information will no longer be posted to the email reflector.

To recap what the club needs for the future: Join the HCRA board, become the Field Day Organizer, attend the Northeast HamXposition (make plans now), look sharp in some HCRA-Wear. Join the HCRA groups.io and start new discussions and post useful information. That's it for now, I look forward to seeing everyone at the February HCRA meeting.

Larry; W1AST

HCRA President ~ hamop.w1ast@gmail.com

JOIN US FOR THE ANNUAL NORTHEAST **HamXposition**

and ARRL New England Division Convention



AUGUST 23 TO 25, 2024
THE LARGEST HAM CONVENTION
IN THE EASTERN CORRIDOR



NEW & IMPROVED
VENDOR HALL

ENHANCED FLEA MARKET

LARGE SELECTION OF FORUMS

WWW.HAMXPOSITION.ORG



CLICK IMAGE to ENTER

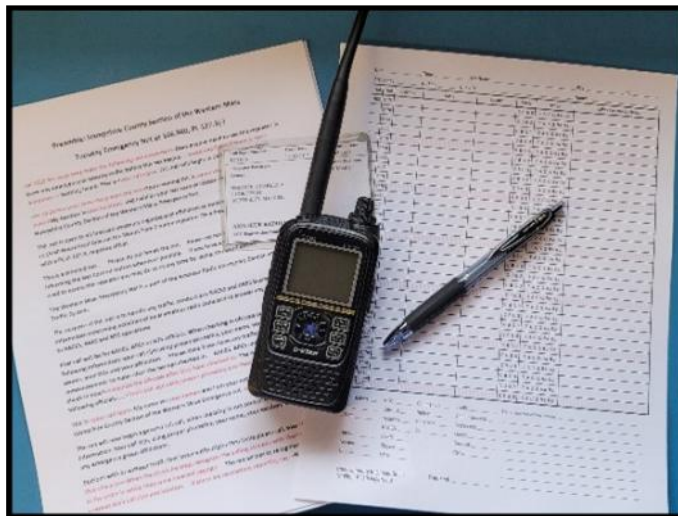
ARES AND SKYWARN NET UPDATES

WMA ARES Nets & More by Smitty, KCIKA

When the repeaters go down

One issue we had a couple of times last year and once this year is the repeater going down. There have been multiple suggestions of how to deal with this. Some people suggest just going to a different repeater. The long-standing response has been to go to 146.940 simplex. Some have suggested a combination of the two.

There is no simple solution. Due to the widespread coverage of the Mt. Tom repeater, 146.940, we get check-ins from Adams to Greenfield to almost Worcester. None of the suggestions will work for all the stations that check in.



Switching to another repeater such as 147.000

That may work for some of the stations, but not all the stations can hit the repeaters we use without worry in the valley. Also, what if that repeater is down as well? Do we have a list of alternates and just go through the list? How would a station know which repeater to go to?

Switching to 146.940 simplex

One issue with switching to Simplex is being able to connect with the stations that are still trying to connect with the repeater. They will have a PL code enabled and won't be able to hear anyone on Simplex. The solution to that is to have one NCS call out on 146.940 simplex with the PL code enabled to announce the change to simplex. Then another NCS will run the net on 146.940 simplex with no PL code.

When I program the memories in my radios, I will have MEM01 set to 146.940 repeater and MEM02 set to 146.940 simplex with a PL tone, then MEM03 would be set to 146.940 simplex with no PL tone. That is how I enter each repeater. It takes up three times the memory locations, but it simplifies what I do when the repeater goes down.

Running the net on Simplex will restrict where the NCS will be heard, and we will need to have relay stations willing to participate as assistants to the NCS to reach more stations. We have a couple of stations in mind to ask if they would like to do that. If you have a good station that reaches a good distance and would like to volunteer for a relay position, please contact me at kc1ika@arrl.net.

A combination of switching repeaters and transmitting on 146.940 Simplex

A combination of the two options would be one NCS transmitting on 146.940 simplex with PL tone, while another NCS switches to another repeater, such as 147.000. This way, stations that try to check in after the net has been on for a few minutes will hear the announcement and know to switch to the other repeater.

Continued on page 8

ARES AND SKYWARN NET UPDATES CONT'D

WMA ARES Nets & More by Smitty, KC1IKA

What do we choose?

Until we find out who can reach what repeater or who can connect via Simplex, we cannot decide.

With that in mind, I will be doing experiments after the nets on Tuesday evenings to see who can hit alternate repeaters. Just like when I ask for Skywarn reports after the net by announcing it at the start of the net. I will keep a list of who is interested in testing alternate repeaters, then call those stations from the alternate repeater in the order they checked in.

If I can hear them and they can hear me, I'll make a list. After I go through all the stations, I will go back to the 146.940 repeater to contact the stations I couldn't hear. We can do the same with a simplex test.

In closing,

It may take a couple of weeks, or even months, to figure out what the best choice is. But at least we will try. One thing a lot of stations don't realize is that the 146.940 repeater doesn't have backup power if the commercial grid goes down. That's not the fault of the repeater owner, MTARA. The corporation that owns the site the repeater is on will not let them put a generator up there.

Regards and a very 73,

Smitty, KC1IKA, ARES and Skywarn NCS

Virtual Magnifying Glass

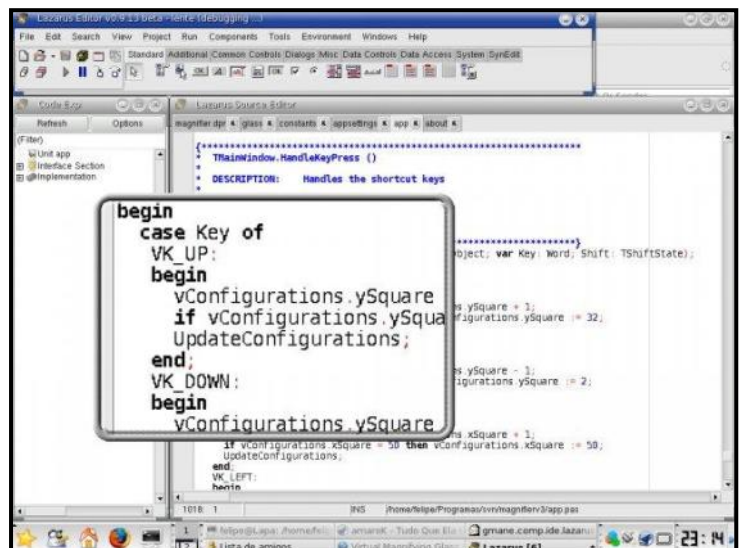
Virtual Magnifying Glass is designed for visually-impaired and others who need to magnify a part of the screen. Unlike similar programs it does not open a separate window for the magnification but instead puts a movable magnifying glass on screen.

Virtual Magnifying Glass is a free, open source, cross-platform screen magnification tool. It is simple, customizable, and easy-to-use. If you're like me with failing eyesight this might do the trick for you and your PC as well.

This handy little app is open source or better off said it's free! Several download options are available along with much more details at the link below

Check it out by clicking on the link below.

<https://magnifier.sourceforge.net/>



International Women's Day

YL POTA PARTY

Date: March 8th, 2024

Location: Any POTA park (or hunt POTA from home!)

Frequency: Any amateur radio frequency within your license class

Mode: Any! SSB, CW, SSTV...experiment and have fun!

How to participate:

Activate a park during the 24-hour event window

Submit your POTA activations to the POTA database.

Share your experiences and photos on social media using the hashtag

#YL_POTA_Party.

We encourage you to wear pink and/or decorate your station to show your support for International Women's Day!

Spread the word and invite your friends to join the party!

Why participate?

Connect with other YLs and build a supportive community.

Have fun and enjoy the POTA hobby.

Here are some resources that you may find helpful:

POTA website: <https://parksontheair.com/>

Young Ladies Radio League website <https://yrlr.net/>

ARRL website <https://www.arrl.org/>

Together, we can make this a memorable event for all YLs in ham radio!

We look forward to hearing you on the air!

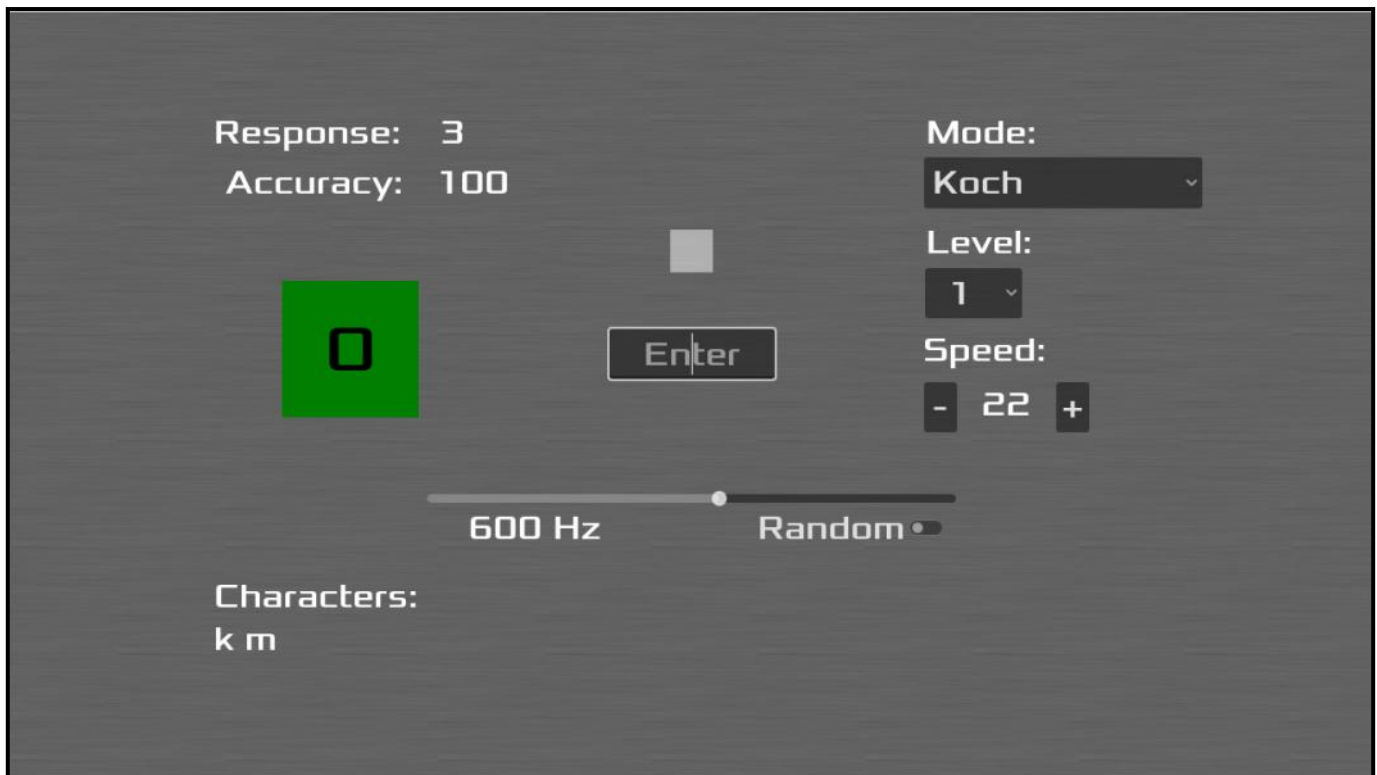


LESS IS MORSE

A Game for CW Practice by Alan Dove, AB1XW

A lot of hams enjoy video games, and many are also interested in learning Morse code or improving their CW receiving speed, so how about a video game for CW practice? It's far from a new idea. Decades ago, Hams wrote code training programs for some of the earliest personal computers, and nowadays there are options for practicing CW reception and transmission in web browsers and on smart phones.

I've used several of those tools, and while each has its benefits, I haven't yet found one that I really enjoyed. After getting interested in game development a couple of years ago, I decided to take a shot at making my own CW training game. In December, I finally released it. Not only do I find it fun to play, but I also really enjoyed the process of developing "Less is Morse."



I'm not a professional programmer and have no background in game design, so how did I manage to do this? It definitely involved learning some new skills, and I'm sure my coding would horrify a real computer scientist, but the final product works. The hardest part was actually figuring out the overall design.

For the programming, I took a shortcut that nearly every professional game developer also uses: a game engine. Game engines are programming frameworks with built-in functions for common game needs, such as drawing graphics, processing sound, calculating vectors, and timing. An engine lets the developer focus on the unique parts of their game rather than reinventing basic functions. Major game studios often use their own in-house engines, but there are also several professional-grade game engines available to anyone who wants to use them.

Continued on page 11

LESS IS MORSE CONT'D

A Game for CW Practice by Alan Dove, AB1XW

I chose the open-source game engine Godot, which has an immense community of helpful developers. There are tutorials available for building many types of games in Godot, and when a weird error comes up, as they always do, a quick web search will usually uncover discussions of exactly that problem.

Designing a game in Godot consists of arranging various “nodes,” or programming objects, in a graphical interface and writing code in a Python-like language called GDScript to tell the nodes what to do. Godot can also be scripted in C#, but I find GDScript simpler. After a couple of years of very sporadic study, I’m adept enough with Godot to build simple games in my limited spare time.

Figuring out how to design a good CW game was the bigger challenge. The problem I have with other CW trainers is that I get bored or frustrated with them after awhile. Programs built for learning the characters helped me get up and running several years ago, but now that I can receive pretty reliably, I wanted something more advanced. There are several high-speed CW drills available on Fabian Kurz’s Learn CW Online site (<https://lcwo.net>), and I’ve tried all of those. They just didn’t hold my attention.

I wanted to create a simple game that could teach someone Morse code from scratch and also provide drills for more experienced CW operators, all while being genuinely fun to play. I also wanted the game to be accessible, in the sense that people who don’t necessarily consider themselves “gamers” would be willing to give it a try.

While I initially imagined a more traditional gaming experience and even built a prototype with arcade space shooter mechanics, the plan changed along the way. What I ended up with was a minimalist control panel that offers several options for players with different levels of familiarity with the code. As I worked on it, I played with a few different looks but ultimately settled on simplicity as the guiding aesthetic. Other than a brushed metal texture for the background, the final game is all geometric shapes and simple text labels. The focus is on hearing and seeing the code being sent.

Instead of a traditional score, there’s feedback on accuracy and response time, and a light that indicates right or wrong responses. You can play it like a game, but you make your own rules. How long can you maintain 100% accuracy? Can you keep your response times under 1 second? How many levels into one of the longer word lists can you get while keeping accuracy over 90%? Already hit all of those goals and want more of a challenge? Bump the speed up; it’s manually controlled. Play it your way.

The game is free, and I’m open to feedback and bug reports. The web version will run in most modern browsers, or you can download a native version for Windows, Mac, or Linux to play offline. More details about its various modes and options, and installation instructions for different platforms, are all on the game’s site at <https://radiovoice.itch.io/less-is-morse>.

Enjoy

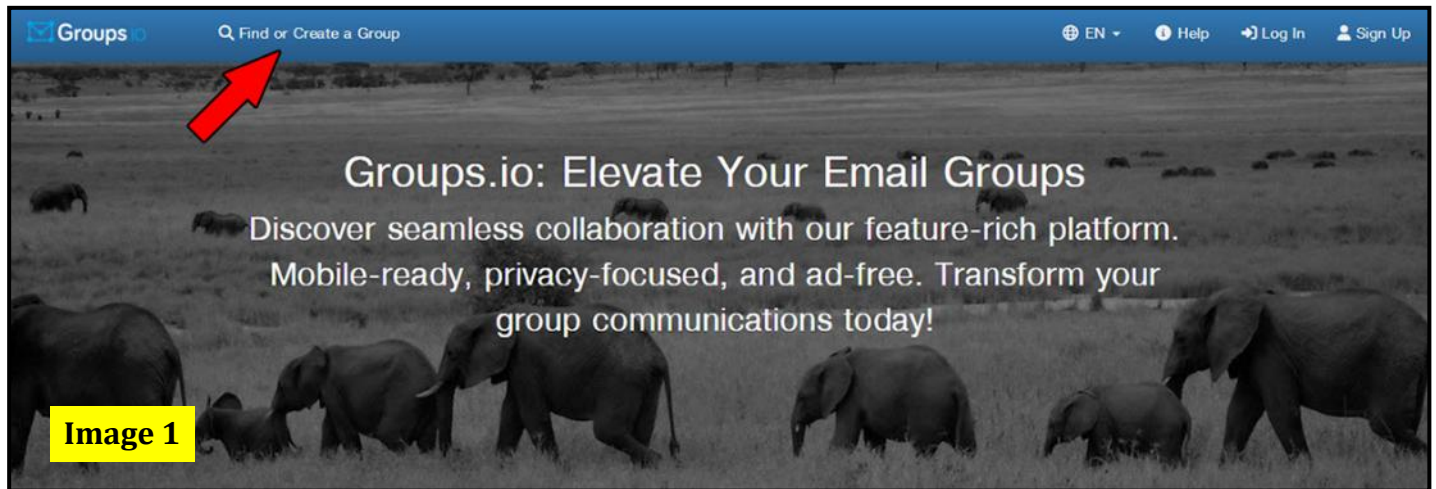
Alan, AB1XW

GROUPS.IO TUTORIAL

How to Sign up, Create an Account, & Get Started on Groups.io

The following is a condensed “How To” pictorial guide to help you get started with groups.io. Begin by pointing your browser or mobile device to <https://groups.io/>. **Image 1** shows the very first page you will see after clicking on the web link above.

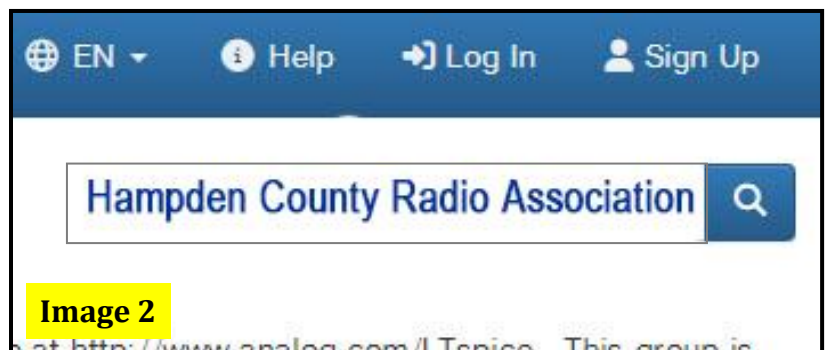
Click the tab that says “**Find or Create a Group**” (red arrow, image 1) on the groups.io page.



After clicking on the above tab, you will see a search box in the upper-right corner of the next page. In that search box, type **Hampden County Radio Association**. **Image 2** shows this already typed into the search box.

Once you have this typed into the search box, click on the search glass icon to begin the search.

You will see other groups listed in the search results, but **ONLY** click on the **Hampden County Radio Association's Mail Reflector**.



After clicking on the above link, you will be taken to the page where you will actually **JOIN** the HCRA Mail Reflector. See **image 3** on the next page for details on what you will see. The **red arrow** points to the **blue button** that states, Click “**to join the group.**”

Once you’ve clicked on join, you will be taken to the next page, as shown in **image 4**.

Continued on page 13

GROUPS.IO TUTORIAL CONT'D

How to Sign up, Create an Account, & Get Started on Groups.io

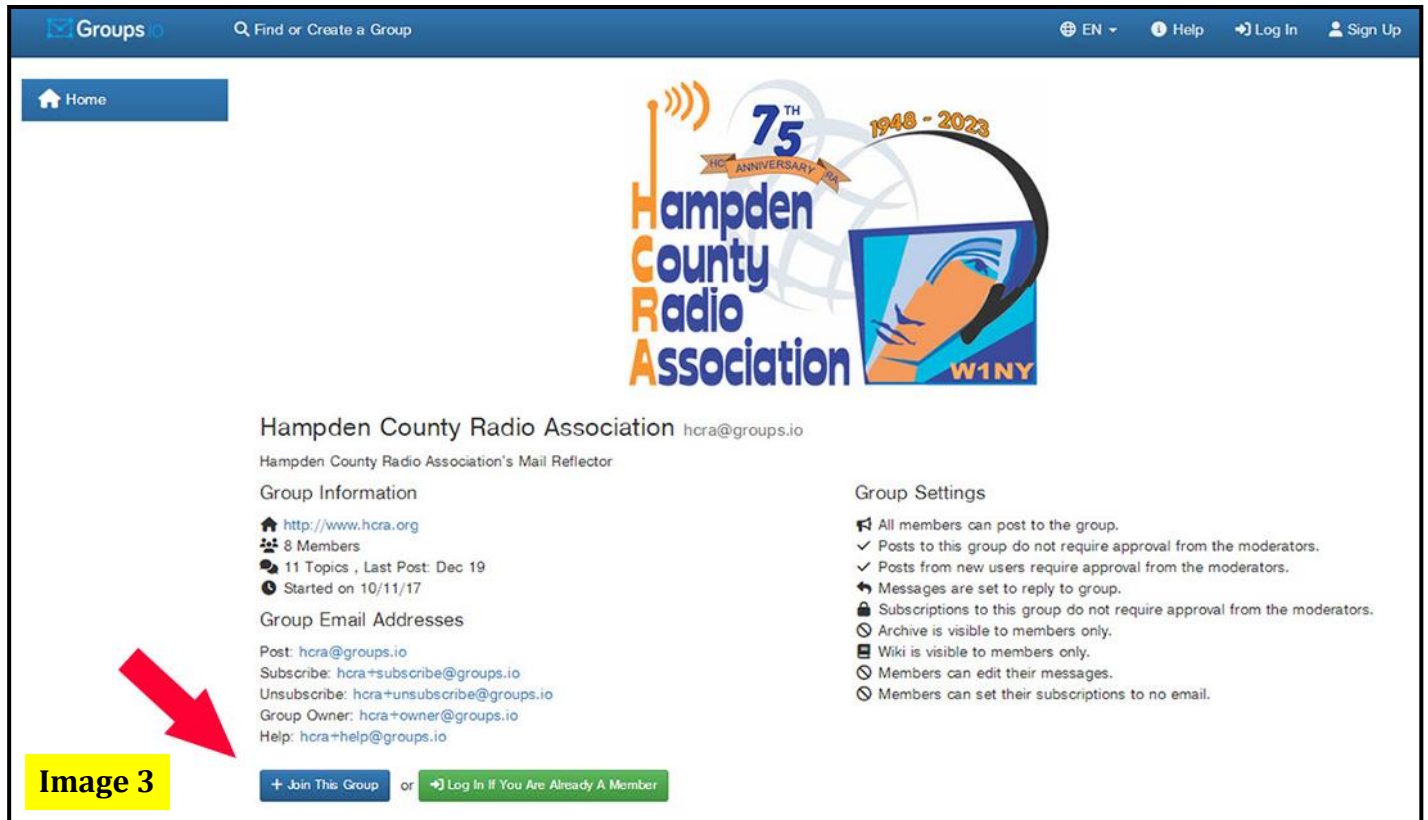
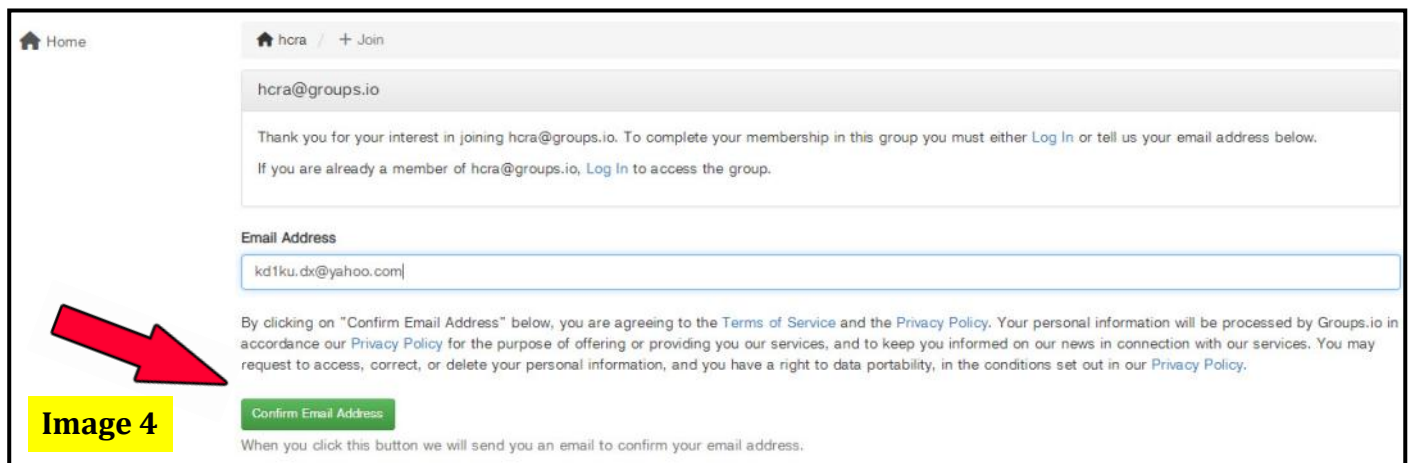


Image 4 will show the email you used to join. If blank, simply enter your email address, the same one used to join, then click on the **green button** with the **red arrow** pointing towards it, as shown below.

Your email now needs to be confirmed. To do this, first, make sure your email is correct and that it is the email you used to join. Then you will be taken to the next page, as shown in **image 5** on the following page.



Continued on page 14

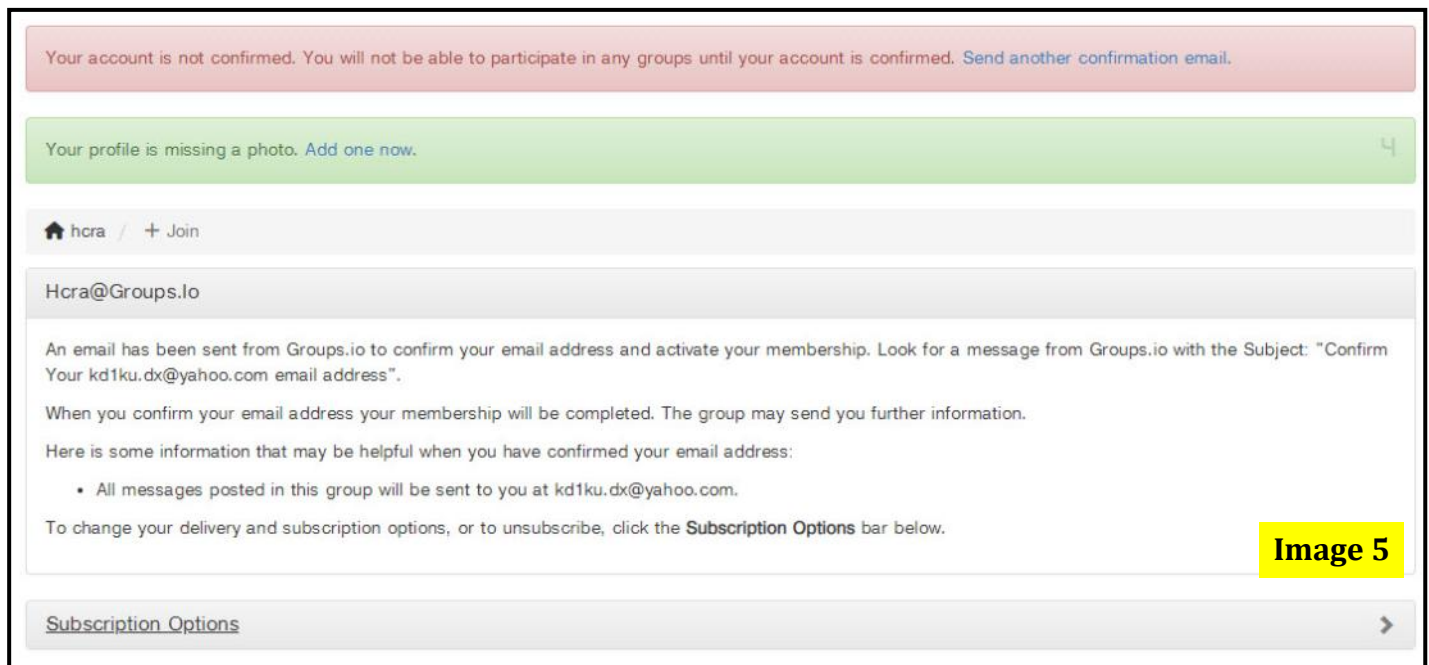
How to Sign up, Create an Account, & Get Started on Groups.io

The page shown below in **image 5**, which you will see until you have confirmed your email address.

To confirm your email, simply check your email account that was used to join groups.io. Follow the instructions in the email to decide which options are best for you. There are two ways to confirm your email address: They are both explained in the confirmation email you will receive from groups.io.

Next, you can select your subscription options and how you would like to receive emails when something is posted for the general membership. I personally like to receive an email every time something is posted; this is called “**Individual Messages.**”

You can change this to receiving a “**daily digest,**” where you will receive up to 12 messages per day in one email instead of individual emails. Or you can choose to receive a **Daily Summary**, where you will receive one email every morning that contains a list of the topics posted to the group on the previous day.



Whichever you choose, don't forget to click on the **save button**, or your new settings will be lost. There are many settings, ranging from appearance to how you will receive notices, but at least now you should know the basics of groups.io.

So now you can experiment with it or simply wait for the club announcements to come rolling in!

Just remember, if you choose “**Reply to All**” in an email, your reply will be sent to **everybody** on the list! Ask me how I know hi hi.

Enjoy Groups.io!

73,
Ken ~ KD1KU

HEATHKIT SB-200 AMPLIFIER REDUX

Restoring a SB-200 Amp (part one of several) by Bill, WIFMX



The SB-200 is a Heathkit HF amplifier that first appeared more than 50 years ago, and yet it is still very popular today. Priced originally at about \$200 in 1964, it was an affordable amplifier for 80M-10M Single Sideband (SSB) since that mode had become popular at the time. A few years later, in the late 1960's, it would be paired with one of the then popular Heathkit HF transceivers such as the HW-100 or HW-101 or the "higher end" SB-100 or SB-101, transceivers often known as the "Poor Man's Collins." In 1978, because of a change in F.C.C. regulations, SB-200 amplifiers no longer included 10M; yet, the SB-200 was still manufactured until 1983. Typical output of the amplifier is between 600 and 700 watts. Today, a restored SB-200 can be sold for \$500-\$600, making it still an affordable choice. (Note: This amplifier does not work well with modern transceivers unless it is modified with a "soft key" interface board, which will be described later; it functions best with "boat anchors.")

About one year ago, I had a Drake TR-4 and its power supply and speaker, which I traded for a working SB-200. For the past few years, I have been restoring Heathkit Transceivers, so I thought having a matching linear amplifier would be a good addition to the station. Though the amplifier looked "mint" and was working, its output was about 300 watts—less than half of what I would expect driving it with 100 watts—and the meter switch did not work. So, I hesitated to put it into service, as it obviously did need some work.

Since I did not know much about working on amplifiers, it seemed time to learn. So, I started to see what kind of changes or repairs were usually needed when upgrading an old SB-200. As you would expect, the electrolytic capacitors would need replacement (especially in a power supply), as they tend to dry out. Also, resistors tend to go out of tolerance, so at least some of those would need to be replaced.



Continued on page 16

HEATHKIT SB-200 AMPLIFIER REDUX CONT'D

Restoring a SB-200 Amp by Bill, WIFMX (part one of several)

The meter switch was not working, and I discovered that was not uncommon and probably would need to be addressed by adding a new switch. Of course, a new power cord and circuit breakers should be added, as well as some other parts. Clearly, I could see that this would be a more time-consuming project than I expected, but it was still worth the effort, as I had to believe that this model was such a popular amplifier with such remarkable longevity for a good reason. (See **image 1** on the previous page)

HEATHKIT

STEP-BY-STEP ASSEMBLY

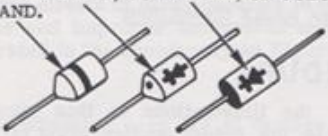
CIRCUIT BOARD ASSEMBLY

() Locate the circuit board and position it as shown in Pictorial 1; then complete the steps around this Pictorial. Be sure to read Page 12 of the manual before beginning assembly of the kit.

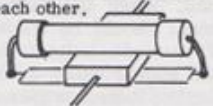
START

() Install sixteen silicon diodes. Position the cathode end of each diode as shown. Solder and cut off the excess leads except the indicated lead of the first diode.

NOTE: PLACE SILICON DIODES WITH THE CATHODE END AS DIRECTED. THE CATHODE END MAY BE IDENTIFIED BY A COLOR DOT, COLOR END, OR COLOR BAND.



() Install the six 30 K Ω (30,000 Ω) 7 watt resistors. Use the 500 μ f (.0005 μ fd) silver mica capacitor as a temporary spacer between each resistor and the circuit board. Solder and cut off the excess leads as each resistor is installed. Space these resistors so they do not touch the electrolytic capacitors, the circuit board, or each other.



() Install the 700 Ω 7 watt resistor, using the 510 μ f silver mica capacitor as a temporary spacer between the resistors and circuit board. Solder and cut off the excess leads.

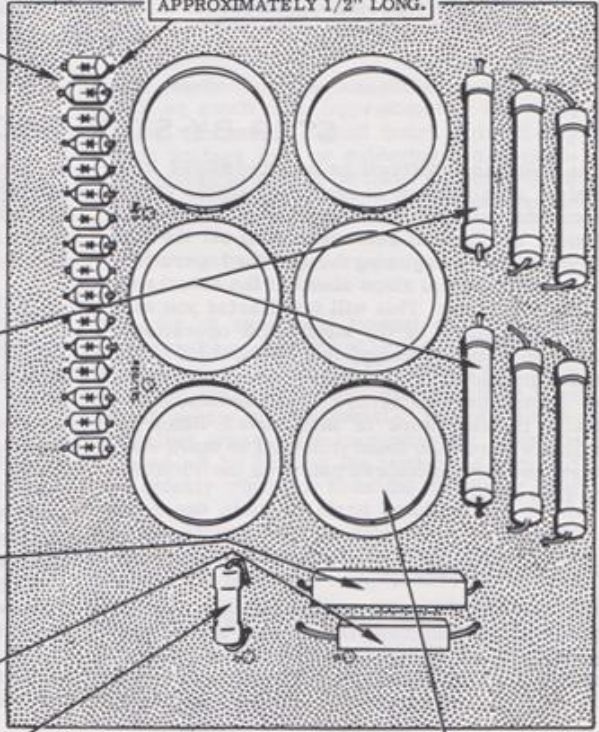
() In a like manner, install the 1 Ω 5 watt precision resistor, using the same capacitor as a spacer. Solder and cut off the excess leads.

() Install the 3600 Ω 1/2 watt precision resistor. Solder and cut off the excess leads.

() Install the six 125 μ f electrolytic capacitors. Position the center lug in the large center hole and the four other lugs in outside holes in the circuit board for each capacitor. Bend the center lugs over against the foil and twist the outside lugs 1/8 turn. Solder all lugs which extend through foil.

PICTORIAL 1

CUT THIS LEAD TO APPROXIMATELY 1/2" LONG.



large center lug
large center hole
lettered side of circuit board

Twist and solder
Bend and solder

Twist 1/8 turn
Foil side of circuit board

Image 2

Continued on page 17

HEATHKIT SB-200 AMPLIFIER REDUX CONT'D

Restoring a SB-200 Amp by Bill, W1FMX (part one of several)

The first thing that an SB-200 restorer will need to consider working on is the inbuilt power supply in the SB-200. There are two possibilities here: one can buy “Can Type” filter capacitors from Hayseed Hamfest and install those with new diodes on the original power supply printed circuit board, or one can buy a new circuit board kit that is known as a “Harbach” board. Though I often use Hayseed Hamfest kits/products (i.e., capacitors) in my restorations as the quality is very high, this time I decided to try ordering a Harbach board. These are available from Harbach Electronics (<https://harbachelectronics.com>).

(See **image 2** on the previous page)

Along with the Harbach board, I decided to also purchase a “soft start” board. A "soft start" board is a device that limits the inrush of current when the A.C. power is turned on for a period of a couple of seconds to protect the various components in the amplifier, some of which are quite old. As I do not intend to use the amplifier with a modern transceiver, I will not need to install a soft-key interface board that protects the modern transceiver keying circuit from being damaged by the amplifier.

In future articles, I will describe building the soft start board and the power supply board, as well as discuss other steps in restoring the SB-200 amplifier.

This is the first in a series of articles that will continue throughout the next few issue's of Zero Beat. -{Editor}-

73,

Bill, W1FMX

Since 1990, the Vintage Radio & Communications Museum has been giving collectors of vintage communications equipment the opportunity to come together and share their love of this wonderful history. These events are called Swap Meets, where collectors from throughout the Northeast gather to display items that they would like to sell, swap, or trade.

The first Swap Meet for 2024 will be held on Saturday, February 24th, at the museum at 115 Pierson Lane in Windsor, CT. The swap runs from 8 am to 1 pm. The event is free for the public to attend. There is a small fee to set up and display.



FEBRUARY SWAP MEET (INDOOR)
Saturday, February 24, 2024
8:00 am - 1:00 pm

The collectors will set up tables in the Museum Event Center of the museum. The museum have a large amount of surplus equipment that will be offered for sale as well. For more info go to the museum web site at: <https://www.vrcmct.org> or by calling 860-683-2903.

NUTS AND VOLTS

ARRL & HCRA News, Odds & Ends, Plus Other News Worthy Items!

Wanted Member to Lead Field Day 2024

It's time to begin planning for the next Field Day in 2024. In order for Field Day to happen again next June at the School Street Park in Agawam, Massachusetts.

This is the perfect opportunity for one of our new members to step up and take the reins of FD 24. Maybe two volunteers can team up, making this task even easier. Are you up to the challenge? Any interested members should contact Club V.P. Ez, W1AEZ, at ez.w1aez@gmail.com for more info. Larry, W1AST will be away for a wedding this year, so someone to volunteer is crucial.

STK Zoom Meetings Continue in February

Share The Knowledge Zoom meetings continue in February! These have been a big hit over the past few years. Each meeting is recorded and added to the HCRA YouTube archive on hcra.org, where you can find all past meetings on a range of topics. Check out the complete schedule on page 3.

If you or anyone you know has a topic to suggest or if you would like to give your own presentation, simply contact Larry, W1AST, at funhamradio@gmail.com. Check out the Share The Knowledge that will be coming in the very near future.

Boston Marathon Needs Volunteers

Volunteer registration for the 2024 Boston Marathon is on February 2nd. Returning volunteers have received an email from the BAA that included registration instructions. In order to make registration as smooth as possible, we are providing specific instructions for our Amateur Radio Operator volunteers.

If you haven't previously volunteered, or you know someone who hasn't, [CLICK HERE](#) to go to the Volunteer Registration page and follow the on screen instructions for new volunteers.

QRZ Jumpstart program

After giving away thousands of free handheld radios to new hams, the QRZ Jumpstart program is back with an exciting new deal! QRZ, RT Systems and GigaParts are teaming up to offer a more sustainable program that will run at least through the end of this year and will be expanded to include hams who have been licensed for 6 months or less. The new program offers a coupon code to the new ham that gives them a QRZ-1 radio, programming cable, RT Systems programming software, New Ham Welcome Kit, and a QRZ membership for only **\$21.99**. To sign up, new hams should complete the application process at www.qrz.com/jumpstart as the program ends March 31, 2024

Western Massachusetts Section News: <https://wma.arrl.org>

ARRL New England Division: <https://nediv.arrl.org>

ARRL Western Massachusetts Section Manager - Raymond P. Lajoie, AA1SE - aa1se@arrl.org

To learn more about an ARRL membership, and how it can help you - <http://www.arrl.org/membership>

WHAT IS UTC OR ZULU TIME?

Almost Everything You Wanted to Know About Zulu Time

So what's this Zulu Time, and how does it relate to ham radio? Zulu Time is the military name for Universal Coordinated Time (UTC). Its time is fixed at Prime Meridian: 0° (zero degrees) longitude. This is the reason for its other names, Z-Time and Zero Time. Before Zulu, it was known as Greenwich Mean Time (GMT).

Greenwich Mean Time, Zulu, UTC, Military, 24-hour, whatever you call it, it is the world's time. No time zones, no seasonal time changes, just time. For ham radio, it provides the common time base needed for accurate QSO logkeeping. In a manner of speaking, all amateur radio operators, regardless of their location, are using the same clock.

Why is It Called Zulu Time?

Since Great Britain was the world's greatest maritime power when the concept of latitude and longitude was developed, the starting point for designating longitude became the Prime Meridian (zero degrees). It intersects with the Royal Greenwich Observatory in Greenwich, England (hence the Greenwich in GMT). Built by King Charles II in 1675, it was the major center dedicated to navigation, astronomy, and time keeping.



Royal Greenwich Observatory (Image/Public Domain)

Continued on page 20

WHAT IS UTC OR ZULU TIME? CONT'D

Almost Everything You Wanted to Know About Zulu Time

Zulu Time is most often used today by the military, pilots, mariners, and hams. The purpose is standardization. How many military/action movies have you seen where they synchronize watches? As ships and airplanes crossed multiple time zones in one journey, it became more and more important to standardize time.

The term Zulu comes from the shortening of Zero Meridian Time to Z-Time. For a while, it was called Zebra (Zebra Time). The term Zulu Time was first used by the Royal Navy in the 19th century, conforming with the military phonetic alphabet.

How to Calculate Zulu Time

The main thing to know about Zulu Time is that it is always the same, no matter where you are in the world. Here's how to figure out your own personal version of Z-Time based on your location:

- Convert your time to the 24-hour format, like the military uses. For example, if it's 2 p.m. where you are, add 12 hours to the time to get a military time of 1400. You don't need to add anything for a.m. hours. For example, 9 a.m. is 0900.
- Adjust for the time difference (offset) where you are versus Z-Time. So, if you live in the Eastern Time Zone (EST), add four hours because the eastern U.S. is four hours behind GMT-0400+1400. This makes your Zulu Time 1800Z.

The beauty of Zulu Time is that you don't have to wonder which time zone is being referred to when you see the time. There is no a.m., p.m., or o'clock to worry about, either. Pronunciation just involves the numbers—0945Z is zero nine forty-five hours or oh nine forty-five hours. The Z indicates that the time is in Zulu (UTC) format, not local time.

Figuring out what the time is versus your local time does take some getting used to, but there are lots of apps and calculators on the web to help you figure things out, not to mention ham logging software.

Logging in Zulu

Logging in Zulu or UTC is highly recommended. Using UTC eliminates confusion over time zones or daylight savings time. Sure, you can calculate UTC on your own, but why not let your computer and logging program handle that chore? They keep the UTC date and time straight automatically. Of course, you are free to use local time as long as you indicate this clearly in the log. Avoid mixing UTC and local times and dates together in the log—use one or the other.

For example, N3FJP logging software reads the UTC time directly from your Windows operating system. As long as you have your time, time zone, and daylight savings time adjustment properly set in your Windows OS, the UTC will be logged correctly.

Continued on page 21

WHAT IS UTC OR ZULU TIME? CONT'D

Almost Everything You Wanted to Know About Zulu Time

Things You Should Know

Here are some fast facts about Zulu/UTC time:

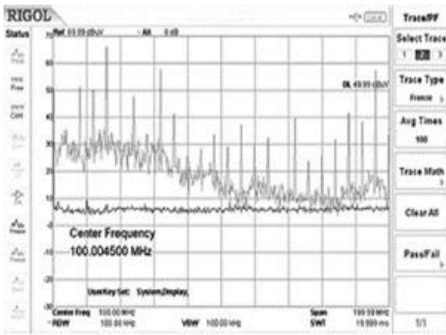
- Zulu time does not change with the seasons, but local time may change with daylight savings time. For example, local time on the east coast of the United States is five hours behind Zulu time during winter, but four hours behind during daylight savings time.
- NOAA satellites use Zulu Time or UTC as their time reference. The satellite images that appear on NOAA's websites are stamped in Zulu Time.
- The Department of the Navy serves as the United States' official timekeeper. The Master Clock facility is at the U.S. Naval Observatory in Washington, D.C.
- UTC is not a typo. When spoken, it is Universal Coordinated Time, but when written, it's UTC. The International Telecommunication Union (ITU) felt it was best to designate a single abbreviation for use in all languages in order to minimize confusion.
- Is it 2400 or 0000? Military time uses both 2400 and 0000 to designate midnight. This may seem confusing at first, but it makes more sense if you think of 0000 as a start time and 2400 as an end time. You'd use 0000 in reference to the beginning of an activity but 2400 to indicate when an activity will end.
- Imagine not receiving a QSL card from that very rare DX entity because you used the wrong conversion when going from your local time to UTC. Get a UTC clock. They're worth the investment.
- People usually think that time zones are determined by whole numbers. Some countries use half-hour and quarter-hour offsets. India lies in the time zone UTC+5:30, South Australia and Northern Territory use UTC+9:30. Nepal lies in an even weirder time zone: UTC+5:45.
- A leap second is a one-second adjustment that is occasionally applied to Zulu Time to reconcile the difference between precise time and imprecise observed solar time due to variations in the earth's rotation.

By Mark Haverstock, K8MSH

The logo for "ON ALL BANDS" features the words "ON ALL" in a bold, black, sans-serif font, enclosed within three sets of parentheses. Below this, the word "BANDS" is written in a large, stylized, red font with a black outline and a white-to-red gradient fill. The letters are thick and blocky.

The preceding article can be found on the ARRL's "On All Bands." For articles like this and much more, check out the link below:

<https://www.onallbands.com/>



Need Help With RF Interference Issues ?

If you have been experiencing RF interference there is a WMA resource available that's ready to assist you. Each section has established an RF interference investigative team that can help identify and possibly remedy your problem.

To initiate your request for help you can simply send an E-mail to k1yo@arrl.net with your contact information and a description of the problem and anything you may have already tried.

A member of the WMA RFI team will contact you with directions on how to initiate the formal request for assistance. This then may require several steps / tasks on your part which provide us with essential information to guide further investigative processes.

Additionally, helpful information can be found on our [RFI Troubleshooting Guide](https://nediv.arrl.org/rfi-troubleshooting-guide/) online at:
<https://nediv.arrl.org/rfi-troubleshooting-guide/>

We are ready to help - just give us a call !!

Vy 73,

Your WMA RFI Team

Greg WA1JXR Barry W1HFN Najm AB1ZA
Bob K1YO (Team Lead)

ZERO BEAT CLASSIFIEDS

Items For Sale, Trade or Wanted

FOR SALE!

Icom IC-7300 For Sale by Larry, KD1RV

Icom IC-7300 HF Transceiver
160m - 6m
\$700

PRICE REDUCED

Includes:

Original box, manual, microphone, and accessories.

Used very little, like new condition, Looks & Works Great!

Contact Larry, KD1RV at: larrydziobek@gmail.com or (413) 592-5994

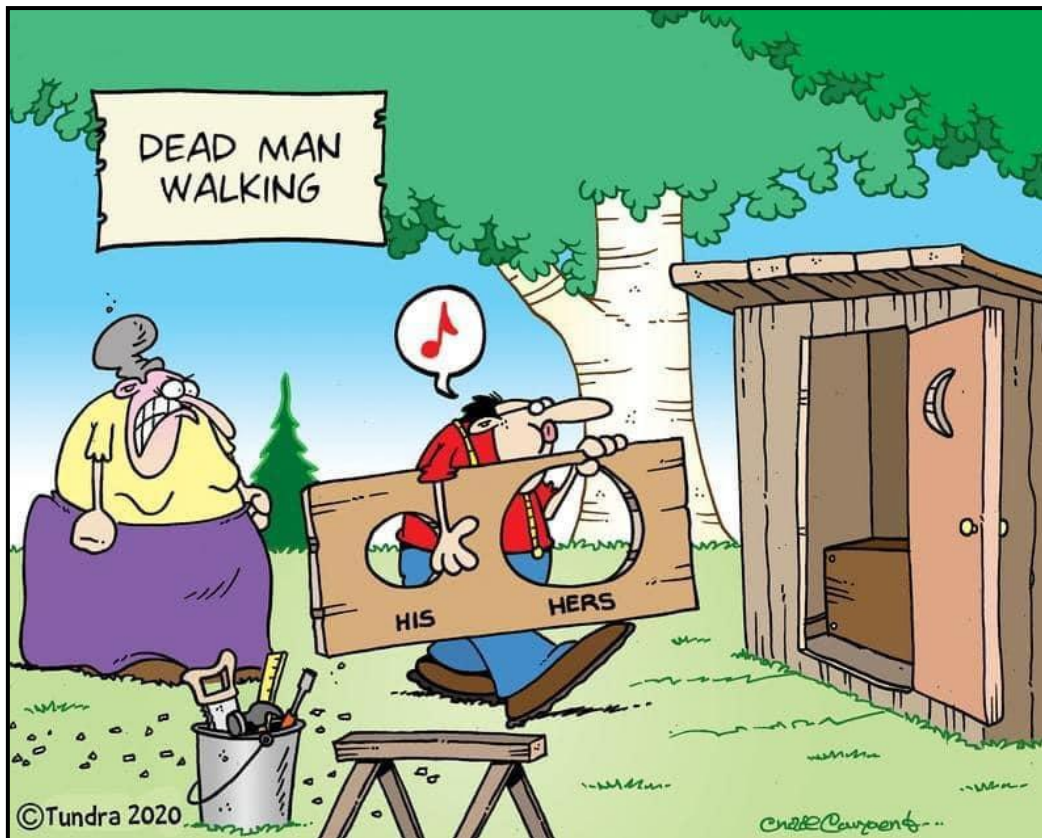
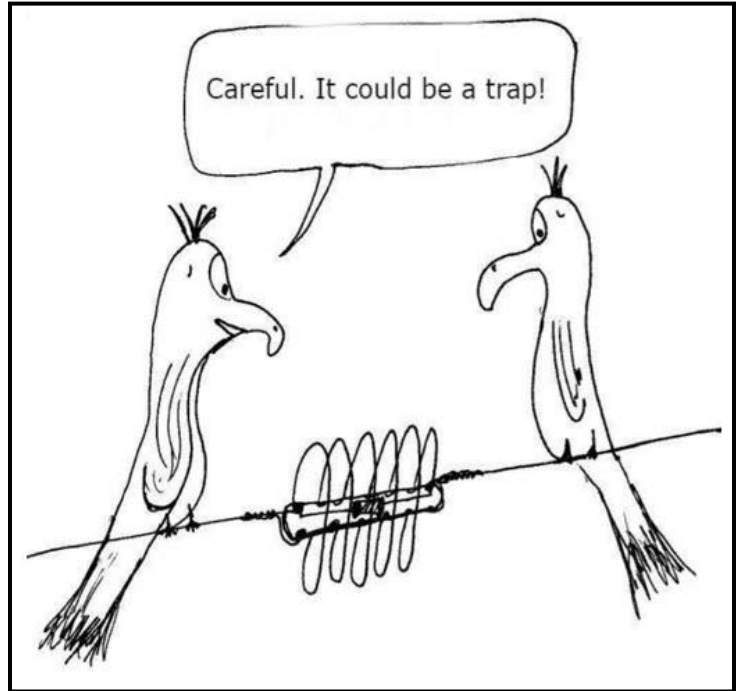
HF Rigs For Sale by Dave, WM1B, in East Longmeadow, MA.

- **Kenwood HF/MHZ TS-590 All Mode 100 w Transceiver - \$500**
- **ICOM IC-208 VHF/UHF FM Transceiver - \$150**
- **Realistic 10-meter SSB/CW Transceiver Model HTX-100 - \$75**

If interested, or have questions, contact Dave Fant, WM1B at info below

Email - dfant19508@aol.com

Phone - 484-529-0090 (cell) or 413-525-3022





Algonquin Amateur Radio Club Marlborough, MA



AMATEUR
RADIO

FLEA MARKET

Saturday, February 17, 2024



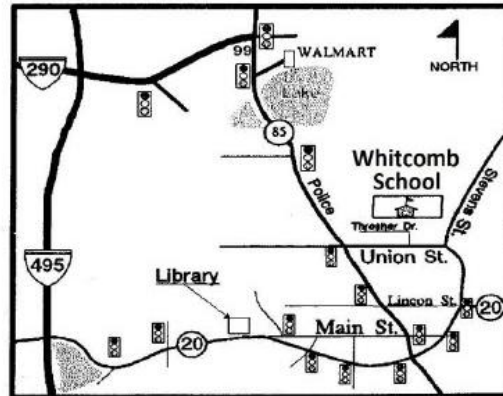
Marlborough 1Lt Charles W. Whitcomb School
(formerly Intermediate/Middle School)
25 Union St. or
off Bolton St. (Rt. 85)
Marlborough, Massachusetts

6 ft. Tables (round and rectangular)
Tables are \$15.00 each if purchased by February 9, 2024 (\$20.00 each accepted at the door if space is available)
Tables include vendor admission for one person.

Time: 9:00 AM to 1:00 PM
General Admission: \$5.00
VEC Exams: 9:00 AM

SETUP TIME: 6:30 AM
For more information email:
fleamarket@n1em.org

Talk In: N1EM/R 446.675 - (pl 88.5)
Updates will be on our web at:
<http://n1em.org>



Send This Form For Table Reservations with Check Payable to:
AARC, PO Box 258, Marlborough, MA 01752 (\$15.00 each table due by February 9)
Name: _____ Call: _____
Address: _____ No. Tables: _____
City: _____ State: _____ Zip: _____
Telephone: (____) _____ Amount Enclosed: \$ _____ .00
Email: _____

Algonquin Amateur Radio Club Flea Market

Click on image or link to download flyer (pdf)
<https://www.qsl.net/n1em/2024flyer.pdf>

Clublog update: Clublog can be accessed at <https://clublog.org/league.php> Signup is free, and there are a number of ways to lookup information. Give it a try, who knows... you just might like it!

This is the latest HCRA Clublog for 2023 - you can see who has been on the air hot and heavy this year!
HCRA Clublog Information Updated on January 25th 2024



DXCC Leagues

The leagues are rebuilt once per day. Only callsigns active in the last 12 months are included in the league tables. The maximum size of a league is 2000 participants.

<input checked="" type="radio"/> No Mode Filter	<input type="radio"/> CW	<input type="radio"/> Phone	<input type="radio"/> Data
<input checked="" type="radio"/> Rank by DXCCs	<input type="radio"/> Rank by slots	Rank by band: Totals ▾	
<input checked="" type="checkbox"/> 160M	<input checked="" type="checkbox"/> 80M	<input checked="" type="checkbox"/> 60M	<input checked="" type="checkbox"/> 40M
<input checked="" type="checkbox"/> 30M	<input checked="" type="checkbox"/> 20M	<input checked="" type="checkbox"/> 17M	<input checked="" type="checkbox"/> 15M
<input checked="" type="checkbox"/> 12M	<input checked="" type="checkbox"/> 10M	<input checked="" type="checkbox"/> 6M	
<input checked="" type="radio"/> Current entities	<input type="radio"/> Current and deleted	<input checked="" type="radio"/> Worked	<input type="radio"/> Confirmed
<input type="radio"/> No Date Filter	<input checked="" type="radio"/> 2024	<input type="radio"/> 2023	<input type="radio"/> Last 12 months
Filter by club/continent:	HCRA - Hampden County Radio Association ▾		

Generate DXCC League

League for HCRA - Hampden County Radio Association

Rank	Callsign	160	80	60	40	30	20	17	15	12	10	6	DXCC ▾	Slots	Range
1	W1RM+1	1	6	0	67	16	55	14	64	22	59	0	160	304	61 yrs
2	KX1X	2	30	0	55	51	24	9	24	35	53	0	124	283	27 yrs
3	NF1G	5	3	0	0	1	4	7	51	6	25	0	88	102	40 yrs
4	K1NZ+1 ★	2	3	10	7	54	20	10	29	41	43	0	80	219	13 yrs
5	KK1W+1	0	0	0	7	2	13	8	10	7	7	0	51	54	48 yrs
6	K1VOI	3	3	0	16	10	4	0	0	1	5	0	27	42	23 yrs
7	W1AST+1	0	3	0	2	0	11	3	0	5	3	0	22	27	15 yrs
8	KD1KU	0	0	0	3	0	4	1	1	0	2	0	9	11	6 yrs
9	N1JIE	1	1	0	3	1	4	1	2	1	2	1	8	17	7 yrs
10	WD1S	0	0	0	2	0	1	0	0	0	3	0	4	6	12 yrs
		160	80	60	40	30	20	17	15	12	10	6			
11	WY1G	0	0	0	1	0	1	1	1	1	0	0	1	5	43 yrs

If you have never used Clublog, need a refresher, or simply have the desire to learn as much as possible about Clublog or most anything else, go to the [HCRA YouTube Channel](#) and learn. All meetings are recorded and posted on hcra.org plus video links are listed in Zero Beat. The link to the April 2021 meeting where Clublog was the topic of our guest speaker is listed below.
<https://www.youtube.com/watch?v=qj2lKcQRNbE&t=1s>


ARRL CLUB COMMISSION PROGRAM

Join or Renew your ARRL Membership through the HCRA!

The HCRA now earns a **\$20 commission** for each **NEW** ARRL member we recruit and **\$5** for each **renewing member**. Download the form, fill it out completely including payment, and mail it to **Hampden County Radio Association, P.O. Box 562, Agawam, MA. 01001**

Be sure to send it to the HCRA P.O. Box above and **NOT** directly to the ARRL

<https://www.arrl.org/files/file/Membership/Club%20Commission/ARRL%20Membership%20Application%20CLUB%20rev%20Jan%202024.pdf>



ARRL
The National Association for
Amateur Radio®

Membership Application

New Renew Previous Member Unlicensed

Name _____ Call Sign _____

Address _____

City _____ State _____ ZIP _____

Email _____ Phone _____

Date of Birth ____ / ____ / ____

My Family Member is Joining or Renewing: (\$12 per member)

Name _____ Call Sign _____

Name _____ Call Sign _____

Please note my new address I do not want my name and address made available for non-ARRL related mailings

Your Annual Membership Dues*

Circle Your Choice (rates effective Jan. 1, 2024)

	1 Year	3 Years
Standard membership	\$59	\$174
Family (same membership exp. date and address)	\$12	\$36
Student (must be under age 26)	\$30	
Blind (requires one-time statement of legal blindness)	\$12	\$36

Member Benefits

Your membership supports benefits, services, and programs that keep you active and on the air.

Membership Includes:

- Access to four digital magazines and archives (*QST*, *On the Air*, *QEX*, & *NCJ*)
- Unlimited courses through the ARRL Learning Center (learn.arrl.org)
- Logbook of The World®, contests, and award programs

...and more!

*A print subscription for *QST* and/or *On the Air* requires an ARRL membership. Dues and subscription rates are subject to change without notice and are non-refundable

Add-on ARRL Subscriptions

QST, ARRL's membership journal for active radio amateurs.
 1 Year \$25* 3 Years \$75*

On the Air, For beginner-to-intermediate-level radio amateurs.
 1 Year \$25* 3 Years \$75*

Payment Information

\$ _____ Total Charge to: Visa MasterCard AmEx Discover Check Enclosed

Card Number _____ Expiration Date _____

Card Holder's Signature _____

Toll Free (US) 1-888-277-5289 or 860-594-0200 • ARRL, 225 Main St., Newington, CT 06111-1400
membership@arrl.org • www.arrl.org/join

DOTS & DASHES THINGS THAT DON'T FIT ANYPLACE ELSE!

NASA On The Air (NOTA)

The Johnson Space Center Amateur Radio Club (JSCARC) located on the grounds of NASA Johnson Space Center in Houston, Texas. W5RRR is one of the 12 NASA club stations participating in a continuing series of events called NASA On The Air (NOTA). All of these NASA stations are now activated to celebrate a variety of significant space exploration milestones.

Checkout the following link for complete NOTA information: <http://nasaontheair.wordpress.com>

New ARRL Award Certificates

One of the special things about going to club meetings is witnessing awards being presented. Sometimes the awards are for many years of service, while others are for recent accomplishments. ARRL has added three new awards for clubs to give out to make sure that new members, as well as the established veterans, can be recognized. Visit www.arrl.org/awards for more information on each of these club-level awards.

The three new awards are: Mentor Award, First Contact Award & Rag Chewers' Club

Contests and Special Event Stations

ARRL Contest Search - <http://www.arrl.org/contest-calendar>

International DX Contest - CW | 160m - 10m | Feb 17th @ 0000z - Feb 18th @ 2359z

For rules and complete info go to: <https://contests.arrl.org/ContestRules/DX-Rules.pdf>

10-10 Int. Winter Contest, SSB | 28 MHz | Feb 3rd 0001z - Feb 4th 2359z | SSB

For rules and info go to: <https://www.ten-ten.org/index.php/activity/2013-07-22-20-26-48/qso-party-rules>

Special Event Station Search - <http://www.arrl.org/special-event-stations>

61st Anniversary of the YL System | Feb 8 - 11th, 1323z - 1323z | 20m - 40m

For complete info and rules visit: <https://ylsystem.org/>

HCRA Member Outgoing QSL Service

QSL's will be sent to the ARRL Outgoing QSL Bureau quarterly on the following approximate dates

April 15th, June 15th, Sept 15th, and Jan 15th, 2024

Go to <https://hcra.org/dx-qsl/> for complete information

or

Contact Paul, NFIG at paulkelliher@comcast.net

Join Brown Baggers for Lunch

For the benefit of every HCRA member, Brown Baggers is a friendly lunch get-together that happens on the 1st and 3rd Wednesdays of each month. It's held at the [Munich Haus Restaurant](#) in Chicopee Center at 12:00 pm (noon), located at 13 Center St. Chicopee, MA, across from City Hall, or simply click the link above.

Enjoy lunch, conversation, and camaraderie with your fellow hams. Everyone is welcome!

10 Meter Net Guest Net Control Station

The 10 meter net 2024 Fall/Winter schedule has begun. Every 4th Monday of each month there will be a guest Net Control Station for one net. Have you ever thought of trying your hand at being a Net Control Station? Now is your chance to make that dream come true! Run the net however you'd like and have some fun.

Try your hand at being a guest Net Control Station for one Monday Net?
For more details about this fun net contact Ken, KD1KU at kd1ku@yahoo.com

Share the Knowledge Meetings Continue

Share the Knowledge Zoom meetings have been a big hit over the last few years. Last winter we had several excellent meetings! Watch all STK videos by clicking <https://hcra.org/videos/> where they are listed in alphabetical order.

The 2024 STK meetings begin in February at 7 pm! See the complete schedule on page 3

Membership Memorial Page

All members have the opportunity to honor club members SK's on the new memorial page on hcra.org. This can be done easily by sending the SK member's name and callsign along with any text, stories, an-photos. Send them to our webmasters, Vanessa, W1IRL, or Alan, AB1XW at the email address's below:
Vanessa, W1IRL, at webmaster@hcra.org or **Alan, AB1XW**, at alan.dove@gmail.com

**Please check-out the HCRA You Tube Channel and while you're there don't forget to click subscribe!
I hope that many members are working on their short video's for the club's You Tube channel.
For more info see the April issue of Zero Beat. The YouTube Channel link is below.**

For Sale Items

There is a For-Sale section that is for HCRA members. Any members who have a want, something to sell, or even an item to trade.

Send item description and photo(s) to:
kd1ku@yahoo.com

HCRA Social Media Links

You Tube: <https://www.youtube.com/HampdenCountyRA>

Facebook: <https://www.facebook.com/groups/HampdenCountyRA>

Local Nets & Happenings

Sundays: 8:45 am Western MA. VHF Emergency Net on 146.94, PL 127.3 W1TOM/R

Sundays: 9:15 am Western MA. UHF Emergency Net on 443.200, PL 127.3 W1TOM/R

1st Monday: 6:45 pm, MEMA RACES Drill, 146.49 Simplex and 3.930 LSB

Mondays: 7 pm, RACES Drill, 146.910, Mt. Greylock

Mondays: 7 pm, HCRA 10 Meter Net on 28.375, New topic every week. Have a topic to suggest? Contact kd1ku@yahoo.com

Tuesdays: 7:30 pm, 146.94, PL 127.3 - Hampshire County Emergency Net

Tuesdays: 8 pm, ARES Emergency Net, on 146.985, PL 136.5

Wednesdays: 7:30 pm, MTARA Info Net on 146.94, PL 127.3

Wednesdays: MTARA Swap net: 146.94, Following Info Net

Wednesdays: N1RLX Simplex Net, Check-In's on 146.94 then QSY to 146.42 Simplex immediately following the swap net

Wednesdays: 9 am, FCARC Experimental Net, 28.354 MHz

Thursdays: 8 pm, FCARC Information Net, 146.985 - 136.5

Join or Renew Your ARRL Membership!

ARRL members enjoy:

- QST Magazine
- Members-Only Web Services
- Technical Information Service
- Member Discounts
- Outgoing QSL Service
- Continuing Education
- ARRL as an Advocate
- Regulatory Information Branch
- Public Relations for Amateur Radio
- ARRL Field Organization
- ARRL-sponsored contests
- Operating Awards
- Local Clubs
- Amateur Radio Emergency Service
- Hamfests and Conventions
- Volunteer Examiner Coordinator Program



<http://www.arrl.org/membership>

Club Meetings and VE Sessions

1st Friday of the month at 7:30 pm HCRA Meeting. In-Person meetings began in Sept. 2022. Meetings start with a meet & greet at 7 pm followed by the regular meeting at 7:30pm sharp. <http://www.hcra.org/>

2nd Monday of the month at 7 pm, FCARC meeting. 1 Aviation Way, Turners Falls, MA. (airport). Social Hour 6-7 pm, meeting at 7 pm. <http://www.fcarc.org/>

2nd Saturday prior to FCARC meeting. 8 am Breakfast at Denny's Pantry, 496 Bernardston Rd. Greenfield, MA. Brad Councilman bc@councilman.com

3rd Friday of the month, MTARA Meeting, 7 pm, Castle Of Knights, 1599 Memorial Drive, Chicopee, MA, 01020 <https://mtara.org/>

4th Friday of the month, The Western Mass VE Team (WMVET) VE sessions at the Holyoke Hospital Auxiliary Room beginning January 27th and every 4th Friday at 6pm to perform VE exams. E-mail Dave, W1FAB wa1dc@yahoo.com. Call or text 413-575-2950. Need directions? <http://www.hcra.org/meeting-location/>

4th Monday of the month, Be a guest Net Control Station for the 10 meter net! Contact kd1ku@yahoo.com

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hamop.w1ast@gmail.com

Vice-President - Ez Morales, W1AEZ
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**Here is your fabulous next
issue of Zero Beat!**

Our 76th Year as an ARRL Affiliated Club

**Hampden County Radio Association
P.O. Box 562
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