



The

December 2020

Propagator

The Monthly Newsletter of the South Orange County Amateur Radio Association

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Holiday Party

December 21,
2020 7:00 PM
via
[GoToMeeting](#)

Presidents Message - December 2020

Greetings all, and Happy Holidays!

As 2020 winds down, I'm sure most of us won't be disappointed that this year is nearly over! In fact, I'd say good riddance! Still, there have been some positives to come out of all of this. Stay at Home protocols have given us more ham radio opportunities. Our club on air activities have increased greatly, with the addition of several nets, such as the Wednesday Science and Astronomy net, Thursday OC Fire Watch Net, the Friday Dinner and now Off Roader Net, Saturday Morning Tech Net, and of course the SOARA monthly virtual General and Board meetings

Although not as well attended as usual, participation in our Covid safe remote operating field day still allowed and encouraged many of us to experiment with providing you own individual emergency operating capabilities, often with emergency power, temporary antennas, and at a safe but unique operating location. My own back yard, solar powered, temporary dipole, single HF transmitter set up let me learn what could be done if necessary. I've often thought about how I'd be able to operate, if a disaster necessitated, but the Covid Field Day caused me to actually make it happen!

There is light at the end of this tunnel with the introduction of new Covid vaccines, and the Murray Center where we meet in person, now says that they may re-open for activities in March 2021. This is of course a soft reopening date, depending on conditions. We do need to remain vigilant and try to follow the guidelines medical science has set, but now there is a positive end in sight.

I encourage all of you to attend SOARA's virtual Holiday Party this coming Monday Evening, December 21, at 7 pm. It will be an informal get together where we wish everyone the best holiday possible and look forward to a much better new year.

Contacting Soara: Questions about SOARA? Postal mail: P.O. Box 2545, Mission Viejo, CA 92690
Send e-mail to membership@soara.org or leave a message at 949-667-0173
Facebook: K6SOA Twitter: @K6SOA

We welcome any suggestions as to how SOARA can improve your Ham radio experience for the coming year. as we wish you all a much happier, safer, and more prosperous 2021

Best 73, and remain vigilant and healthy!

**73 to all,
Ray, AE6H**

[December 21 - SOARA Virtual Holiday Party via GotoMeeting](#)

Please join us on Monday, December 21st @ 7pm for our Virtual Holiday Party. All are welcome.

We are going to unwind a bit and have a little fun. Along with unscripted discussions, we are going to have some fun trivia questions to entertain you with; some HAM radio related, some not. We are going to have a contest for the most unique Holiday sweater with a \$20 gift card awarded to the winner - AND YOU will be the judges for this. We will have a raffle for several more gift cards to various establishments AND..... a grand prize raffle for a gift certificate to HRO for \$150. (YOU MUST be a club member and have dues paid up at time of raffle for the \$150 gift certificate. All guests are eligible for other prizes). Click here if you need to renew your membership:<https://www.soara.org/btp/payment2.php?p=renew>
For other method of payment, contact Heiko at ad6oi@soara.org

Our General Meetings have always been open to the public and our online platform using GoToMeeting is also open to anyone that wants to join in. You can join our GoToMeeting using either the GTM plug-in or access it via the Chrome web browser.

This is the [link](#) to joining the meeting or you may call in by phone **((786) 535-3211** using this Access Code: **285-381-781**

Erik, W6INE

[SOARA Elmer Saturday/Tech Net](#)

We have fun at SOARA Saturday events talking about all types of topics. Since we can't meet in larger numbers at the Murray center or Gilleran park, we are having virus free radioactive technical nets. The log is here: <https://www.soara.org/soara-saturday-log/>

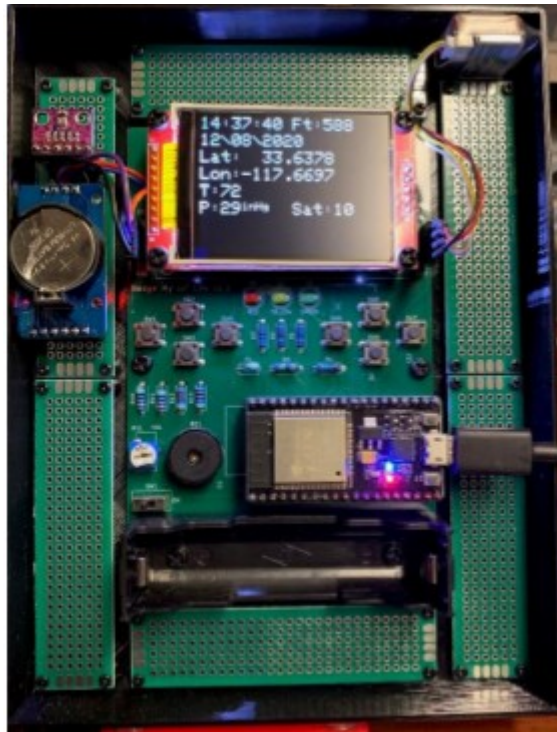
Join us Saturdays 9am, on Laguna Beach 147.645 or Santiago Peak 447.180 repeaters. Bring your questions, be there to help others, or listen in. Try having some radio fun!

73,
Ed, WA6ED
wa6ed@soara.org
SOARA Elmer Saturday Coordinator

[Ham Badge](#) [Part 2](#)

[Background](#)

Part I described Paul Pagel's IOT badge design, and his open source links. This article starts transforming this conference badge into something better suited for ham / amateur radio use. Thus, the ham badge name.



On left is the basic kit assembled. On right is the assembled board in a 3D printed prototyping breadboard case with GPS, RTC, & BME280 connected. I wanted plenty of breadboard space.

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Please observe static electricity protection. Many devices in this build are static sensitive. Minimally, use a good ground strap. Your solder iron tip should also be grounded.

FAB done, Kit Assembly

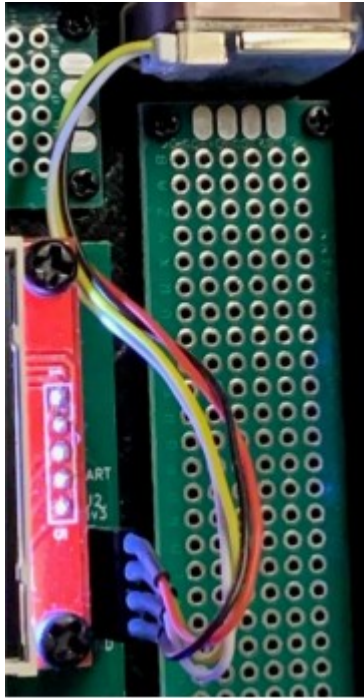
The PCB FABs finally arrived. Shipping took over a month. Oops, I picked the cheapest shipping possible. Covid 19 didn't help either.

Assembly was fairly straight forward. Install and solder resistors, cap, push buttons, connector strips, buzzer, and battery holder. I like to test resistors and capacitors with an LCR or multi-meter. The buzzer pins do not align to the PCB properly. If you bend the buzzer leads you can gently force the buzzer leads into the PCB holes then solder. Or, you can skip the buzzer. The buzzer isn't very loud. I tried a very small voice coil speaker, and the coil speaker is better. The battery holder connections are very tight with the battery installed. I gently used a pair of pliers to compress the battery holder metal contacts a little at a time. This helps make battery removal much easier. Also, if the battery holder contacts are too tight, it will indent the negative side of the battery contact. Not good. Be very careful to install the battery holder & battery correctly. + to +, and - to -. I like to have the on/off switch off when dealing with the battery. Don't install the battery if you power with the USB interface on the ESP32 module during programming and testing. Minimally, keep the power switch off when using the USB interface.

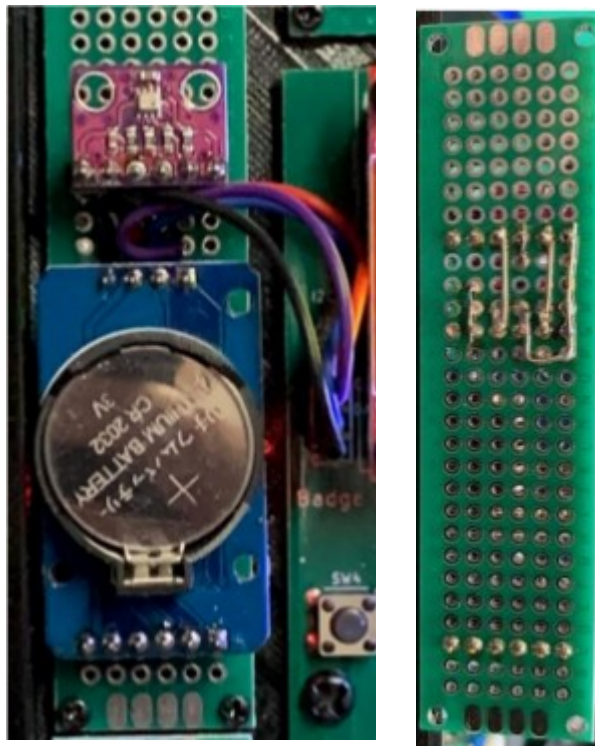


Partially assembled PCB. I used a PanaVise to hold the PCBA. The gold color on left and right of the photo is Kapton tape. I insulated the PanaVise holders in the past so I could power projects while probing without shorts.

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Wire the GPS connector: red = +3.3v, yellow = rx, white = tx, black = ground. Follow serial expansion silkscreen on PCB.



This shows wiring for BME280 & RTC. Connect both devices in parallel to the I2C expansion connector. I elected to replace the 6 pin RTC connector with straight leads. I only use this 6 pin RTC connector to help hold the module into place. Follow I2C silkscreen on PCB. Wiring is straightforward.

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Basic PCBA Testing

I pre-programmed the ESP32 modules in the kits with the demo test code. You should be able to test the PCBA right away. I installed the LEDs last. I ran the LED test, pressed each color button and adjusted the LED lead polarity before soldering.

Enhancements

I connected the BME280 and GPS. The time-weather demo will test the BME280 & RTC. The time- weather application wants a (RTC) DS3231SN real time clock. I bread-boarded a BME280 and RTC. Both devices are I2C so they wire in parallel. Their I2C addresses are different so they are compatible. I discovered my BME280's are actually BMP280's. BME280 supports temp, pressure, and humidity. BMP280 leaves out humidity. I ordered more modules that claim humidity support.

Learning & Running the GPS

First, I wrote a simple serial pass-through to test the GPS. All I did was pass Serial2 to the console back and forth. I used U-Center to check out the GPS. I highly recommend playing with u-center and maybe watch a YouTube demo video. The GPS module is programmed for racing drones. This was cheapest & most modern module I could find. There are three types of GPS data transmitted with this module. UBX- NAV-POSLLH, UBX_NAV_SOL, & UBX_NAV_VELNED. All data is in hex. Hex was really confusing at first. Unfortunately, the uBLOX library I found on the Internet only supports UBX_NAV_PVT messages. This GPS module doesn't support flash or battery backup for saving settings. Therefore, I set the message type I needed programatically. You will see this in the code below. Next, I upgraded the serial pass-through code to be a serial sniffer and monitor commands being sent from the windows uBLOX u-center application to the GPS. I recorded the u-center commands to turn on and off various messages in the GPS module. A pattern developed! And, more amazingly the enable / disable commands worked in my prototype code! These enable / disable messages were sent to the TFT display since no other output device was available. The console serial port is being used as part of the serial pass-through, remember. Once I sent the necessary enable and disable commands, the example was modified to support the uBlox GPS library. Note: when uploading code to the ESP32 module, press & hold the ESP32 IO button to initiate download. When you see -----.....-----..... press & hold the top ESP32 module button before the timeout. Don't forget your ground strap.

Next Steps:

Hardware enhancements:

- Breadboard I2C expansion connector
 - BME280
 - DS3231SN real time clock (not in the kit)
- Connect serial expansion connector to GPS
- Recover gpio's
 - 8 push button switches
 - 3 leds
- Add rotary encoder
 - needs 3 gpios

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**Rotary connector ready for wiring,
I plan to re-purpose 3 left side push button switch GPIOs.**

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Additional Software Ideas:

Add a rotary encoder menu system

- Weather station code merge with GPS•
- Investigate a faster TFT library
- Callsign & name on display, make it a badge.
Possibly just turn rotary encoder to badge display?
- Timer / stopwatch / alarm
- Data logging to SD card & TFT graph, a battery powered data logger would be a nice instrument
 - temperature, pressure, humidity
 - lat long vs time
 - elevation vs time
- WiFi sniffer
 - monitor networks, activity, etc.
- GPS enhancements
 - detailed screens
 - possibly build a custom library for more sophisticated applications
- WiFi mesh network at meetings or events or around the house IOT
 - Transfer telemetry, lat Long, temp, pressure, humidity
 - IOT stuff, remote light switch...
- WiFi or Bluetooth interface for other devices
 - browser control panel to phone or PC

Conclusion:

Projects like this can be reasonably modified to better suit to amateur radio use. We are only limited by our imagination. Play with the different libraries, make them work, and then integrate functionality into a more powerful instrument. That's the fun of it. Make something that solves your needs.

I have three kits remaining at \$43 parts cost. If enough members are interested in this project, we can plan another at-cost kit build order for PCB & parts. This takes a month or so depending on shipping, covit, & the holidays. Email wa6ed@soara.org if you are interested in a kit.

Work in progress, Serial Sniffer Example:

```
/*  
SerialPassthrough sketch  
created 23 May 2016  
by Erik Nyquist  
*/  
#include <Wire.h>  
#include <SPI.h>  
#include <Adafruit_GFX.h>  
#include <Adafruit_ILI9341.h>  

```

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```

#include "SparkFunBME280.h"
#include "TFT_Helper.h"
#include "icons.h"
// GPS is low cost, no flash or battery backup to save settings. Did I say low cost?
(EDB)
// Setting messages you need must be done t boot each time. (EDB)
// message commands to GPS to enable and disable messages (EDB)
const byte _PVT_enable[11] = {0xB5, 0x62, 0x06, 0x01, 0x03, 0x00, 0x01, 0x07, 0x01, 0x13,
0x51};
const byte _VELNED_disable[11] = {0xB5, 0x62, 0x06, 0x01, 0x03, 0x00, 0x01, 0x12, 0x00,
0x1D,
0x66};
const byte _SOL_disable[11] = {0xB5, 0x62, 0x06, 0x01, 0x03, 0x00, 0x01, 0x06, 0x00,
0x11,
0x4E};
const byte _POSLH_disable[11] = {0xB5, 0x62, 0x06, 0x01, 0x03, 0x00, 0x01, 0x02, 0x00,
0x0D,
0x46};
Adafruit_ILI9341 tft = Adafruit_ILI9341(TFT_CS, TFT_DC, TFT_MOSI, TFT_CLK, TFT_RST,
TFT_MISO);
void setup() {
  Serial.begin(115200);
  Serial2.begin(115200);
  Serial2.flush();
  tft.begin();
  tft.setRotation(SCREEN_ROT);
  tft.fillScreen(0);
  tft.setTextSize(2);
  // enable PVT messages (EDB)
  Serial2.write(_PVT_enable,11);
  // disable preprogrammed GPS messages, currently not needed and consumes message
time
on serial interface. (EDB)
  Serial2.write(_VELNED_disable,11);
  Serial2.write(_SOL_disable,11);
  Serial2.write(_POSLH_disable,11);
}
void loop() {
  char c2;
  char c1;
  if (Serial.available()) { // If anything comes in Serial (USB),
    c1=Serial.read();
    tft.print(c1,HEX);
    tft.print(" ");
    Serial2.write(c1); // read it and send it out Serial1 (pins 0 & 1)
  }
  if (Serial2.available()) { // If anything comes in Serial1 (pins 0 & 1)
    c2=Serial2.read();
    //tft.print(c2,HEX);
    Serial.write(c2); // read it and send it out Serial (USB)
  }
}

```

Modified UBLOX Example:

Install library in Arduino IDE, menu click sketch, include library, manage library. Search "ublox", install. Yellow highlights below are the changes needed to setup the drone GPS module.

```
/*
UBLOX_example.ino
Brian R Taylor
brian.taylor@bolderflight.com
Copyright (c) 2016 Bolder Flight Systems
Permission is hereby granted, free of charge, to any person obtaining a copy of this
software and associated documentation files (the "Software"), to deal in the Software
without restriction, including without limitation the rights to use, copy, modify, merge,
publish, distribute, sublicense, and/or sell copies of the Software, and to permit
persons to whom the Software is furnished to do so, subject to the following conditions:
The above copyright notice and this permission notice shall be included in all copies or
substantial portions of the Software.
THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED,
INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR
PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE
FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR
OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER
DEALINGS IN THE SOFTWARE.
*/
// GPS is low cost, no flash or battery backup to save settings. Did I say low cost?
(EDB)
// Setting messages you need must be done at boot each time. (EDB)
// message commands to GPS to enable and disable messages (EDB)
const byte _PVT_enable[11] = {0xB5, 0x62, 0x06, 0x01, 0x03, 0x00, 0x01, 0x07, 0x01, 0x13,
0x51};
const byte _VELNED_disable[11] = {0xB5, 0x62, 0x06, 0x01, 0x03, 0x00, 0x01, 0x12, 0x00,
0x1D, 0x66};
const byte _SOL_disable[11] = {0xB5, 0x62, 0x06, 0x01, 0x03, 0x00, 0x01, 0x06, 0x00,
0x11, 0x4E};
const byte _POSLLH_disable[11] = {0xB5, 0x62, 0x06, 0x01, 0x03, 0x00, 0x01, 0x02, 0x00,
0x0D, 0x46};
#include "UBLOX.h"
// a uBlox object, which is on hardware
// serial port 1 with a baud rate of 115200
UBLOX gps(Serial2,115200);
void setup() {
  // serial to display data
  Serial2.begin(115200);
  Serial.begin(115200);
  delay(100);
  // disable preprogrammed GPS messages, currently not needed and consumes message
  time
  on serial interface. (EDB)
  Serial2.write(_VELNED_disable,11);
  Serial2.write(_SOL_disable,11);
  Serial2.write(_POSLLH_disable,11);
  Serial2.flush();
  Serial2.end(); //let gps library have serial2
  delay(100);
  gps.begin();
}
}
```

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```

void loop() {
  // checking to see if a good packet has
  // been received and displaying some
  // of the packet data
  if(gps.readSensor()) {
    uint8_t mon = gps.getMonth();
    if (mon < 10) Serial.print("0");
    Serial.print(mon);
    ///< [month], Month, range 1..12 (UTC)
    Serial.print("\");
    uint8_t dday = gps.getDay();
    if (dday < 10) Serial.print("0");
    Serial.print(dday);
    ///< [day], Day of month, range 1..31 (UTC)
    Serial.print("\");
    Serial.print(gps.getYear());
    ///< [year], Year (UTC)
    Serial.print(" ");
    uint8_t hr = gps.getHour();
    if (hr < 10) Serial.print("0");
    Serial.print(hr);
    Serial.print(":");
    ///< [hour], Hour of day, range 0..23 (UTC)
    uint8_t mmin = gps.getMin();
    if (mmin < 10) Serial.print("0");
    Serial.print(mmin);
    ///< [min], Minute of hour, range 0..59 (UTC)
    Serial.print(":");
    uint8_t sec = gps.getSec();
    if (sec < 10) Serial.print("0");
    Serial.print(sec);
    ///< [s], Seconds of minute, range 0..60 (UTC)
    Serial.print(" Sat:");
    Serial.print(gps.getNumSatellites());
    ///< [ND], Number of satellites used in Nav Solution
    Serial.print(" Lat:");
    Serial.print(gps.getLatitude_deg(),10); ///< [deg], Latitude
    Serial.print(" Lon:");
    Serial.print(gps.getLongitude_deg(),10); ///< [deg], Longitude
    Serial.print(" Ft:");
    Serial.println(gps.getMSLHeight_ft()); ///< [ft], Height above mean sea level
  }
}

```

[Icom 7100 Split DPL/DTCS](#)

Recently a local repeater on the PAPA system switched to Digital PL or DTCS codes. The switch to DPL/DTCS was made to reduce intermodulation interference but had the unfortunate side effect of limiting access for many Icom and Yaesu radio owners. The repeater was configured to use different codes (split codes) for transmit and receive. Several Icom radios do not support split DPL/DTCS codes. Only a single code may be entered for both transmit and receive. If the DTCS code is set to the transmit code you can transmit but the radio will not open the squelch on receive.

Fortunately, there is a work around on the Icom 7100. The 7100 does support non-standard repeater configurations. This is useful for crossband work on the ISS and other 2m/70cm split systems.

The radio has dual VFO's and allows a user to manually enter different frequencies in each VFO, then combine them into a split mode along with separate DPL/DTCS codes. The basic steps are to disable the auto repeater function, set VFO A, set the code, repeat for VFO B, save to memory and re-enable the auto repeater function.

Disable Auto Repeater

Step 1: Press the "SET" button to enter the settings menu.

Step 2: Select "Function" on page 3.

Step 3: Select "SPLIT/DUP" on page 3.

Step 4: Select "Auto Repeater" on page 2.

Step 5: Set "Auto Repeater" to "OFF". Press "SET" again to exit. See Fig 1.



Fig 1

Manually Enter Repeater Freq in VFO's

Step 1: Ensure you are in VFO mode by pressing the "V/M" softkey in M-1 and "A/B" in M-1. The display should show "VFOA" on the right side. See Fig 2.

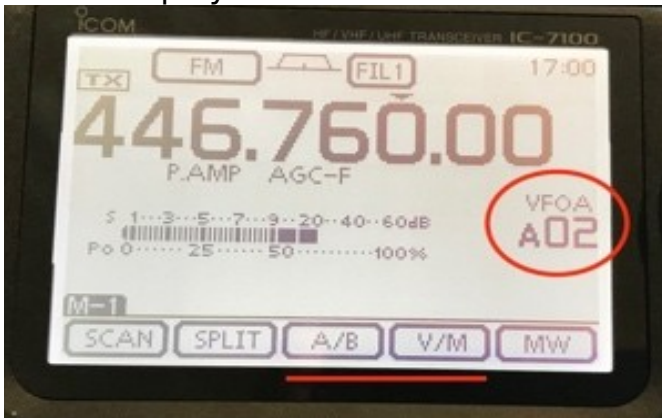


Fig 2

Step 2: Enter the repeater receive/output frequency in VFO A. In this example PAPA3 output is 446.760 MHz.

Step 3: Press the "MENU" key once to show menu M-2.

Step 4: Press the and hold the "TONE" softkey for one second to enter Tone settings.

Step 5: Press the "TONE" softkey twice to enter DTCS Code mode.

Step 6: Rotate the VFO knob to select the correct Digital PL/DTCS receive code. In our example the DPL receive code for PAPA 3 is 261. See Fig 3.



Fig 3

Step 7: Press "Menu" to exit.

Step 8: Press the "TONE" softkey three times to enable the newly set DTCS code on VFOA.

Step 9: Press "MENU" twice to return to menu M-1.

Step 10: Press the "A/B" softkey to switch to VFO B.

Step 11: Enter the receiver transmit/input frequency in VFOB, in our example PAPA3 is a negative offset so we enter 441.760 MHz.

Step 12: Repeat steps 3-9 to enter the transmit/input DPL/DTCS code, 073 for PAPA 3.

Step 13: Press the "A/B" softkey to switch to VFO A.

Step 14: Press the "SPLIT" softkey to set split mode operation. You should have the repeater output as the top frequency and the input as the bottom on the display. See Fig 4



Fig 4

At this point you should now have a working set up. The radio will transmit a separate DPL/DTCS code and open the squelch when it hears the receive code. Make a test call before proceeding.

Step 15: Select a blank memory channel by turning the "BANK" and "M-CH" knob to select where in memory you want to save the repeater.

Step 16: Press and hold the "M/W" softkey until you hear a beep.

Step 17: Using the steps above, re-enable the Auto Repeater function.

The repeater is now properly configured and saved to memory. It is unfortunate that such a complex process is required. Hopefully Icom will address this in a future firmware update.

73

**Joe Perrigoue
K7KCE**

N.B. - Since I initially put this guide together, the PAPA system has reverted PAPA 03 to a single DPL/DTCS code for both transmit and receive due to the high volume of complaints. Still a useful technique to have in your toolbox.

SOARA Nets

We are running a number of nets on our repeaters to help all of us stay in touch and keep ourselves occupied while we are mostly staying at home. Except as noted below, the nets are held on the 2M (147.645) and 70cm (447.180) linked repeaters.

Some of these are what we have been doing for a while such as the Tuesday night 2000 net on the 2M/70cm repeaters, the Dstar net Wednesday nights at 2000 on 146.115 MHz and the HF nets on Sunday 40M (7.200 MHz) at 0800 and 10M (28.415MHz) at 0900.

There are new nets as well:

Astronomy Net - Wednesday evening at 1900 on 146.115MHz (Dstar)

Dinner Net - Friday evening at 1900 on 2M/70cm

Tech Net - Saturday morning at 0900 on 2M/70cm

Dale, W6EDT

SOARA Equipment For Sale Online Site

Based on numerous requests from SOARA members for a place to post Ham Radio related items for sale to other club members, we have set up an opt-in based Mailman mailing list on our server. Interested SOARA members are invited to join the mailing list. The SOARA organization and Board of Directors do not provide any warranty or guarantee for the items being advertised, buyer beware!

To subscribe, navigate to:

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<https://soara.org/mailman/listinfo/forsale>

Enter your "real" email address, not your at "soara dot org" alias. You must be able to send and receive email from the address you provide.

Once subscribed, you will receive email when other members post items for sale. When posting to the list, you should provide an accurate description of the item for sale, its condition, and asking price. Replies to postings should be sent to the poster of the item, and not the list.

The archives of postings are publicly available on the web here:

<https://soara.org/pipermail/forsale/>

This mailing list may be suspended or discontinued at the discretion of the SOARA Board of Directors should that become necessary.

Brian, NJ6N

[GotoMeeting Information](#)

WHAT TO EXPECT MONDAY EVENING

When you join Monday's meeting, it is highly recommended you use Google Chrome if you plan on entering via browser. It is also recommended to use a headset or earbuds with a mic. Avoid a laptop mic as the speakers that sit right next to the mic tend to produce echo and feedback. Your webcams will be disabled.

The meeting will be locked in order for Soara Board members and our Presenter to arrive first. Please email me if you would like to make an announcement to the other members so I'll know in advance to call on you. You will be in a waiting room until 7pm when I'll open up the meeting. Please keep your microphones muted when not talking. I will Mute all attendees if there is an unmuted mic disrupting the meeting.

You can use the Chat feature to request to ask a question. When, acknowledged, you can unmmute your mic and ask away. You may ask the question in the chat if you prefer and we'll ask the question for you. You may comment as well if you like, just keep it clean. You can also chat with a specific individual privately. Just be sure of what you are saying and where it is going.

As this meeting is open to the public and announced as such on the website, we expect a smooth meeting. If we, by chance, get a disruptive guest they will be Dismissed from the room by the Moderator and the meeting room will then be locked to prevent re-entry.

Let's have a great online meeting!

Erik, W6INE

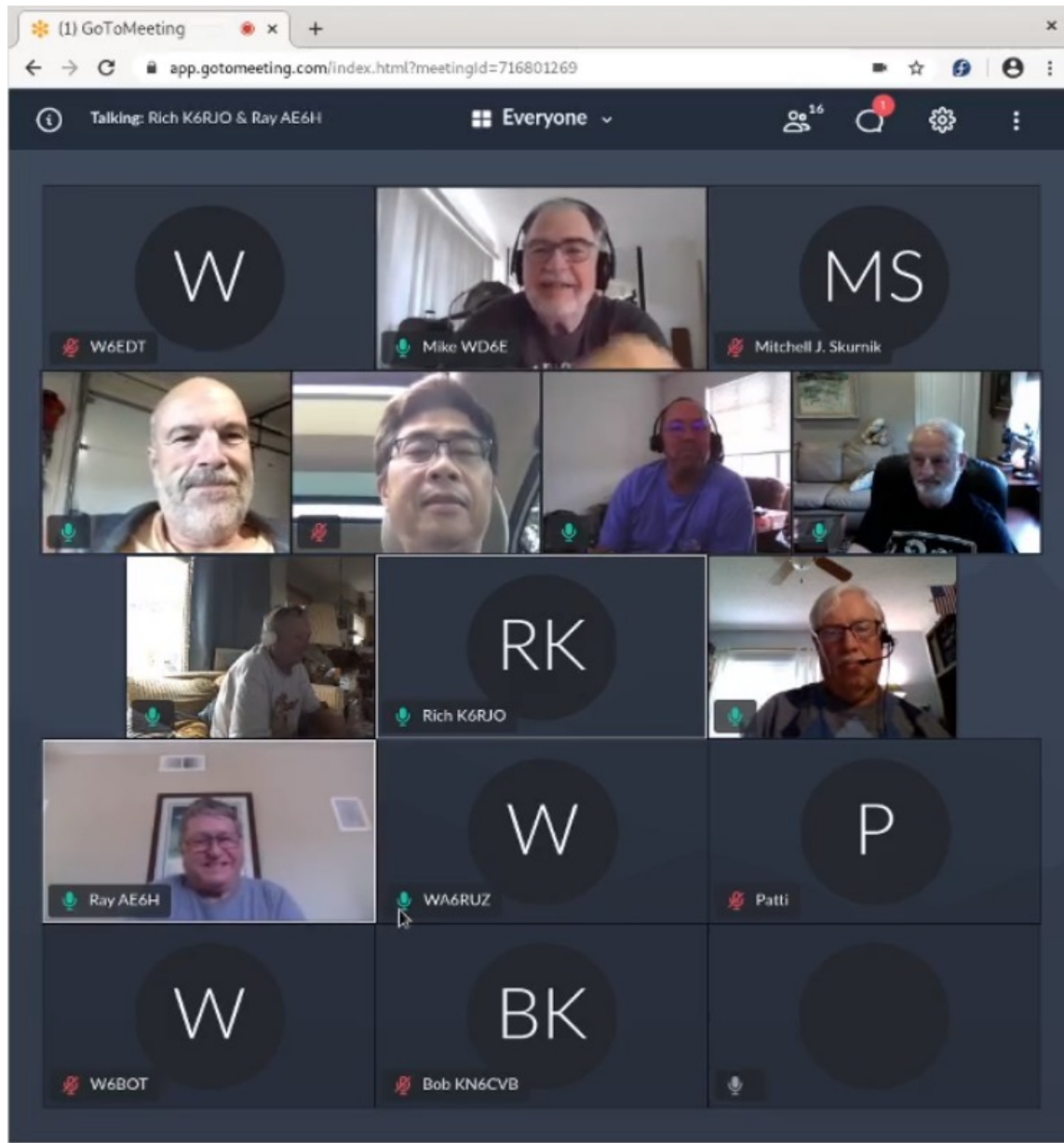
Some additional notes from Dale Tyler. Meeting details and links, etc. will be sent out Monday afternoon and will also be available on the soara.org website.

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So far, the only browser that I have seen work is Chrome. The meeting link will look something like SoaraMeeting_ **subject to change - check email or soara.org**). When you follow the link you will see a screen similar to this

Be sure to choose "Join Meeting in Browser". Next you will have an opportunity to enter your name and ID. Please use your callsign for your ID. For example, I used W6EDT and my name was Dale. If you have previously used GotoMeeting, your name and ID will be stored in cookies associated with the site. You may or may not want to change them,

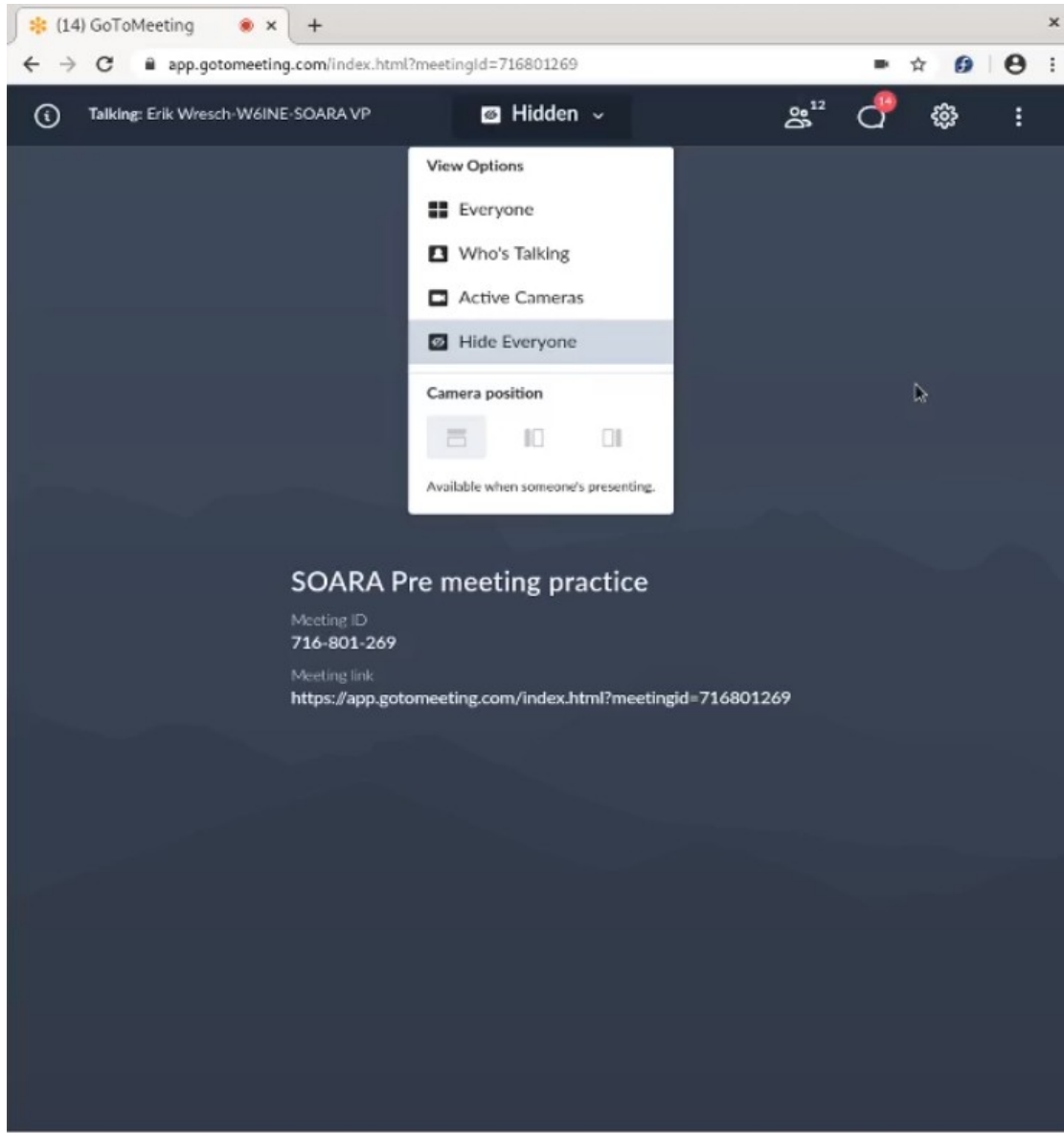
As was mentioned above, a headphone is best, but as long as you do not unmute your mike, the PC speakers will also work.



Once you enter the meeting you will see something like this (I am the "W" in the upper left):

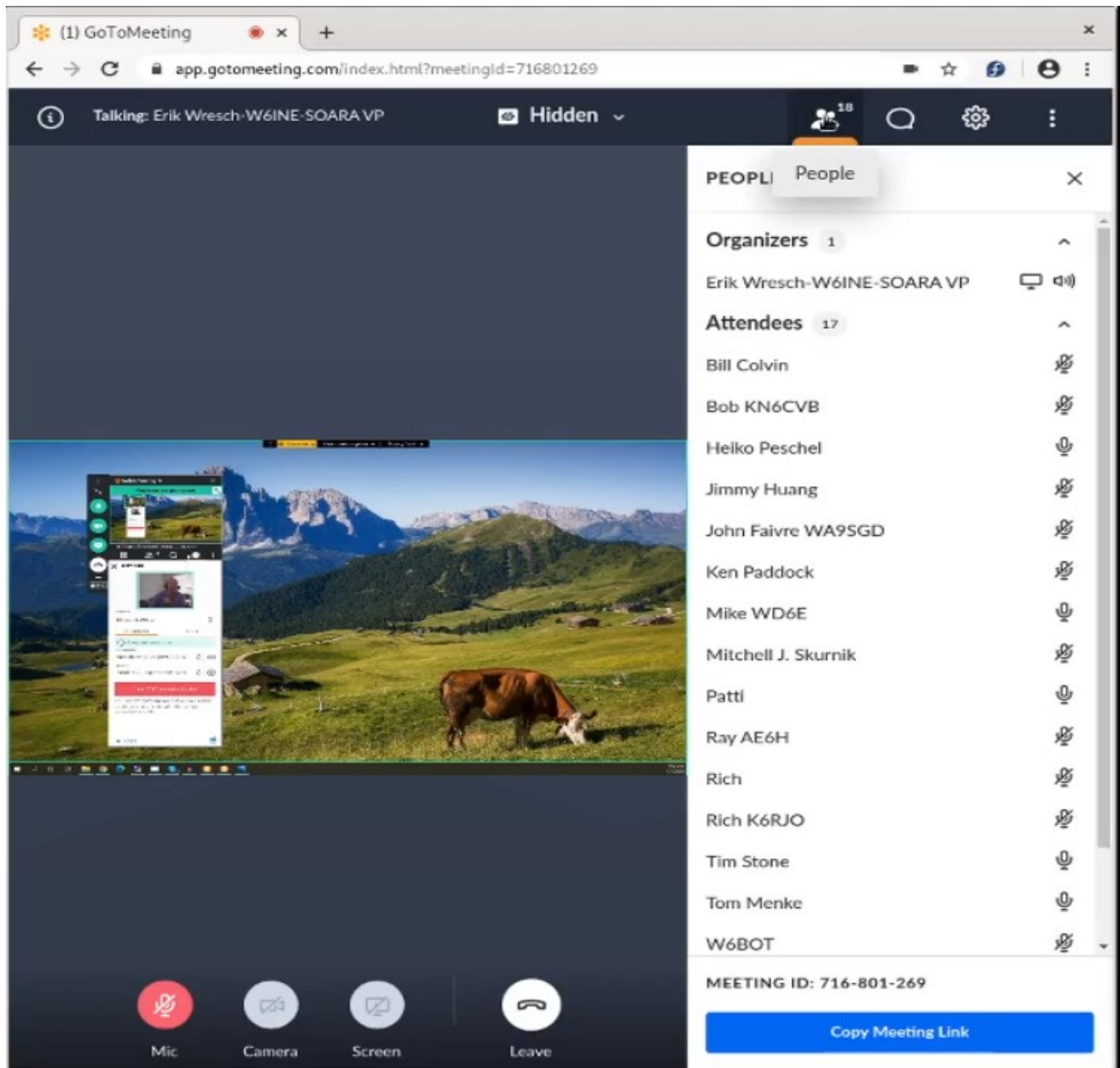
Contacting Soara: Questions about SOARA? Postal mail: P.O. Box 2545, Mission Viejo, CA 92690
Send e-mail to membership@soara.org or leave a message at 949-667-0173
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I would suggest you click on 'Everyone' at the top of the screen and change the display to 'Hide Everyone'. This will make the presentation, larger and easier to see.



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Finally, if you need to update your name or simply want to see who is logged in, use the people icon at the top right of your screen. To update your name or ID, click on your name and press "Edit" in the drop down menu.



Please leave your Mic icon as shown (muted **RED**), which prevents noise at your location from disrupting the meeting.

There will also be a telephone number you can call on a telephone and an access code to allow you to listen to the presentation, if a computer is not available. Please be sure you have unlimited long distance, as the number will not be toll-free.

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If you wish to join the meeting on a phone or tablet, either Android or Iphone, you will need to install the GotoMeeting App from you phone vendors approved 'store' The App is free, but may require certain permissions to function.

If you need help getting connected, please place a call on the Santiago repeater and I'll try to help you.

Also, if you would prefer to watch a live stream on YouTube, the link will be announced on the soara.org web site. The meeting will be available for playback later on YouTube as well.

This is a great way to participate in our club's meetings even when staying home to be safe.

**73,
Dale, W6EDT**

2020 SOARA Calendar

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
General Meeting 7:00 PM	27	24	16	20	18	15	20	17	21	19	16	-
Program	-	-	-	-	Spring Auction	Field Day Prep	-	SOARA Fair	-	-		-
FCC Ham Exam 6:00 PM	27	24	16	20	18	At Field Day (2pm)	-	17	21	19	16	-
Education Classes 8:00 AM	Tech 25	General 22	-	-	Tech 16	-	-	Tech 15		-		-
SOARA Elmer Saturday 9:00 AM	11 Murray	8 Murray	14 Gilleran	11 Gilleran	9 Murray	13 Gilleran	11 Murray	8 Gilleran			-	-
SOARA T-Hunt 1:00 pm	-	-	-	-	-	-	-	-	-	-	-	-
Board Meeting	Feb 3	Mar 2	23	27	26	-	27	24	28	26	23	-
Special Events	Quartz-fest 19-25	Yuma 14-16		Visalia DX 24-26	Dayton Ham-vention 15-17	ARRL Field Day 26-28	HRO Ham Jam -	SOARA Picnic 3		JOTA 16-18		SOARA Holiday Party 21
Major HF Contests		ARRL DX-CW 15-16	ARRL DX-SSB 7-8 CQWPX SSB		CQWPX CW 30-31	ARRL Field Day 21-23			CQWW RTTY 26-27	CQWW SSB 24-25	CQWW CW 28-29	
Volunteer Events	OC Chili Run	Paws Fur Pink OC Chili Run	OC Chili Run Baker to Vegas	Dessert Storm Rally Ride for Rwanda	HD Trails OC Marathon LH Marathon	ARRL Field Day 26-28	MV Fire-works 4					

Dates subject to Change - Check the SOARA Web Site (<http://www.soara.org>) to verify locations and times

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SOARA Information

SOARA meets at the Norman P. Murray Center, 24932 Veterans Way, Mission Viejo, CA on the third Monday of every month at 7:00 PM. For the months of January and February the third Monday is a holiday and the meeting is held on the fourth Monday.



License Exams: Amateur License Exams are given prior to SOARA meetings, except June. Exams are at 6pm. Prior registration is not required and walk-in applicants are welcome. For June, exams are held at Field Day. For further information, email Sean Reigle, AJ6B, at aj6b@soara.org.

SOARA Library: SOARA has many amateur radio related books such as hand books, books about electrical theory, etc. available to lend out to club members. Contact Heiko Peschel ad6oi@soara.org for more info.

Web Site: SOARA maintains a web site with current club information. The URL is: <http://www.soara.org/>

Repeaters: The Laguna Beach, San Clemente, and Trabuco repeaters are open. The Santiago Peak repeaters are closed. For details or questions on the repeaters contact the repeater director, or repeater@soara.org.

2m	—	147.645	-	(110.9)	Laguna Beach
2m	—	146.025	+	(110.9)	San Clemente
2m	—	145.240	-	(110.9)	Trabuco
D-STAR 2m	—	146.115	+	(K6SOA C)	Laguna Beach
220	—	224.100	-	(110.9)	Laguna Beach
220	—	224.640	-	(pvt)	Santiago Peak. (C)
440	—	445.660	-	(110.9)	Laguna Beach
D-STAR 440	—	445.705	-	(K6SOA B)	Laguna Beach
440	—	447.180	-	(pvt)	Santiago Peak. (C)
D-STAR 1.2G	1282.600	-	(K6SOA A)	Laguna Beach	

Nets:

UHF/VHF (447.180, 147.645 & 224.640): Tuesdays @ 8:00PM

D-STAR (146.115 C module): Wednesdays @ 8:00PM

40 meter HF (7.200 MHz +/- for QRM), Sundays @ 8:00AM

10 meter HF (28.410 +/-) Sundays after the 40m net.

Gordo HF (7.250 MHz +/- for QRM), Weekdays @ 8:30AM



SOARA OFFICERS

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SOARA APPOINTMENTS

Past President: Tom Hobbs, AE6SH 949-830-8131
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wa6ed@soara.org

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