

# Nacogdoches Amateur Radio Club

## 2020 CLUB OFFICERS

Pres: Bill Rascher - KT5TE

Vice Pres: Steve Bartlett-WB5IDY

Sec/Treas: Army Curtis - AE5P

Visit our web site at

<https://w5nac.com/>

## MISSION STATEMENT

The Mission of the Nacogdoches Amateur Radio Club is to support and promote Amateur Radio by public service, offering training to unlicensed interested parties and licensed Amateurs, mutual support of other Amateurs, engaging events that promote Amateur radio to the general public and other Amateur radio operators, and continuing fellowship by regularly scheduled organized meetings and events and having fun.



## JANUARY MINUTES

The January meeting of the Nacogdoches Amateur Radio Club (NARC) was held as rescheduled on January 8th. **President Bill KT5TE** opened the meeting at 7:00 p.m. in the Lunch Room of Christ Episcopal School. Twelve members were present. **WK5F** was also counted as present by proxy. Each person present introduced them self. Minutes of the previous meeting were approved as published. The Treasurer's report was read.

A suggestion was made to look into purchasing ARRL

materials to donate to our Public Library.

At the White Elephant Auction in December, a number of members purchased a hand-made wooden sign featuring the purchaser's call-sign. **WB5IDY** makes the signs and graciously donated the proceeds to the club. **Steve** handed out competed signs to those present.

**Army AE5P** and **Bob K5ME** participated in the NAQP CW contest. **Army AE5P** participated in the RTTY Roundup.

Five club members have confirmed their intentions to participate in the ARRL January VHF contest as rovers.

The book raffle for the month was "The Quad

Antenna" by Bob Haviland W4MB and was won by RM K5AGE.

**Program:** Army AE5P presented the program for this month by singing a little song he got from his wife. For those that missed it, here are the words to the song. If you have kids or grandkids, you already know the tune.

*If you're happy and you know it, stay in bed.*

*If you're happy and you know it, stay in bed.*

*If you're happy and you know it, don't get up you'll probably blow it.*

*If you're happy and you know it, stay in bed.*

## **Dues for 2020 are now due!**

Dues are just \$20 a year for all licensed hams in a family. You can pay the Treasurer at any meeting, weekly lunch, or VE testing session, or via snail mail to his home address. Make checks payable to NARC.

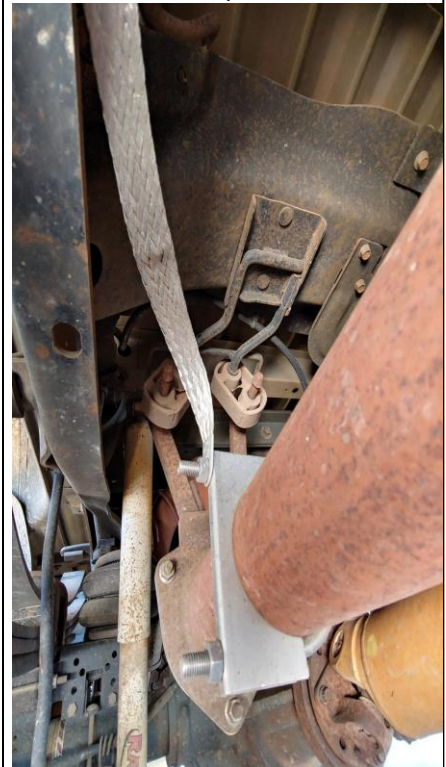
## **FROM THE PRESIDENT**

### **Trying to Reduce the Noise**

Have you ever tried to make contacts on 20m or 40m while in your vehicle with the engine running? Well I've been trying in my diesel truck but the controller generates S9+ noise. The noise blander reduces the injector pop to about S9, so that has forced me to shutdown prior using the radio while on HF. Even with VHF/UHF there is still some extra noise.

More often than not I don't give up easy, and with the vast amount of information for Hams on the internet I figured I could find something. Well sure enough, after some searching I found lots of information about how diesels from the early 1990s on had huge problems with RFI. At the heart of the problem was the ECC and the exhaust system. The

exhaust system is hung from the frame and isolated with rubber bushings. This helps keep the rattling down, but the isolated exhaust acts like an antenna which transmits RFI from the EEC. For my F250 that



means noise out to at least 20 feet from the truck while on 1290AM. Since the F250 exhaust system is made from 3" stainless pipe the solution was to use a 3" stainless exhaust clamp and a 1" braided strap. The strap I used was a thick heavy duty ground strap for a GM car. I selected it because the ends were

nicely finished for a bolt to run through. On the frame end of the connection I cleaned all paint and dirt from the metal. Then I used Penetrox anti-oxidant before torquing the bolt, lock washer and nut.

After getting the clamp and strap on I pulled the truck out away from all buildings (out in the pasture) and gave the radio a try. WOW, the noise dropped 2-3 S units. VHF/UHF was quiet! The noise blanker reduced 40m to a slight pop. As I went higher in frequency the more silent the pop became until at 10m where nothing could be heard. Nobody was calling CQ, but there wasn't any RFI from the truck either.

73, Bill KT5TE

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## FROM THE VP CHAIR

### Now and Then

Nearly 50 years ago I became a ham radio enthusiast as an eager Novice banging out CW with a straight key. Within a year or so, I passed my General exam and was able to park the straight key and actually call CQ over the air while enjoying the occasional RF bite on my lips from a microphone. I soon left for Engineering School at Texas A&M where cute girls, cars, and Differential Equations got in the way of radio time leaving this hobby in the dust. After a 45 year hiatus, I have again rejoined the ranks of fellow ham radio operators, but in a dramatically different world than I remembered.

While some of you have been amateur radio operators for decades, others for just a brief period, I thought it might

be fun to share some of my observed changes from 50 years ago.

Testing by the FCC was only administered at selected Federal Buildings, where you sat in hard metal chairs in a drab room that was always 10 degrees colder than necessary (okay, maybe that was just my nerves). Code proficiency was a requirement for licensure and was never easy when you were nervous and shivering! After completing the written exam, it took about 4 or 5 weeks just to hear if you passed, and then receive your call sign. Our current method with local VE testing centers by fellow hams, is quite an improvement. Many of us still debate the value of dropping code proficiency as part of the exam process.

My first radio was a homebrew 40 meter transceiver for CW. It was only one step above a spark generator and crystal receiver. Frequencies were selected by plugging in individual piezoelectric

crystals. I could only order new crystals by mail when I could afford them, so actually making QSOs on a few select frequencies was pure luck and good timing. I dreamed of a VFO where a person could listen to ANY frequency he wanted with the flip of a wrist.

Some used 18 gauge speaker wire served as an inverted vee antenna hanging off my parent's TV support mast. We were not well informed about common point grounding back then and I later learned about the hazards of lighting as my antenna and much of my equipment was popped late one night.

After washing a lot of dishes and mowing a lot of lawns, I was able to purchase a used R4-B Drake receiver and transmitter set with a matching speaker box. I learned how to test and replace vacuum tubes, which was common fair for a ham operator. This thing had a VFO! The world opened up (on 40 meters anyway) and I made a lot of new friends.

It was very common to hear CQ calls across the band and my own calls were always answered. Today it is almost a rare thing. I guess the mysterious CQ has been replaced with numerous HF nets and weekly radio contests. I miss the fun of connecting with other folks at the whim of a simple call.

I upgraded my CW skills with a Vibroplex "bug" where a mechanical weight dictated the speed of the dits. Unfortunately, my decoding skills never matched my bug sending skills!

Most hams in my area worked on 20 and 40 meters with 15 meters next in popularity. We did not have privileges on 30, 17 and 12 meters back then. Licenses were granted for Novice, Technician, General, Conditional, Advanced, and Extra classes.

Our local club collected funds to install a VHF 2 meter Phone Patch. I bought a mobile 2 meter rig (yes with tubes) and

adapted a homebrew keypad and DTMF generator that sat in my car seat. This rig also served as a heater for my car and the tubes glowed nicely at night. With a key of the mic and a couple of DTMF tones, I could get a dial tone. I frequently called my girlfriend Cheryl (now wife of 41 years) while traveling the streets of Houston. If Cheryl's Mom answered the phone, she would make squelch break noises and say "roger wilco" just to taunt me. Secretly, I still believe she thought I was cool ....

We did not have common digital communication modes back then. PSK31, and alike, were just a twinkle in some English operator's eye and well over two decades away from public use. A "computer" was an IBM 360 that occupied a whole room with a false floor and had as much as 1024 KB of main storage. Yes, I said KB. I did antenna length calculations using my K&E log-log slide rule. Earth-Moon-Earth, satellite bounce, and

meteor scatter were more scientific discussions back then, not common knowledge for most ham radio enthusiasts in my area.

With all the technology changes we have embraced, most of which are remarkable gifts for our hobby, several things remain unchanged over the last half century. Radio Operators are still some of the mostly friendly, loving, ethical souls out there and are dedicated to public service and strive to use their hobby to benefit others in their community. Hams still have the love of "gadgets" and creating homebrew solutions to new challenges in the hobby. I have found my new friends in the ham community to be as open and welcoming as those 50 years ago and they are always dedicated to helping a new (or reborn) radio operator grow and simply have fun with this hobby. Thanks to you.

Here is to 50 more years ... (well, maybe a few less )

73, Steve WB5IDY  
[bartlett.steve58@gmail.com](mailto:bartlett.steve58@gmail.com)

## NOTES FROM OUR EC

January is almost finished, I'm writing this 28 Jan. It's raining intermittently and a bit cool, but not bad. It's been wet, cold, warm, allergic, typical East Texas weather. But sadly it has again brought tragedy. The storms of 10 and 11 January brought a tornado.

Thanks to everyone that stepped up to the SKYWARN task that night. We again lost a life to a tornado. Mobile homes just are not the place to shelter when there is a potential for high winds or tornadic activity. Condolences to the family.

WE GOT IT!! The National Weather Service has accepted an invitation to conduct their SKYWARN training class in Nacogdoches. You have seen the emails and I will keep plugging it. Tuesday 25 Feb, 6:30 pm, at the Church of Christ on North Street. DETARC is plugging it. I've also made a specific invitation to the management at Caddo Mounds (got a soft spot for them right now).

Later in the newsletter you will find a Year in Review for 2019 and the After Action Reports for the November 2019 SET. Please take a few minutes grab a cup of coffee or tea and peruse them.

Don't forget about our nets without the regular practice we can't do the mission.

73 de John Chapman  
 KC5MIB  
[jlchapman2@juno.com](mailto:jlchapman2@juno.com)

## VE TESTING

Our next VE testing is scheduled for **Wednesday February 19 at 7:00 p.m.** in the Lunch Room of Christ Episcopal Church School.

Applicants should bring a picture ID, the original and a copy of their current Amateur license, the original of any CSCE's and \$15 to cover the cost of the exam(s). Correct change is always very much appreciated.

More information is available on the club website at <https://w5nac.com/about/testing/>

73 de AE5P.

email: [ae5p@arrl.net](mailto:ae5p@arrl.net)

## NEW HAMS

At our VE testing session in January, we were pleased to welcome Robert Carter, a new resident of Nacogdoches. Robert passed his Technician exam and has been assigned KI5HXF. Congratulations and welcome Robert.

## TWO METER CLUB NETS

Remember to join us each week for the two meter nets sponsored by NARC. Each **MONDAY** is the **NARC ARES/RACES** net, at 8:00 p.m. on the club's 146.84 repeater (PL 141.3). Second, on **THURSDAY** evenings at 8:00 p.m. is the **Deep East Texas Skywarn Emergency Weather Net** on the 147.32 repeater (PL 141.3). Please join us for one or both.

## BOOK RAFFLE

Each month, we give away a book on a topic of interest to Amateur Radio operators. Everyone present at the meeting will receive one ticket. A ticket will be drawn at the end of the meeting for the book of the month.

The book for February will be "The ARRL Antenna Handbook, 24<sup>th</sup> Edition" This is a raffle you do not want to miss. You must be present at the meeting to win.

## NEXT MEETING

The next meeting will be **Wednesday February 5th at 7:00 p.m.** in the Lunch Room of Christ Episcopal Church School. A program is planned.

## 2019 In Review

I've been the club EC since 2015 and this is my first year in review. I won't go into the yearly history you can find most of that in the news letters filed on our website. Rather I will concentrate on the ARES/RACES/SKYWARN. As I have said, they all seem to tie together, SKYWARN events may lead to ARES actions, i.e. flooding, hurricane evacuation and so forth.

I'll touch on 3 areas, tornadoes, Field Day and The West Gulf Division Simulated Emergency test.

The Shreveport National Weather Service Office posted a link that discussed the tornado activity in the ARK-LA-Tex region. It has a lot of information. The link is quite long and can be found at the end of this article.

Forty four tornadoes were recorded and investigated in the area. Nacogdoches had 2,

Cherokee County 3, Rusk County 1, San Augustine and Shelby 1 each.

Saturday, April 13th, proved to be a very bad Saturday. Four tornadoes erupted that day. Nacogdoches had an EF1 southwest of Chireno. The other 3 ran a line from Houston county to just outside of Reklaw in Rusk county. I do not have the numbers in property damage. The human cost, 2 fatalities, and 20 injuries. My friend will soon be coming back to Nacogdoches.

Later in 2019 a large storm pattern broke out that extended from the DFW area all the across the IH 20 corridor. Dallas received over \$5B in damages, thankfully no one died. Watching the clouds and the storm build while I traveled was quite the treat.

2019 was not a good weather year.

Field Day 2019, has held at the Nacogdoches EOC, located out by the old horse track. Andy Delgado posted a great article in the July 2019

Newsletter that I will direct your attention to. The scores were posted in the DEC 2019 QST. We had 389 contacts, working at a power level of less than 150 watts, 11 participants for a total of 2390 points. The best part, we had lots of guests show up to the event. Thanks to all that participated.

And finally, the West Gulf Division Simulated Emergency Test. The SET was conducted Saturday 9 November. NARC participated for 1 hour of the event. KC5MIB was net control and operated from Pioneer Park, one of the highest places in Nacogdoches. We had 8 participants, operating from 0900-1000, 3 pieces of traffic were passed. There will be a separate after action report in the newsletter. Again, thanks for those who participated.

<https://noaa.maps.arcgis.com/apps/MapSeries/index.html?appid=d33d2a90102f4071868a11b485ac8288a>

It was an interesting year,  
73 de MIB  
John

## 2019 WGD SET

This is a copy of the After Action Report I sent forward after the West Gulf Division Simulated Emergency Test. We discussed much of the test during our regular November club meeting. A lot of other information went out by email, the web including the North Texas ARRL website. I will also add the link to the NTX website with their After Action Report. Please take a little time and review that as well. In future EC columns we'll discuss some of the findings and how to improve. Your humble scribe, included.

### NARC EC After Action Report

Please read this over and especially take note of paragraphs 7 - Areas to

Improve and 8 - General Comments.

The Nacogdoches Amateur Radio Club participated in the West Gulf Division Simulated Emergency Test (SET) held 9 November 2019. The following information is provided.

1. Participants: 9
2. Time and location: 0900-1000 CST, Nacogdoches, TX. NCS operated from Pioneer Park and the Nacogdoches County Exposition Center, other participants from their various residences.
3. Activities performed: Opened, manned and closed an information net on the 146.84 repeater, gathered requested information from participants.
4. Messages handled locally: 8. All participants reported conditions as requested in the SET package.
5. Number of messages sent to district and section: 3 via Winlink,

activation, local stations report and deactivation

6. Successful Activities: Local NBEMS messaging to a Winlink operator,

7. Areas to improve: Radio frequency pre-programming of local frequencies. Simplify moving completed ICS forms between NBEMS and Winlink.

8. General Comments: The 2 meter spectrum was quite full just prior to net activation. Propagation was very good. EC made 3 exercise injections, 2 exercise, 1 real world. The 2 exercise injections: high water in 2 creeks which run through Nacogdoches, though not at flood stage and NWS issued a Flash Flood Warning for Attoyac Bayou. These 2 injections were based upon previous history of heavy rainfall in Nacogdoches County. Real world injection: a local bridge was closed due to damage. The ARES net was held open for 1 hour with routine announcements stating



the repeater was being used for a weather exercise.

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Here is the link to the NTX website and the December News Letter with the after action notes from the SET

<https://www.arrlntx.org/section-newsletter-December-2019>

Again, thanks everyone for your support of the exercise.

73 de MIB  
John

## SHUTTLE COLUMBIA SPECIAL EVENT STATION

NARC will again sponsor a Special Event Station the weekend of February 1-2 to remember the loss of the Space Shuttle Columbia over Nacogdoches and Deep

East Texas on February 1, 2003. NARC has conducted a special event since 2004 in remembrance of the Astronauts who lost their lives that day, and the hundreds of Amateur Radio operators who assisted authorities in searching for and recovering thousands of pieces of debris. Please help us continue this proud tradition.

Club members are encouraged to operate their home stations for this event, using the special call of K5C. Please coordinate your operation with Army AE5P to avoid having multiple stations on the same band/mode at the same time.

All contacts will be confirmed via Logbook of the World (LOTW). Requests for paper QSL's must be accompanied by a SASE.

Please send a log of all completed contacts in adif format to AE5P.

## UPCOMING EVENTS OF NOTE

Mark your calendars for the following events coming up in the next few months. Full information on these events and much more can be found at <http://www.hornucopia.com/contestcal/contestcal.html>

Note that all dates shown here are local, CST dates while all contest logging uses UTC dates and times.

### SHUTTLE COLUMBIA SPECIAL EVENT K5C

Feb 1-2, 2020

### CQ WW RTTY WPX

Feb 8-9, 2020

<http://www.cqwxrtty.com/rules.htm>

### ARRL Inter. DX, CW

Feb 15-16, 2020

<http://www.arrl.org/arrl-dx>

### NAQP, RTTY

Feb 29-Mar 1, 2020

<http://www.ncjweb.com/NAQP-Rules.pdf>

### ARRL Inter. DX, SSB

Mar 7-8, 2020

<http://www.arrl.org/arrl-dx>

### CQ WW WPX, SSB

Mar 28-29, 2020

<http://www.cqwp.com/rules.htm>

### SAN JACINTO DAY SPECIAL EVENT K5T

Apr 25-26, 2020

## DOUBLE CONVERSION RECEIVERS

by

Thomas Atchison W5TV

As we mentioned in a previous article, the mixing process may introduce some noise in the receiver. To compensate for this, many receivers install a radio-frequency amplifier ahead of the mixer. This amplifies the signal from the antenna before the noise from the mixer is introduced. (See Fig. 1)

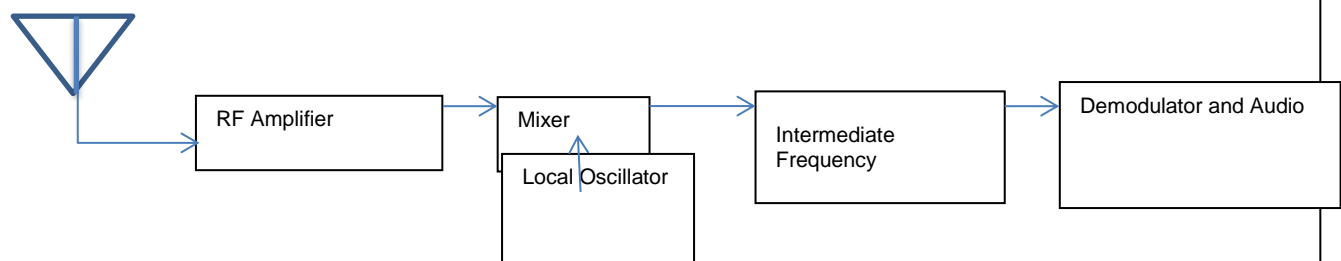


Fig. 1

With this concept we can translate the input RF frequency to a fixed intermediate frequency (IF) by using a local oscillator (LO). Now let's consider some possibilities. For example, suppose we want to use an IF of 1 MHz. If the LO is set to 5 MHz then a signal at 6 MHz mixes with the LO to produce a 1 MHz signal, however, a 4 MHz signal will also produce a 1 MHz signal. Obviously, we don't want both of these signals at the same time, therefore, we would like to accept one and reduce the strength of the other. The unwanted signal is referred to as an **image frequency**. Note that the wanted frequency is separated from the image by a frequency equal to twice the IF.

The image rejection of a receiver is specified as the ratio of the wanted signal to the image signal expressed in decibels at a certain operating frequency. Suppose we specify that the image rejection is 70 dB at 30 MHz. This means that if a signal of the same strength were present on the wanted frequency and the image frequency, then the image signal would be 70 dB lower than the desired signal. One thing we can do is place an RF stage preceding the mixer that will tune to remove the image signal and provide some amplification to the desired signal. This is what we talked about earlier.

Now what if the IF frequency was much higher, say 50 MHz. Then the desired signal and the image would be separated by 100 MHz and it would be much easier to filter out

the image and amplify the desired signal. The downside of filtering at say 100 MHz is that the cost is high and the performance is not as good as at lower frequencies. This means we have two conflicting situations if we use a single intermediate frequency. To meet this challenge we use two different intermediate frequencies in sequence, i.e. **double conversion**. A block diagram is shown in Fig. 2.

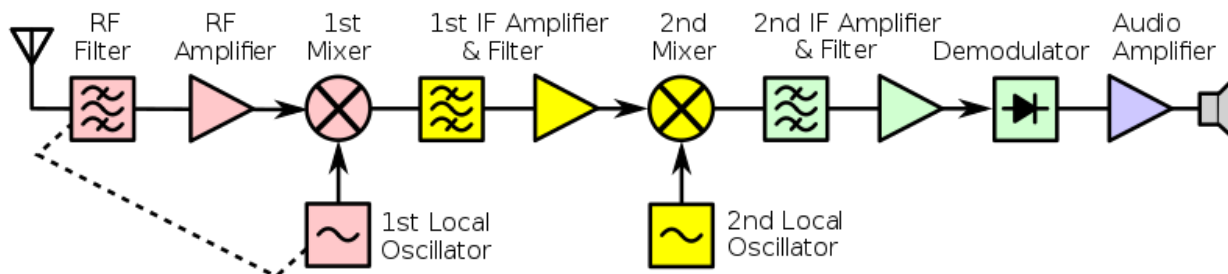


Fig. 2

Before we go any further let's consider an example. Suppose we want to tune in a signal at 14.1 MHz and we have a 1<sup>st</sup> IF of 60 MHz. We tune the LO to 45.9 MHz. The IF is then presented with the following frequencies:

The local oscillator frequency	45.9 MHz
The RF signal	14.1 MHz
The difference frequency	31.4 MHz
The sum frequency	60.0 MHz.

Because of its narrow bandwidth, the IF amplifier rejects all frequencies except 60.0 MHz. The process of tuning the LO to a predetermined frequency for each station is known as **tracking**.

If you have an HF receiver that covers frequencies up to 30 MHz, you may have the first conversion stage that is an up-converter moving the received signals to a first IF of 50-70 MHz. This may be followed by a second IF stage to a lower IF for bandwidth filtering. This lower second conversion stage might be at 9 to 10 MHz range.

For example the ICOM IC-706mk2g uses a first IF of 69.0115 MHz and a second IF of 9.0155 for SSB.

The Yaesu FT-857D utilizes a first IF at 68.33 MHz and a second IF at 10.7 MHz for SSB.

The Kenwood TS-480 has a first IF at 73.095 MHz and a second IF at 10.695 MHz.

All of these have image rejection on the HF bands of more than 70dB according to their specifications.

## WINLINK - Part 2

by  
Army Curtis AE5P

Last month we discussed some of what preceded Winlink. This month let's get into Winlink itself.

Winlink as we know it today was developed as a ham radio based messaging system. From the winlink.org web site:

"Winlink is a worldwide radio email service that uses radio pathways where the internet is not present, and is capable of operating completely without the internet--automatically--using smart-network radio relays. Winlink provides its users email with attachments, position reporting, weather and information bulletins, and is well-known for its role in interoperable emergency and disaster relief communications. Licensed Winlink operators/stations use both amateur radio and government radio frequencies worldwide. The system is built, operated and administered entirely by licensed "Ham" volunteers. Support for the system is provided by the Amateur Radio Safety Foundation, Inc., a US 501(c)(3) non-profit, public-benefit entity. Winlink Global Radio Email® is a US registered trademark of the Amateur Radio Safety Foundation, Inc."

The preferred client program most folks use for Winlink today is 'Winlink Express' which is available as a free download from <https://winlink.org/WinlinkExpress> . One of the really nice features of Winlink Express (actually there are many really nice features of Winlink Express) is the addition of built-in HTML forms.

There have been a number of different Winlink client programs in the past such as Airmail that some of you may be familiar with. Speaking from firsthand experience by all means switch to Winlink Express. It really does do it all, and easily. Let's take a look.

Just follow the instructions on <https://winlink.org/> to install and setup Winlink Express or the Winlink client of your choice.

A couple of tips to get you started. Our local Winlink iGate is W5NAC-10, which operates on 145.050 MHz from the roof of the Fredonia Hotel. Operation is simplex. No tones are required. If you have problems accessing W5NAC-10 from your location, try W5IRP-10 in Lufkin on the same frequency.

John Hill KF5VO sponsors a weekly Winlink net every Wednesday. You check into the net by sending a Winlink message to John anytime on Wednesday. He usually sends out a note a day or two before each net with a topic for that week's net. For your first check-in, just leave your comments field blank. John asks that you use a net check-in form to send your message, and it is very easy to do.

Open your copy of Winlink Express and click on 'New Message' (the blank page icon at the far left end of tool bar) to open the "Enter a New Message' window. Now click on 'Select Template', double click 'Standard Templates', then double click 'General Forms' and finally select 'Winlink Check-in.txt'. The form will then open for checking into the Wednesday Winlink Net.

Click to enter date/time, Net Check-in, VHF, Packet. Send to KF5VO, enter your call sign twice. For location I usually enter: Nacogdoches via W5NAC-10 igate. Enter any comments and then hit 'submit'. Follow the instructions and you will be returned to the 'Enter a New Message' window. Click 'Post to Outbox' and you will be returned to the opening window.

On the top line of the opening window, set the flyout between 'Open Session:' and 'Logs' to 'Packet Winlink', then click 'Open Session:'. You will now be presented with the Session Window. Set connection type to 'Direct', then enter the iGate callsign you want to connect to (W5NAC-10), and with your radio connected, turned on and set to 145.050 click on Start. Your system should connect to the iGate station, send your message, and then receive any messages waiting for you. When your screen shows you are disconnected, just click 'Exit' to be returned to the opening screen where you can read the messages you just received.

I know. It sounds like a lot of stuff to remember and go through. The good news is that once you've done it, the computer will remember most of what you entered and you won't have to enter it again the next time. After doing this once or twice, I think you'll find it very quick and easy. As with most things, practice makes perfect and this is the reason for the Wednesday Winlink net. The net gives you a reason to practice your Winlink techniques, and in short order it becomes automatic.

There are at least four of us in Nacogdoches who check into the Wednesday Winlink net each week. You can do it too. Give it a try.