SalCo ARES Digital Messaging Reference

Yaesu FTdx10

Version: 1.3
August 24, 2023

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Yeasu FTDX10
Direct USB Connection to FTDX10

FTDX10 Radio Settings

Before each Winlink/FlDigiWJST X session, on the FTDX10 Main Display screen, turn attenuation [ATT] OFF, Turn off [NB], [DNR] and [AGC], and set RF Gain to midpoint.

Some settings on your radio need to be verified/changed (one time only):
Press the [Function] Knob on the radio, press the soft Key [Radio Settings] at bottom left of display; Press the soft key [MODE PSK/DATA]; Scroll down to [Data Mod Source] select [Rear]; Scroll Down to [Rear Select] select [USB]; Scroll Down select [RPTT SELECT] select [RTS]. Press [Back] to main display.

Quick Reference:
[Function]
      [Radio Settings]
            [MODE PSK DATA]
                  [Data Mod]   Rear
                  [Rear Select]   USB
                  [RPTT SELECT]   RTS
            [Back]
      [Back]
[Back]
.

Driver Installation

For the Yaesu FTDX10 radio, go to this link to download the most current virtual Com port drivers:
https://www.yaesu.com/indexVS.cfm?cmd=DisplayProducts&ProdCatID=249&encProdID=1ABBC23C7EC57175A35CB0FDE7A639A0&DivisionID=65&isArchived=0

Install the drivers as directed (**before** you connect the USB cable to the computer !).

Click on the Windows orb at the lower left side of the screen

Navigate to "Computer" and right click.
Select Properties
Select Device Manager
Expand Ports (Com and LPT)
Make note of existing COM port numbers

Install a **shielded** USB A to B cable (same as an older printer USB cable) between the computer and the radio using the USB B port on the rear of the radio. Correct procedure: insert USB B connector into back of radio, **turn radio on,** then insert USB cable into the computer. Failure to follow these steps will result in the incorrect drivers to be installed.

Your computer should automatically load the appropriate drivers and create two com ports.
(FOR Windows 7 Pro; Windows 10 Pro)

New COM Port numbers should appear automatically
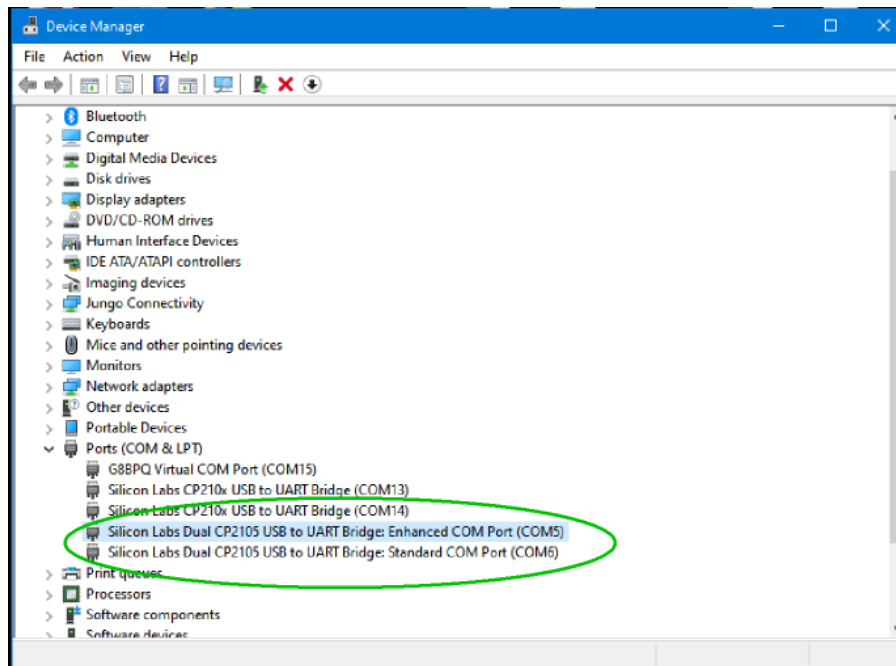
NOTE: your com port number may be different than mine.
Make note of these two com port numbers, they will be required in the Winlink set-up process. Note that one of the new COM ports is labeled "Enhanced". Make note of this as it will be the one you select for CAT control. Install Winlink Express (following the screen prompts).

Winlink Installation

Download RMS Express from https://winlink.org/ClientSoftware ; Winlink Express (right side of page), then scroll to bottom of page for download (do not install yet).

Open Winlink Express you will see:

At a minimum, fill in the areas I have circled. (The Winlink Express Registration key is not required, however if you wish to donate to the furthering of this software, $24.00 is the registration fee (as of February 2018)). After you've filled in these blanks, please press "UPDATE".

To verify the program was installed correctly (and to complete the installation),
On the pull-down menu near the top of the window, select "Telnet Winlink" from the options:
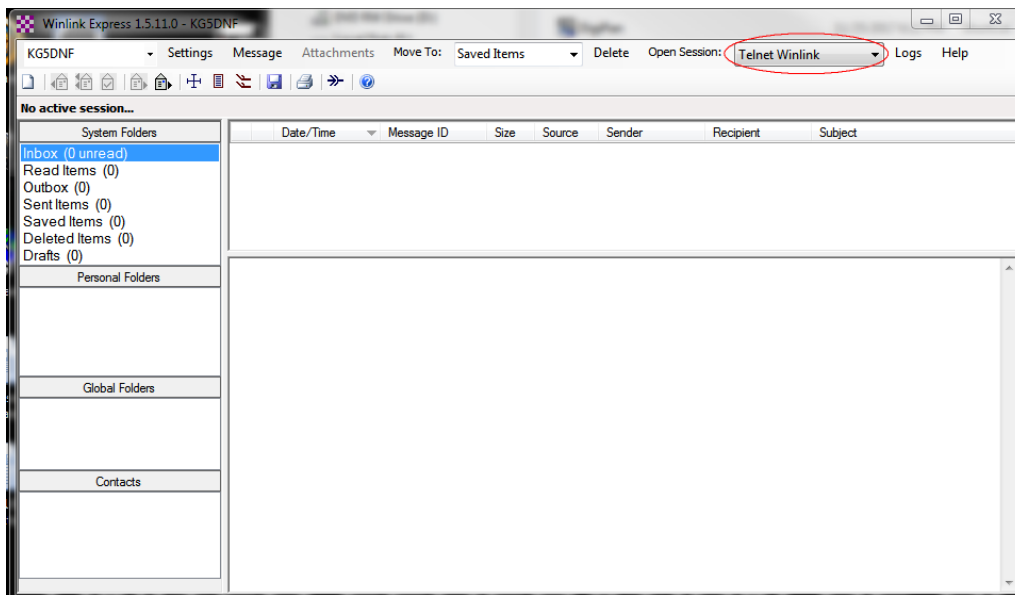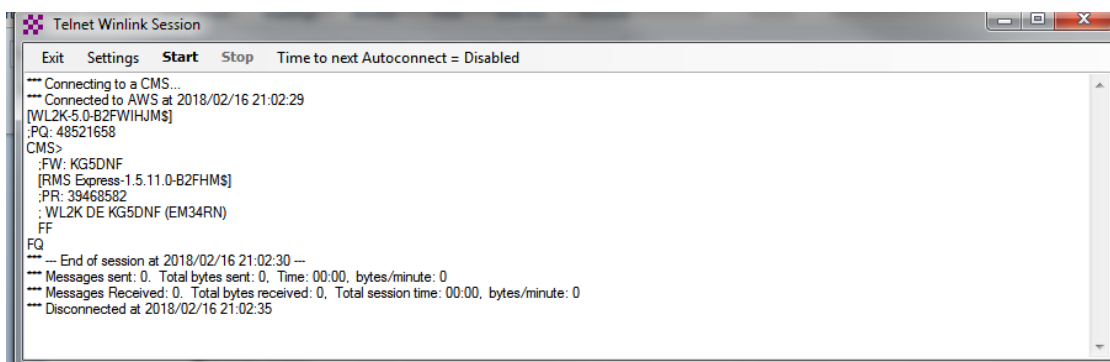

Then "click" on the "Open Session" text (it actually is a button).
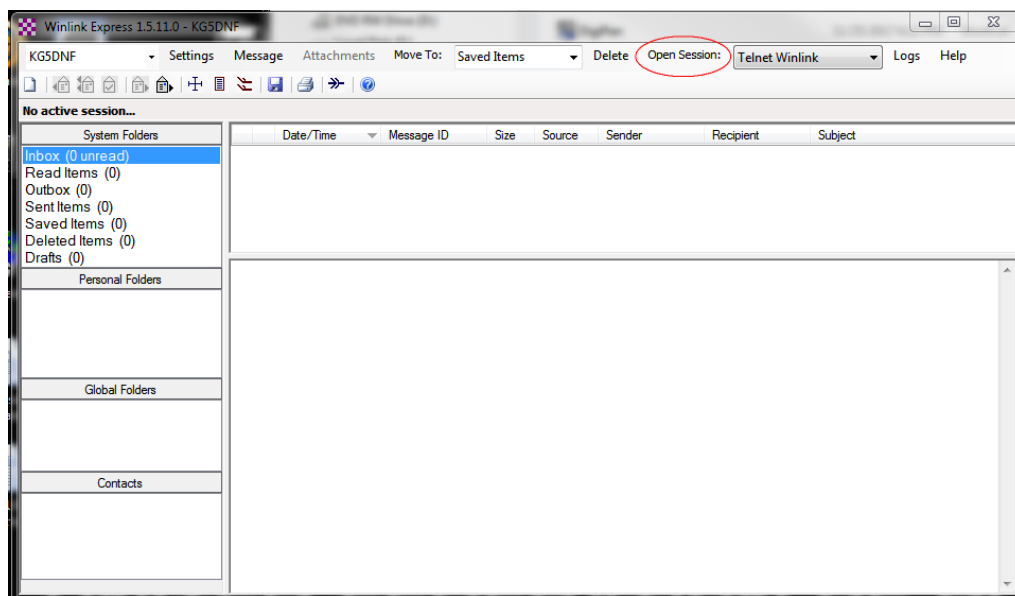
On the window that opens up, press "Start" to begin the session

You will then connect to one of the RMS (Radio Message Servers) via your internet connection.
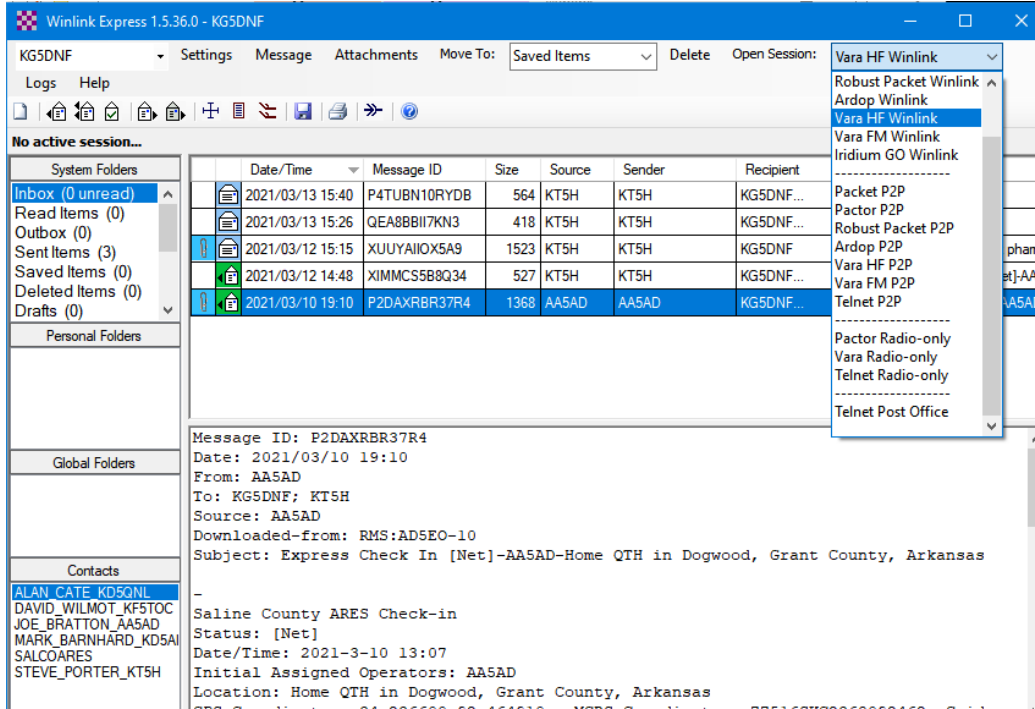

After Winlink completes its connection press either Exit or the Red "X" to exit the session.

The email you provided in the set-up process will receive an email from Winlink Express.

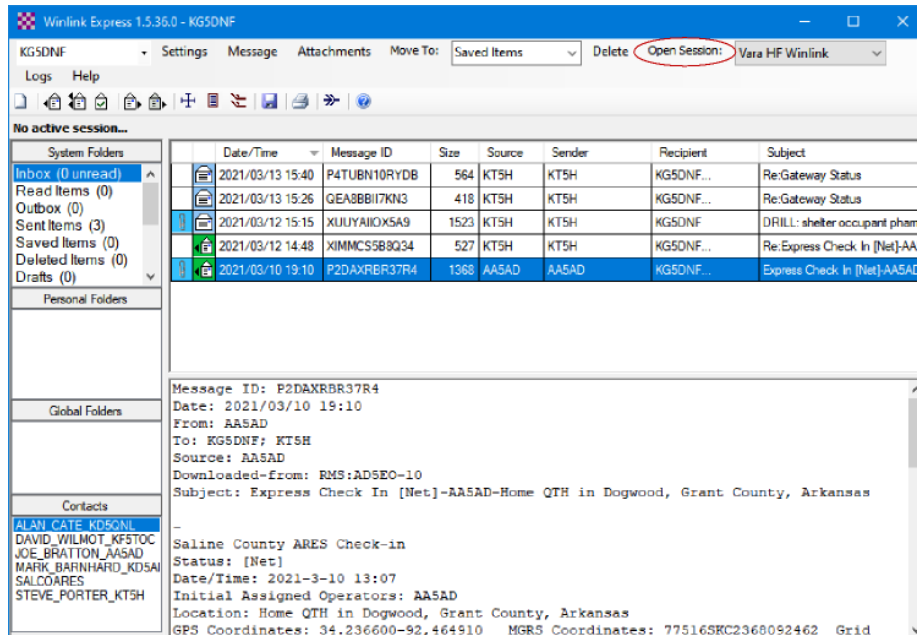Now you're ready to set up Winlink Express for use with your radio.
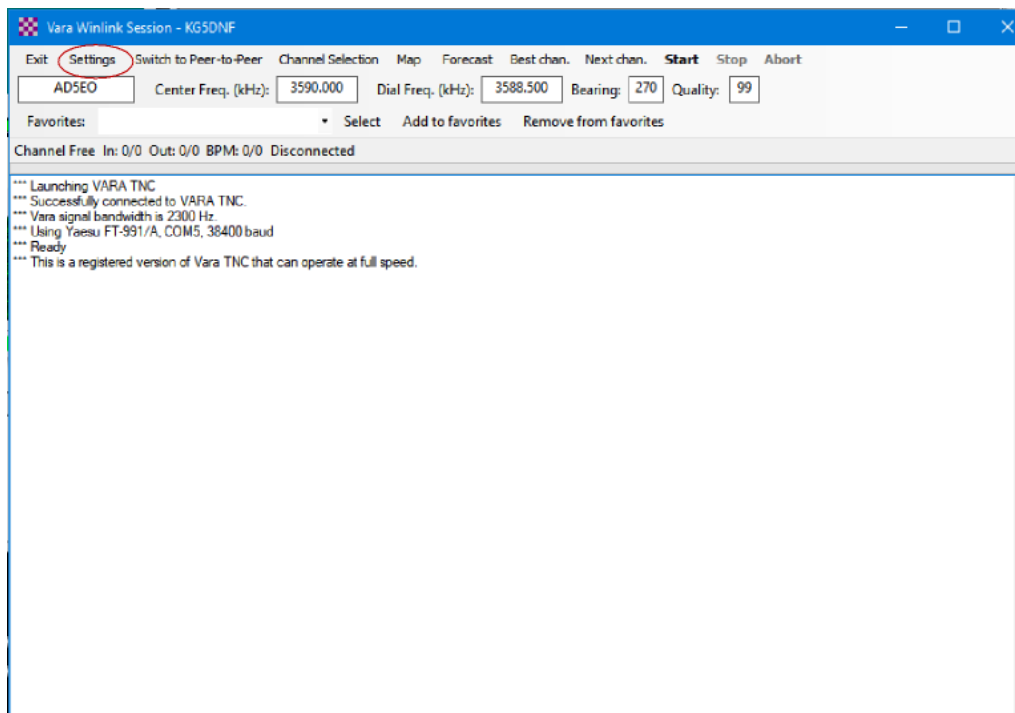
VARA HF Setup

In the Winlink Express main screen, select "VARA HF" from the drop down menu:

Then press the "Open Session" button:

A new window will appear:
Select [Settings]

Then select "Vara TNC Setup"
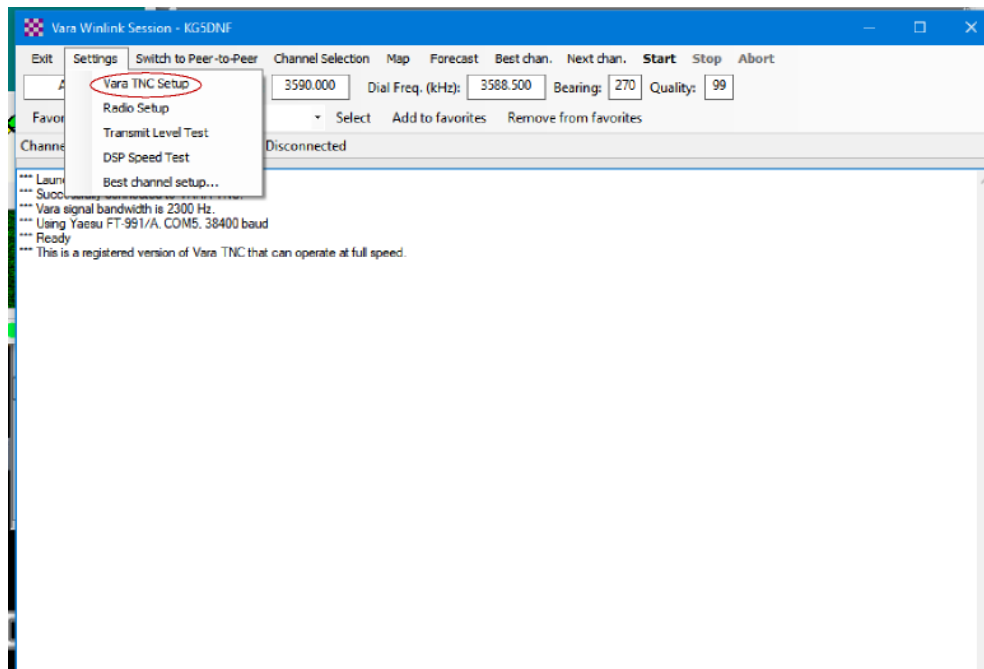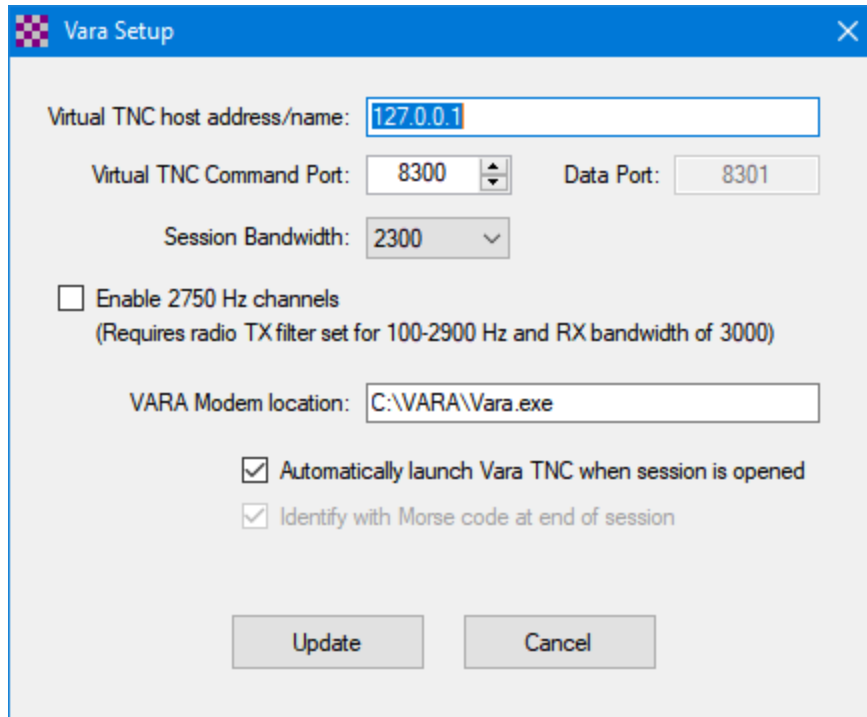
Ensure settings are as indicated, then click update. [Window will close] and session will restart.

Next, select [Settings] and [Radio Setup].
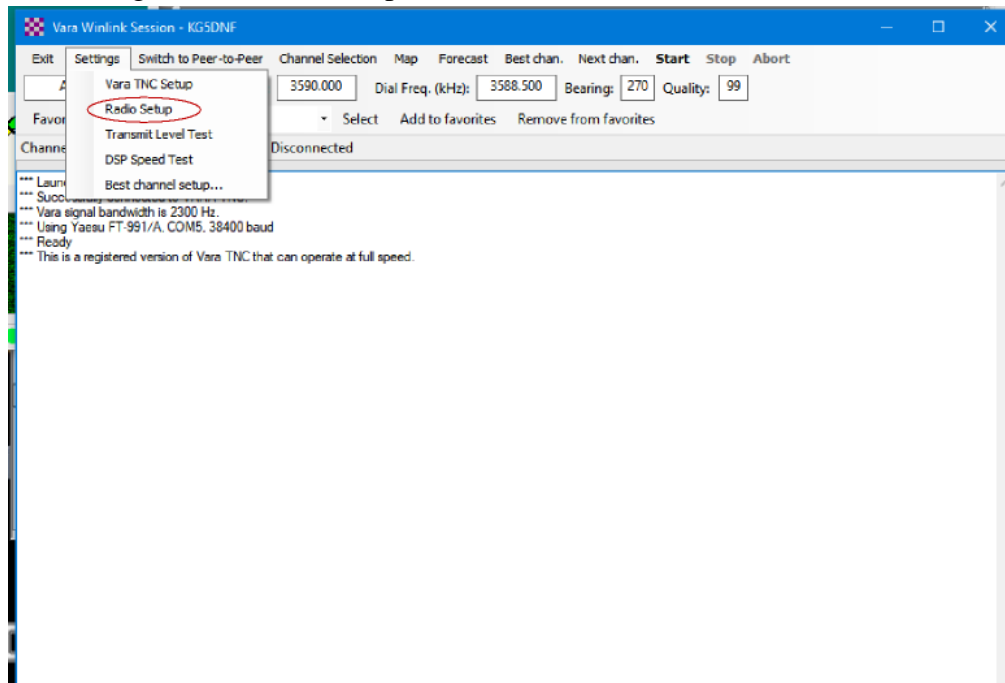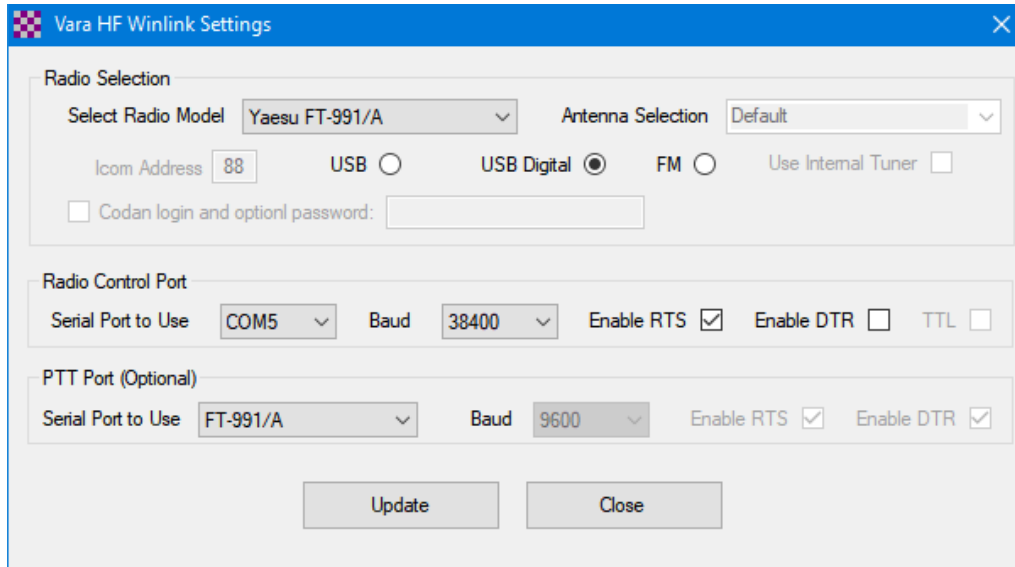
For the Yaesu FTdx10, use the FT-991A model for settings (There is currently no specific selection for the FTdx10.

Under [Radio Control Port], use the lower numbered COM port that was assigned when you installed the virtual com port drivers, set Baud Rate to 38400.

Under [PTT Port] [Serial Port to Use] Select FT-991A

Click [Update]. Window will close and session will restart.

The next step is set up Vara Hf. There will be a Vara icon in your task bar. Click on that icon to display the Vara interface.
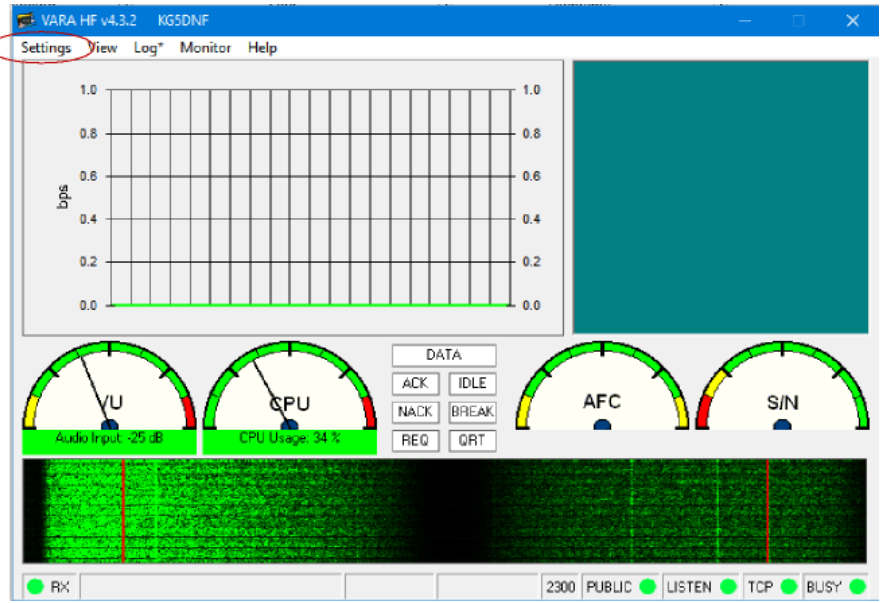
Select VARA TNC Setup
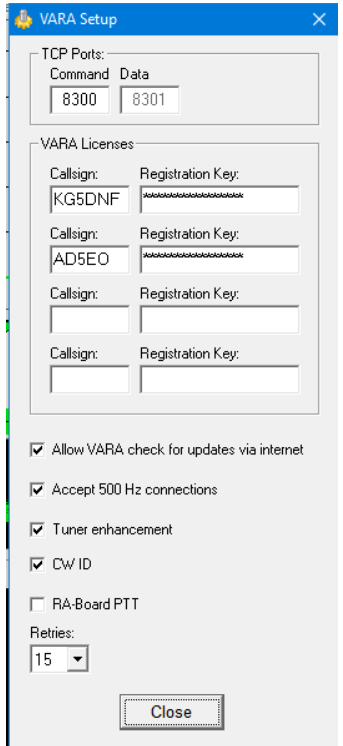
At a minimum, you must enter your call sign. Then ensure all other settings match image (a registration key is not necessary, but to achieve the faster VARA speeds you must pay for the license).. Click [Close]

Select [Settings] [VARA Soundcard Settings]
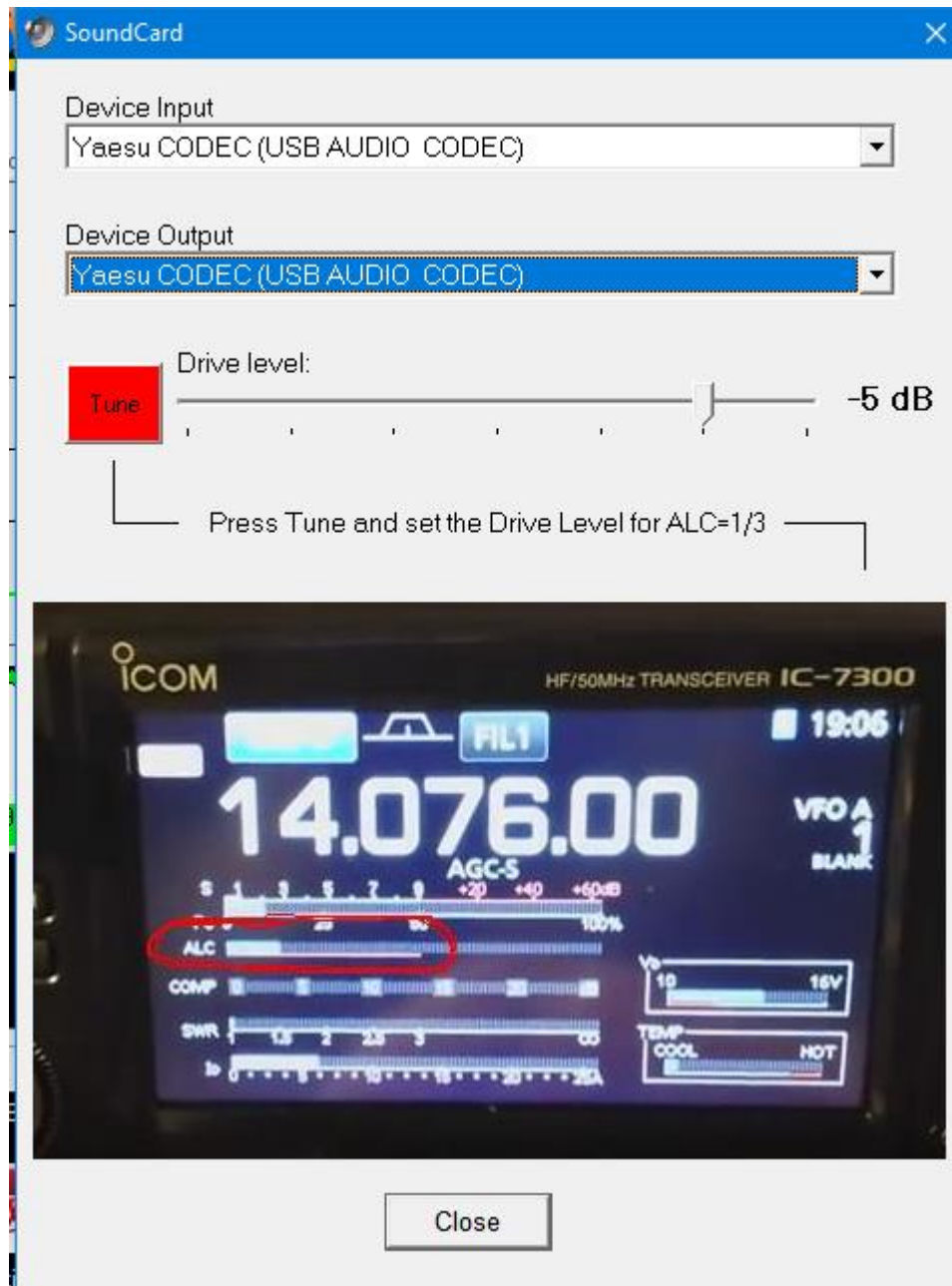
If you have had Vara setup for use with a different radio, you will notice that the USB Audio CODEC names have increased. I rename each CODEC as they appear so as to differentiate between radios.

Once you have selected the correct Audio CODEC for both Device Input and Device Output, press [Close].

Back to the the Winlink Session window, select [Channel Selection].

A new window will appear. Select (click) on "Update Table Via Internet":

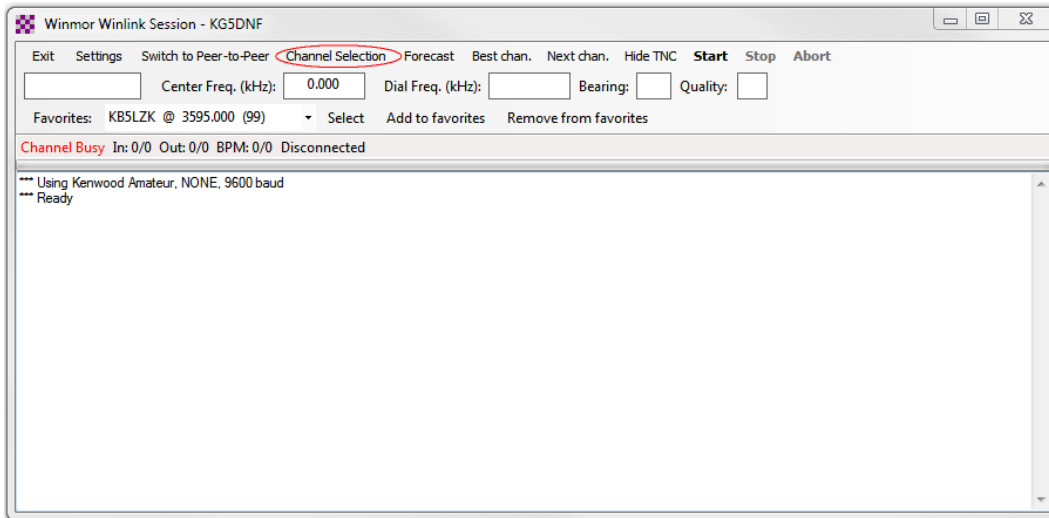| Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
KB5LZK	3598.500	1600	EM34UT	00-23	PUBLIC	36	039	99	99
AD5EO	3590.000	1600	EM34QN	00-23	PUBLIC	8	270	99	99
AD5EO	7103.000	1600	EM34QN	00-23	PUBLIC	8	270	96	96
KB5LZK	7101.200	1600	EM34UT	00-23	PUBLIC	36	039	96	96
N4JGW	3597.000	1600	EM74LR	00-23	PUBLIC	686	086	91	55
K9EYZ-10	3589.100	1600	EM50PM	00-23	PUBLIC	574	140	91	54
KD7UHR	3588.500	1600	EM58BQ	00-23	PUBLIC	516	027	90	56
KF5FNP	3583.500	1600	EM30WI	00-23	PUBLIC	469	175	90	55
AK4SK	3570.000	500	EM60VL	23-12	PUBLIC	746	126	90	52
AK4SK	3591.000	1600	EM60VL	23-12	PUBLIC	746	126	90	52
WX4PCA-10	3591.000	1600	EM73NU	00-23	PUBLIC	708	094	90	55
W9FE	3597.000	1600	EM59AA	00-23	PUBLIC	546	024	90	56
WW4MSK	3592.500	1600	EM74UW	00-23	PUBLIC	754	084	90	54
K0SI	3586.500	1600	EM39UA	00-23	PUBLIC	496	002	89	56
NS0A	3510.000	500	EN41WK	00-23	PUBLIC	793	015	88	54
NF9D	3595.000	1600	EN51TW	00-23	PUBLIC	896	023	87	53
AJ4FW	3595.000	1600	FM07BC	00-23	PUBLIC	1174	072	86	53

Just a few words on this. This part of the program uses included software to project the propagation for the various RMS stations. (Your table may not look like the picture until it has completed updating.) Once the table has been updated you select which station you wish to connect to by double clicking on the call sign. Please note that considerable information is provided here: The frequency used by the RMS

station, where it is located, distance from your location, bearing (in degrees) from your location and the path reliability and quality projected at the current time.

After you double click on the station you wish to connect to, that window will close and the Winlink Session Winlink window should look like this:
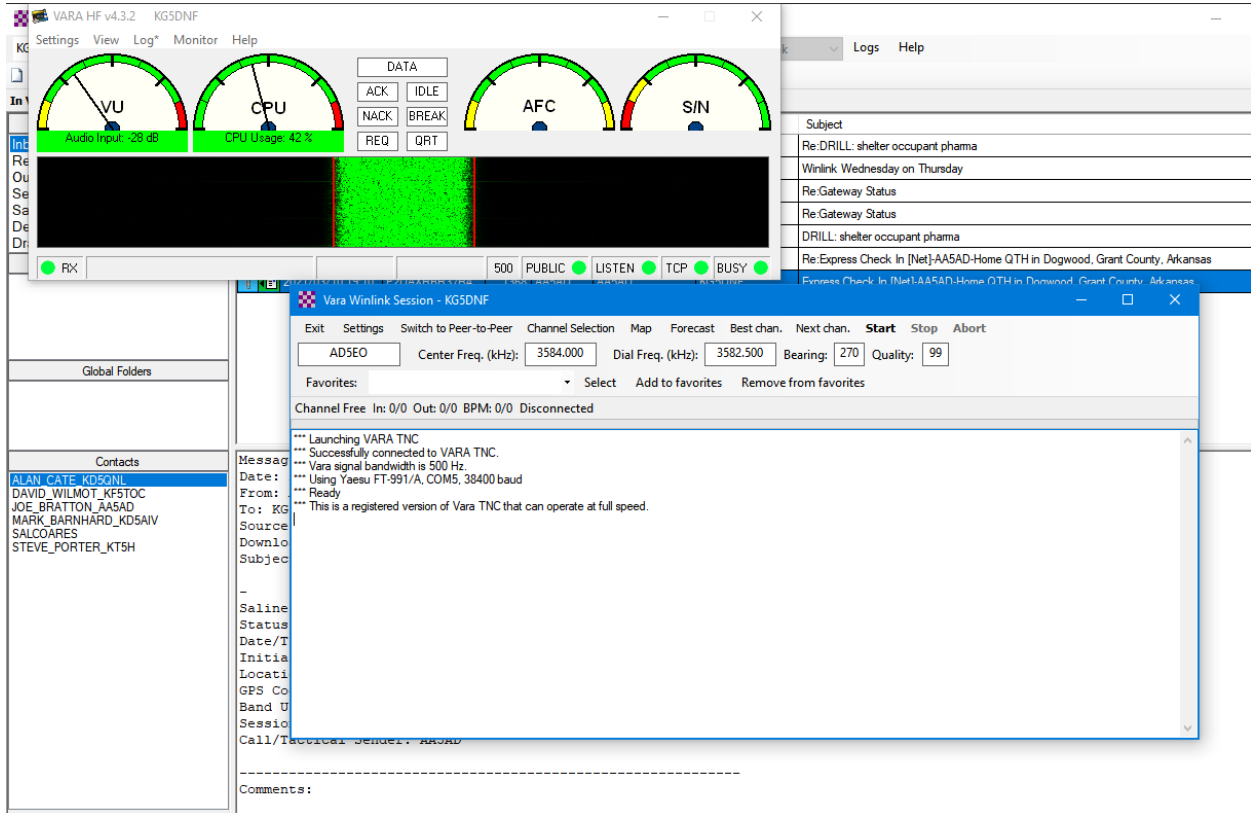
Note that the information from the channel selection window has been propagated into the fields on the Winlink VARA HF Window, AND your radio should have been automatically set to match the frequency and mode (USB-D). [NOTE: if your FTDX does not respond to the rig control, on the radio check the quick reference guide for radio settings mentioned earlier in this document.

When ready, press "Start" on the Winlink VARA HF screen to initiate contact. If all settings are correct, your radio will switch between transmit and receive is indicated by the VARA TNC Soundcard screen with the waterfall. Do not assume program problems if you do not initially make contact with a station. All the facets of USB communication come into play including band fading.

Sit back and enjoy the show! This type of message transmit and retrieval is nowhere near as fast as an internet connection, however, it will get through when internet infrastructure is inoperable.

When the connection has completed, you may exit all windows including the main Winlink Express window. If you have received a message you will see it in the System Folders (Inbox) section of the main Winlink Express screen.

Winlink ARDOP Set-up

procedure is the similar to VARA HF set-up. You will need to configure the settings in the open ARDOP session.

Select [Settings] [ARDOP TNC Setup]
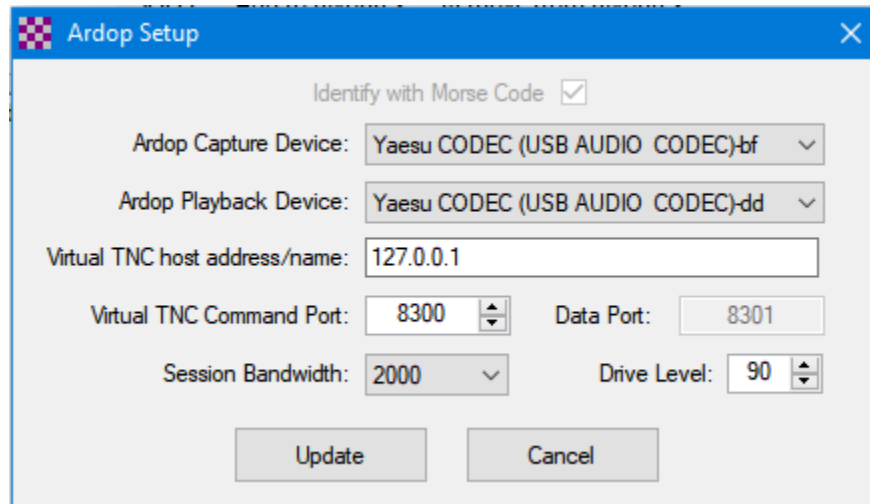
Ensure you select the correct Audio CODEC for your FTDX10 in both the Audio Capture and Audio Playback Device, and set the remaining fields to what is indicated in the image. When finished press [Update]. (The setup window will close and the session will restart.

Next, select [Settings] [Radio Setup]
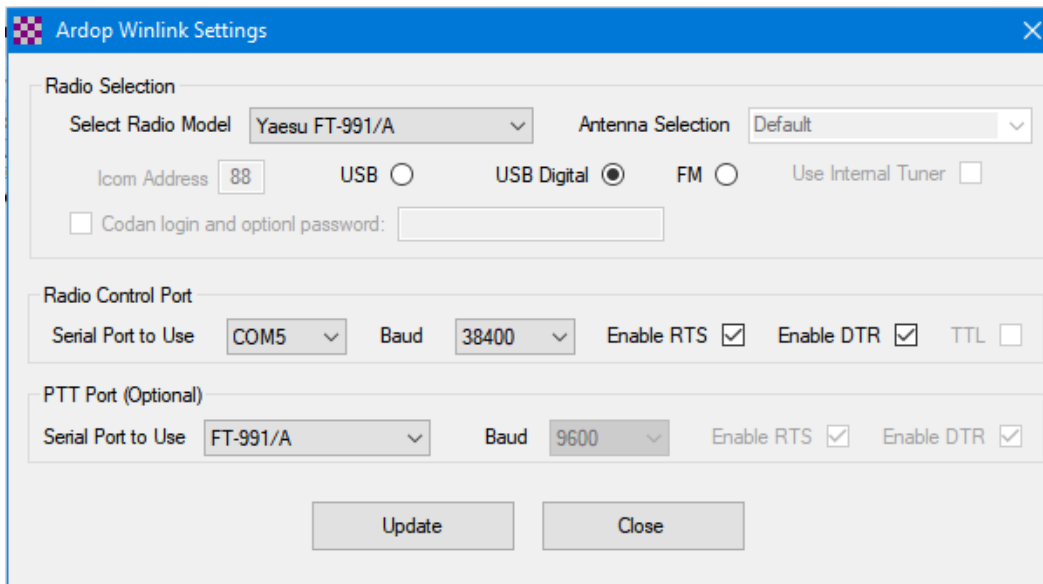
At the time of this writing, there is no specific selection for the FTDX10. It has been found that the FT-991/A configuration works.

Radio Control Port: Use the lower of the two COM port numbers that was assigned when you installed the Drivers for the FTDX10, then set the Baud Rate to 38400, and enable RTS.

PTT Port, use the selection for the FT-991/A.

When finished, press [Update]. The configuration window will close and the session will restart.

If you wish to see the waterfall display for ARDOP, there will be an Icon in your task tray at the bottom of your screen. Click on the Icon and the Waterfall display will appear.

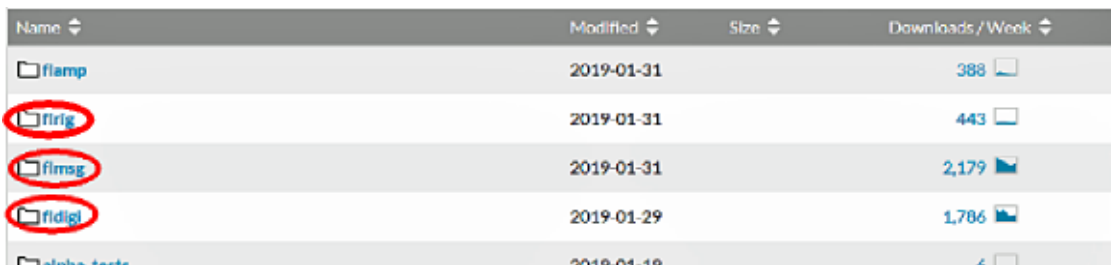Select the station you wish to connect to in [Channel Selection] by double clicking on the call sign of that station. The Channel Selection window will close and the values for that RMS station will be automatically transferred into your session window and to your radio.

When this has been accomplished, press [Start] and the system will begin the process to connecto to the selected RMS Gateway.

Fldigi (NBEMS) Software

Fldigi (Fast Light Digital Modem) by W1HKJ also associated with NBEMS (Narrow Band Emergency Messaging System) is a suite of open source software for the most popular OS (Windows, MAC, Linux) that you can use with or without an interface between your computer (tablet, smart phone) and your radio. Which allows an opportunity of any licensed operator to be capable of interfacing into the digital data system. There are many facets of the software that can be used together to form a comprehensive Messaging system. In this section, I am going to focus on what is necessary to install and configure this suite of software for the Yaesu FTDX10 to a laptop computer (running Windows 7/10 Professional) using only a USB cable.

Sourceforge.net is the preferred source for the required files. (Again, I reiterate this section will focus on the FTDX10 connecting to a laptop or computer running Windows 7/10 Professional 64 bit). Here is the location of the files: https://sourceforge.net/projects/fldigi/files/?source=navbar

Name ⇕	Modified ⇕	Size ⇕	Downloads / Week ⇕
flamp	2019-01-31		388
flrig	2019-01-31		443
flmsg	2019-01-31		2,179
fldigi	2019-01-29		1,786
alpha_tests	2019-01-19		4

(I recommend "save as" to your desktop to download all the required files instead of downloading and installing directly from the site.) You will need to download: fldigi, flrig and flmsg. One you have saved these files to your desktop, move the zipped folders to a common location (I have created a repository folder on my C: drive entitled Install packages to keep everything together in a location I can find again).

Flrig Installation

First, we'll start with flrig: navigate to where you stored your downloaded folder/program and double click on "flrig-####_setup: (the #### sign is for the current version number you downloaded). Agree to the license information and accept the default information to create shortcuts, etcetera.
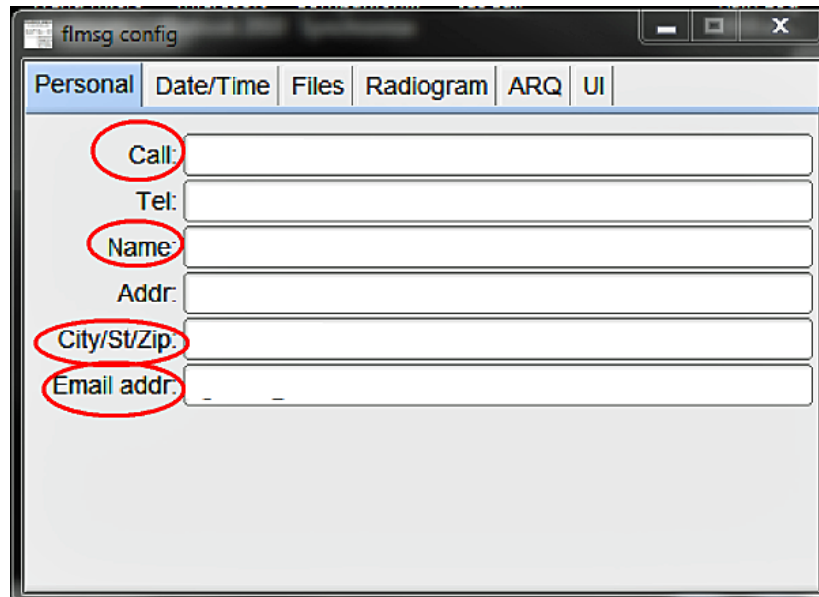
On your desktop, you will now see a shortcut to flrig. Double click on the shortcut. Once the program has initialized, click on [Config] [Setup] [Transciever]
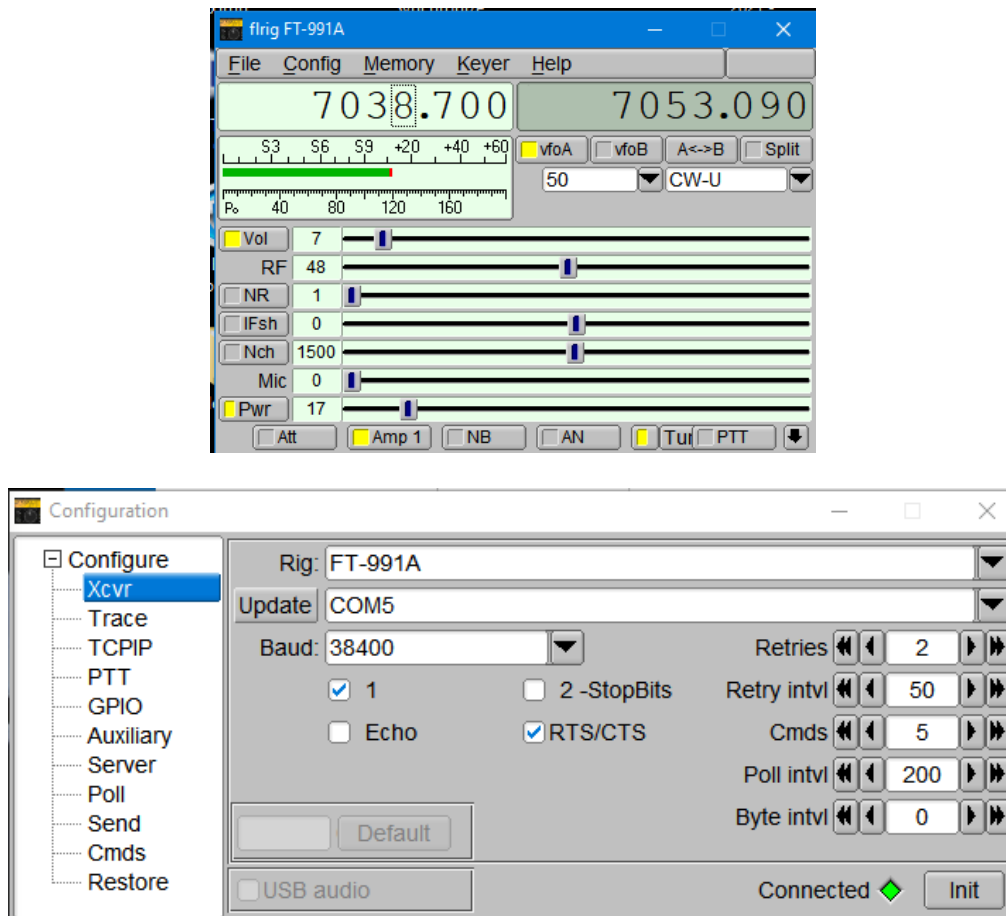
In the [Transceiver] [Xcvr] tab Rig pull down, select "FT-991A" (at the time of this writing there was no specific configuration defined for the FTDX10); in the Ser Port pull down select the lowest com port number associated with the Silicon Labs CP210x USB to UART Bridge you created when installing Winlink Express; In the Baud pull down, select 38400; Select 1 Stop Bits; and select RTS/CTS. Then click Init. (NOTE: Radio should be on to avoid errors). Then close the window.

Flmsg Installation

Install FLMSG that you previously downloaded from sourceforge, allowing for the standard options.
Once complete, double click the flmsg icon placed on your desktop. Click on [Config] [Personal Data]


Fill in the indicated fields. When finished, click the red [X} to close the configuration window, then close FLMSG.

Fldigi Installation:

Navigate to where you stored the downloaded "fldigi-####_setup" file (Where the #### is the current version number of the downloaded file). Agree to the license information and accept the default information to create shortcuts, etcetera. On your desktop there will now be a shortcut for fldigi. Double click on the icon.

Select [Configuration Dialog] [Operator Station]
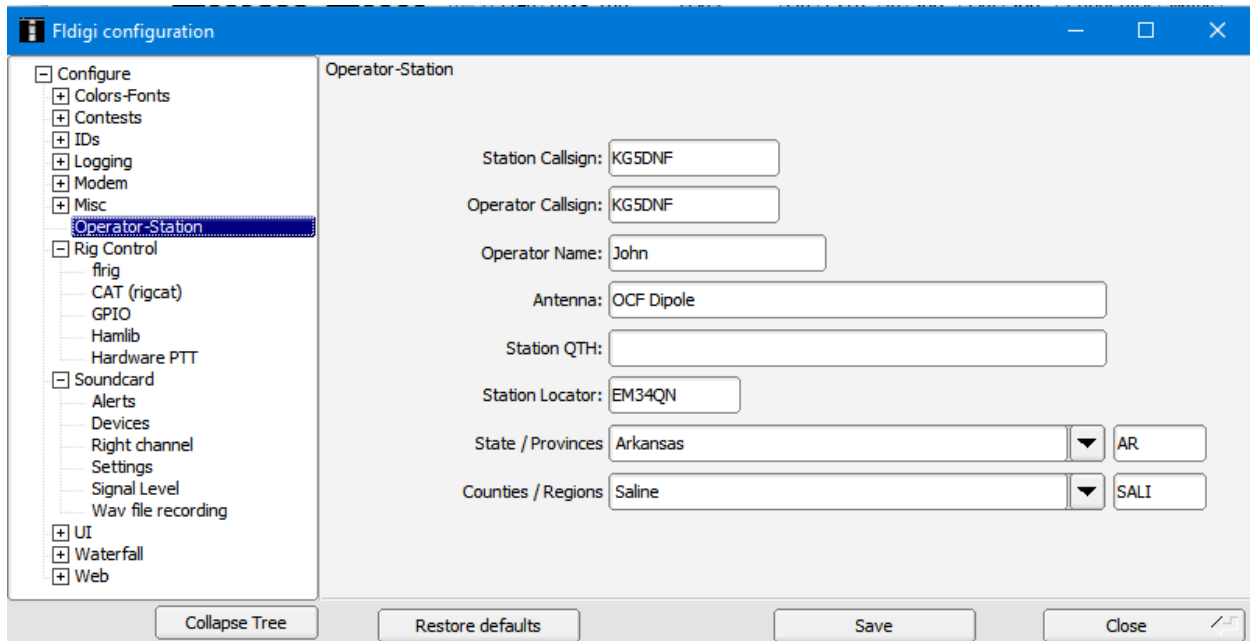
Most of this is self-explanatory, bur for clarity, Station callsign is your callsign; Station QTH is you home city and state; Station Locator is your Maidenhead grid coordinates; Operator callsign is your callsign; and Operator name is your first name. Antenna is optional. Once filled in, click "Save".

Next, click on the [Rig Control] click on "flrig".
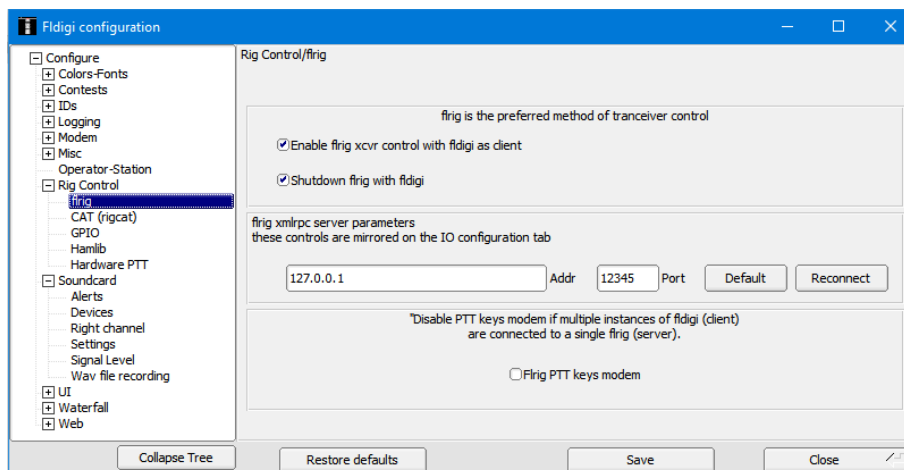
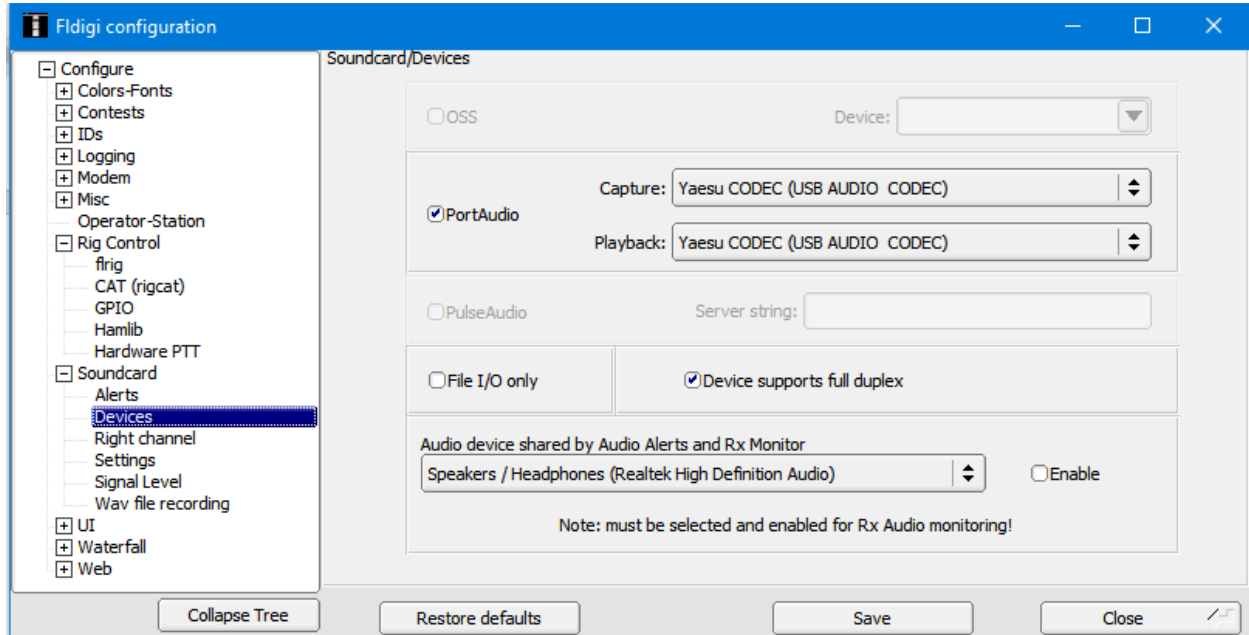Ensure both the [Enable flrig xcvr control with fldigi as client] and [Shutdown flrig with FLDIGI] are both checked, then click "Save". (Note: do not change the address from 12345!)

Next, click on the [Soundcard] [Devices] Tab.

Ensure "Port Audio" is checked and that the appropriate USB Audiio CODEC settings are selected in both the Capture and Playback drop downs. Once completed, click "Save".

If you would like an alert sound to be played when FLMSG receives a message, click on the [Alerts] tab.
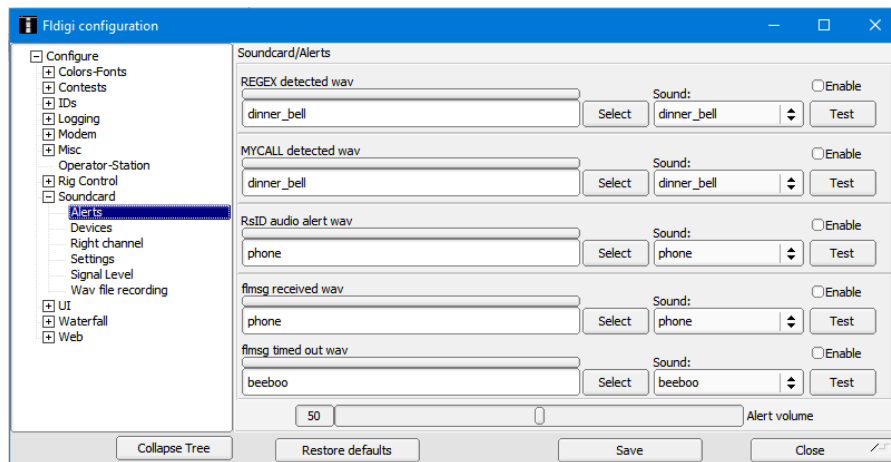
You can select the sound that will play by clicking on the pull-down box under Sounds. When finished with your selections ensure the "enable" box is marked.

Next, click on the [Misc] [Autostart] tab.

To automatically start flrig when you start fldigi, click on the "Locate" button on the line for flrig and navigate your way to "C:\Progra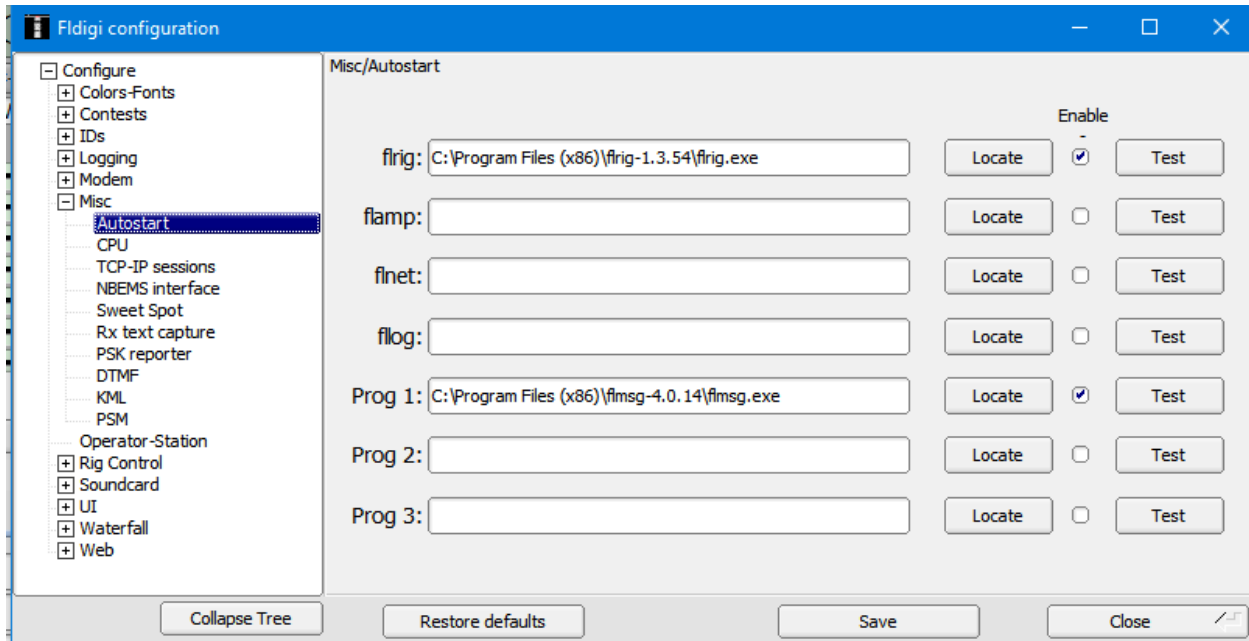mfiles (x86)\flrig-####\flrig.exe" where the #### represents the current version of flrig you are using, and note: the flrig-#### is a folder in the Program Files folder!). Single click on the flrig.exe file then click "Open" This should populate the blank field next to flrig. One this is accurately accomplished click in the "Enable" box to activate the sequence. Repeat under Prog1 for FLMSG. Click [Save] then Click [Close].

One last thing before you close the program, on the main window, please ensure that RxID, TxID and AFC are all "checked" to allow for automatic mode switching (automatically changes to the correct digital mode the transmitting station is using) and automatic signal following (in case someone transmits slightly off center of the passband).
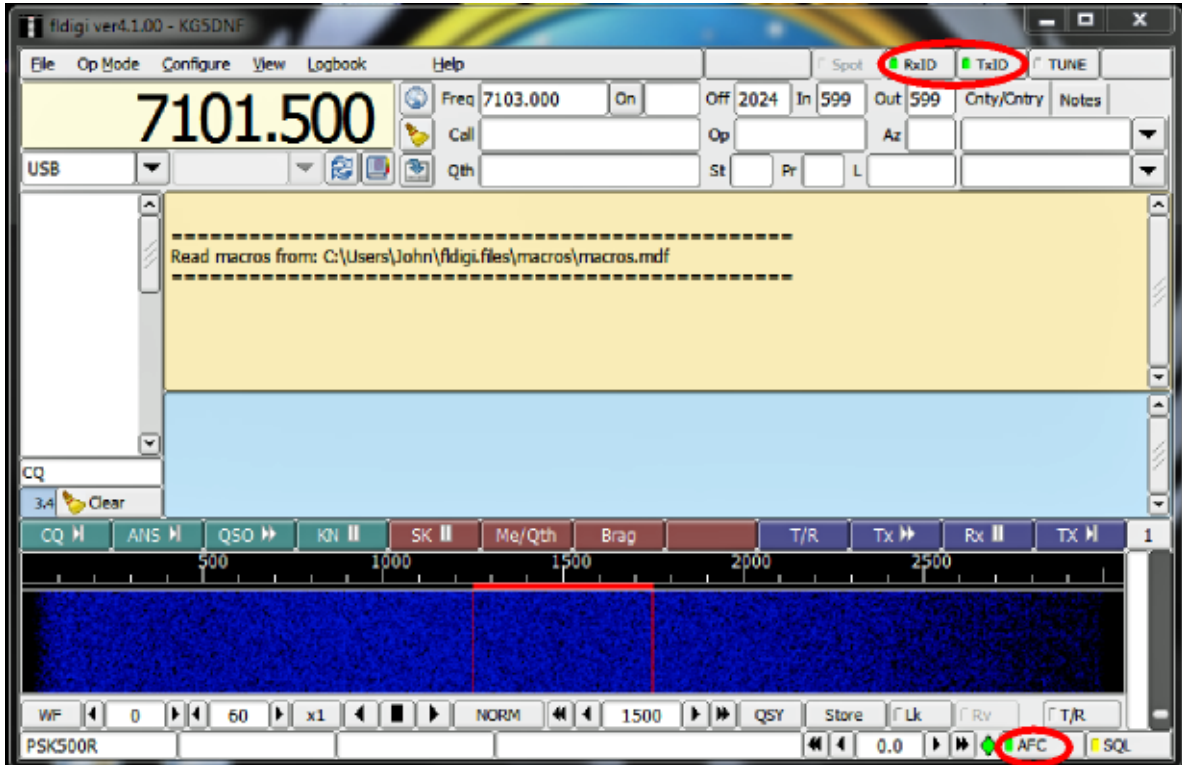

Once these items have been verified, please close the program and agree to save the configuration.

WJST X Software & Installation

If you wish to install the WJST X Software which will allow you to use several different modes including WSPR, JS8, JS4, and several others, the download page is: https://wsjt.sourceforge.io/wsjtx.html .

Scroll down the page until you get to the Installation Packages and select the appropriate download for the OS you are currently using. Click on the appropriate link to initiate the download.

Once the download has completed, double click the downloaded file to start the installation (answer all the questions using the default answers to avoid further issues.) The last step in the installation has an option to run WJSTX, Click the box then you will see the first set-up page.
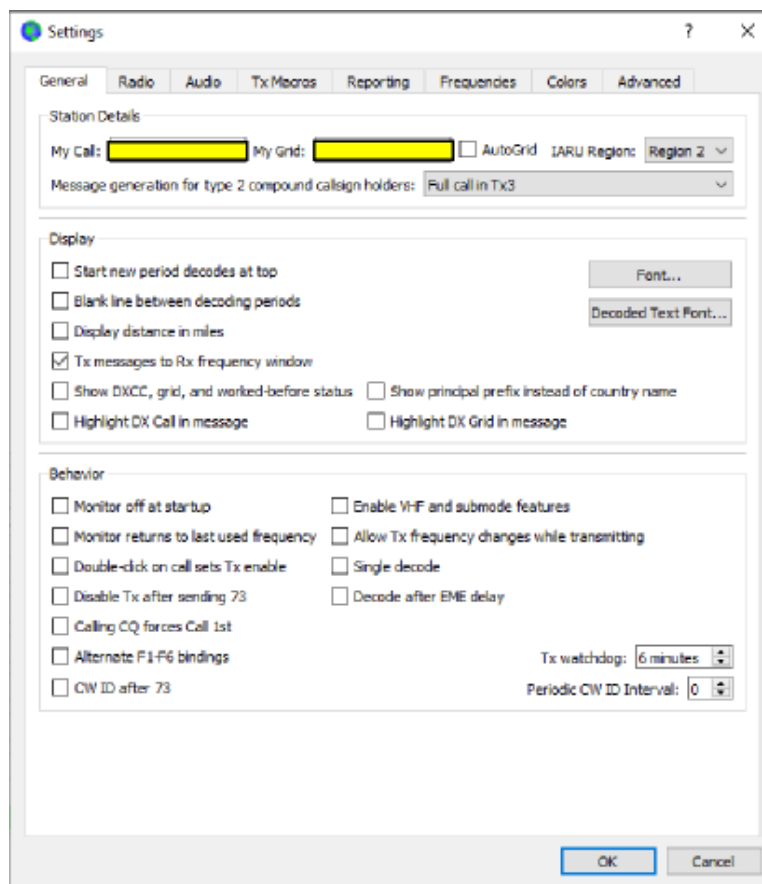
Fill in "My Call" with your call sign, then fill in "My Grid" with your 6 digit grid square. Double check to ensure all remaining entries are as indicated. Then click on Audio Tab.

As mentioned previously in this guide, I have renamed the Audio CODECs appropriate to the radio(s) I have installed to help eliminate confusion. In the Audio Tab, select the appropriate audio CODEC for your radio in both the Input and Output fields.
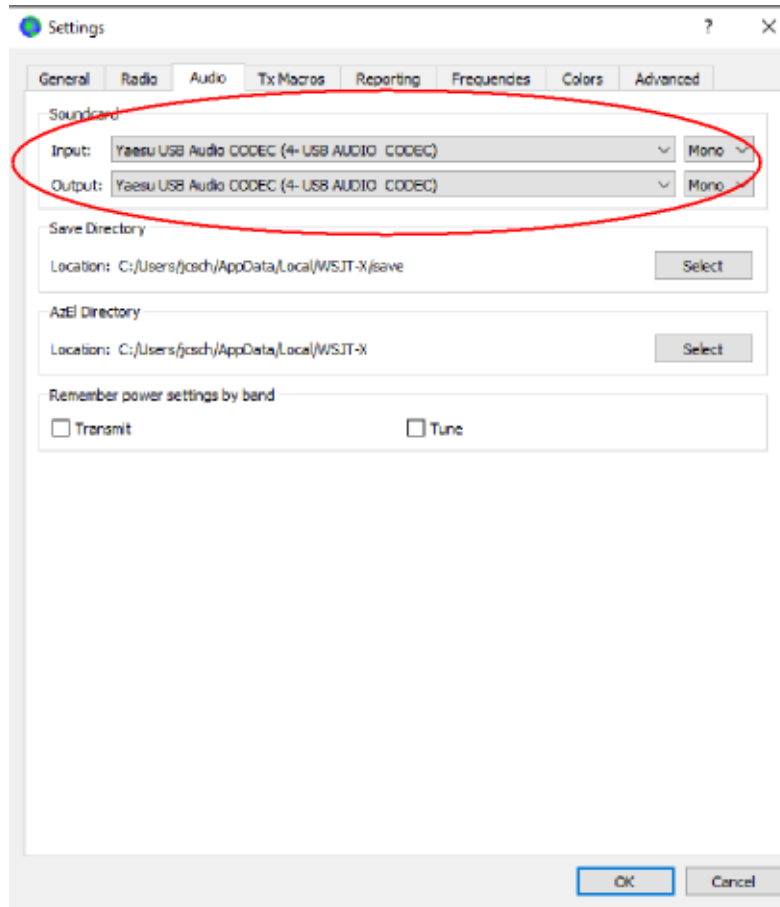
Once completed, click on the "Radio" Tab.

In the Radio Tab, in the "Rig" field, click on the down carrot (▼), scroll down and select your radio as shown in the image below:
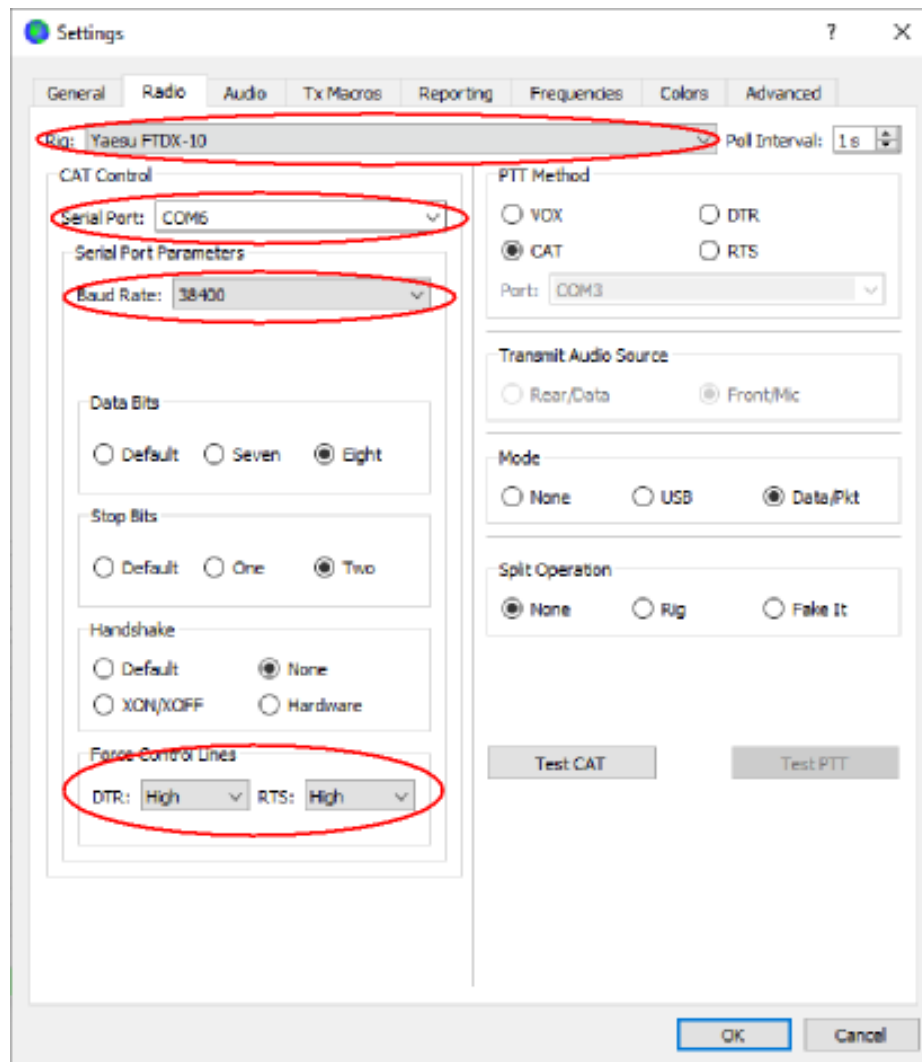
In the Serial Port field, select the COM port number that was labeled "Enhanced".

Set the Baud Rate to 38,400

Set all other fields in this tab as shown above, paying attention to the "Force Control Lines".

Once all adjustments have been made, click on the "Test CAT" button. It will take a couple of minutes to test, but if all settings are correct, the CAT button will turn Green.

When done, press the "OK" button and all your changes will be saved.

WINLINK EXPRESS USE:

Using the Winlink Express software is fairly universal to any radio once the radio and appropriate interface has been set up. (NOTE: Winlink (any mode) does not permit keyboard to keyboard interaction. If you wish to converse keyboard to keyboard prior to sending a message, use FLDIGI.)

VARA HF/ARDOP Winlink to RMS

In the main (first) screen of the Winlink express suite, click on "Message -> New Message".
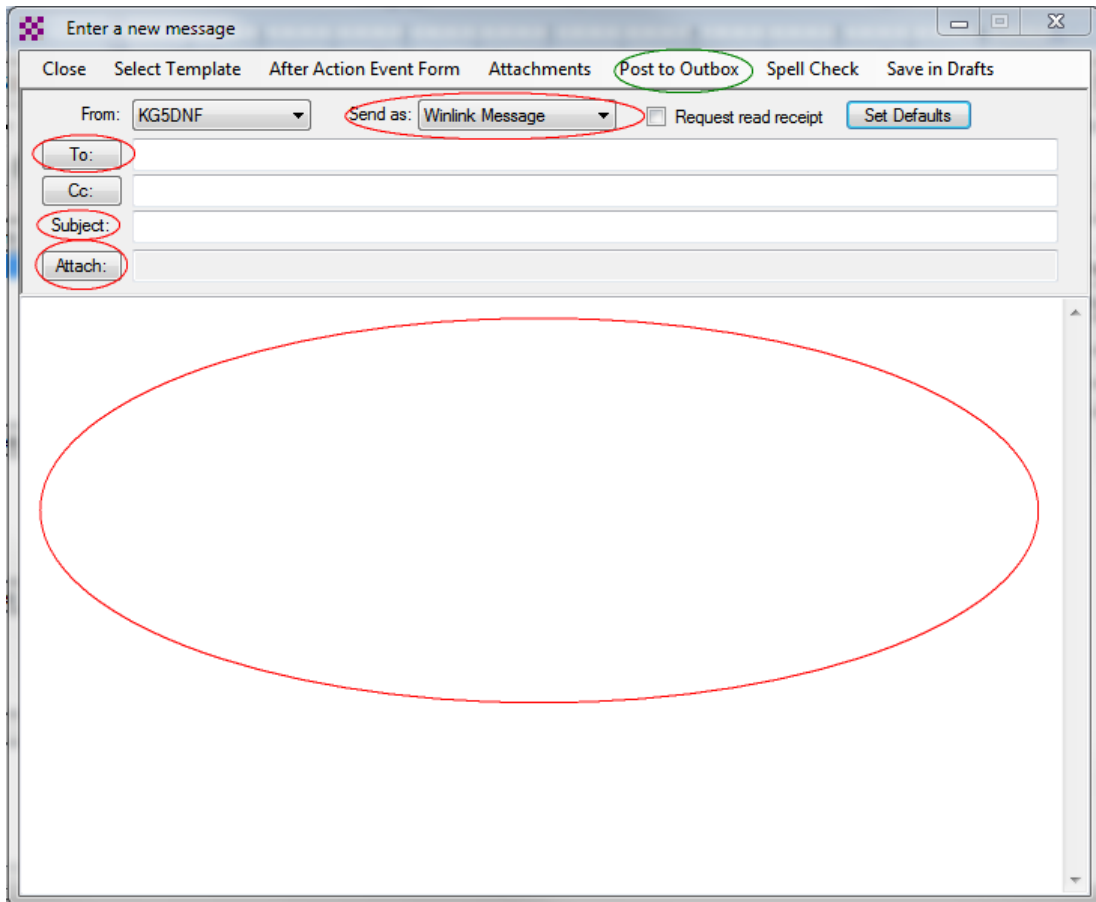
Select "Send As" Winlink Message (!). Fill in any appropriate information including subject)and select attachments (if there are some), Compose the main body of the message, then click "**Post to Outbox**".

The next time you connect to an RMS server, you message will be sent. If you are sending to an RMS server for another operator to pick up, just enter their call sign in the "To" block. If you wish to send the message to an internet based email account, enter the appropriate email address(es) in the "To" block. (Multiple addresses may be separated by a comma.)

When completed, close all programs to ensure you don't have anything running in the background the next time you wish to use these programs.

VARA HF/ARDOP P2P

P2P (Peer to Peer) protocols differ only slightly from messages being sent to/through an RMS Server. P2P is exactly what it sounds like! In very simple terms – SIMPLEX. You will be connecting directly to the other operator's radio to pass traffic.

The only difference in composing the message is you will select [Peer-To-Peer Message] in the "Send As" block instead of Winlink Message. Once finished click [Post to Outbox].

When you are ready to connect to the other operator, you will need to select "VARA HF P2P, or "ARDOP P2P" in the session mode. Once completed, click on the [Open Session] button.

In the window that appears, instead of using the channel selection window, you will have to input the connection information manually:
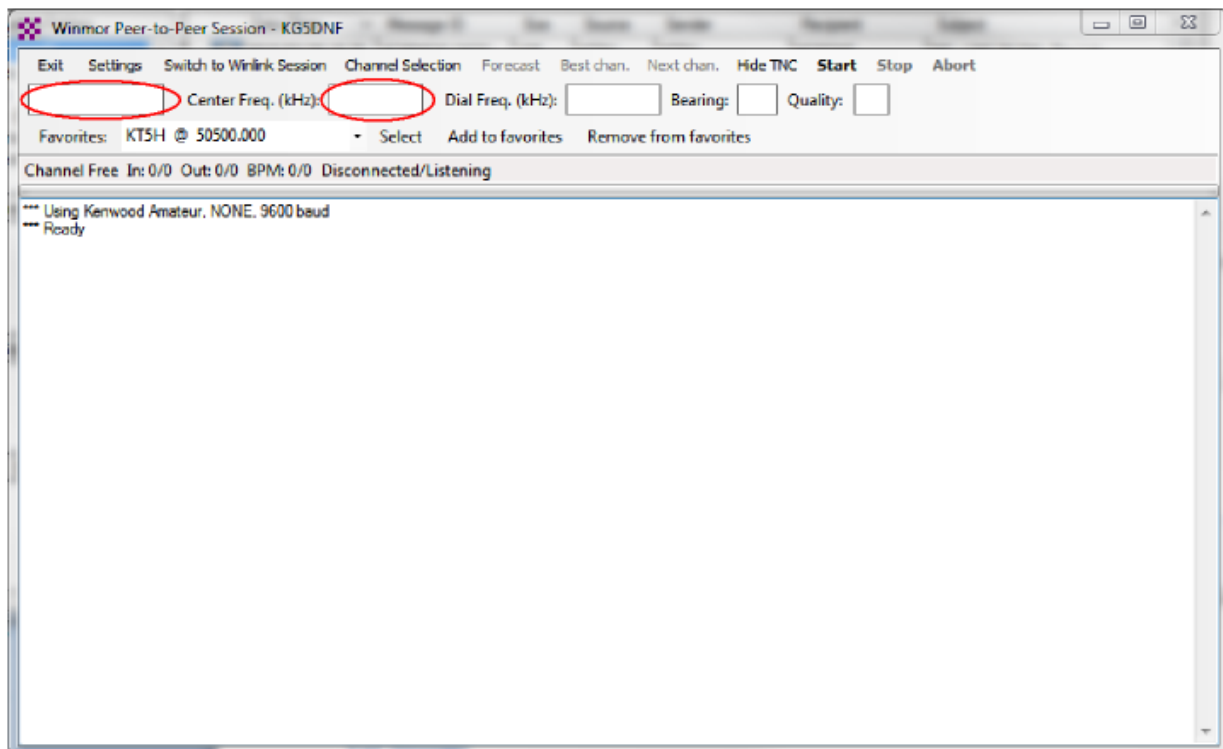
In the first highlighted block, enter the call sign of the station you are going to connect with. (NOTE: you will not connect to this operator if you mis-enter the call sign!). In the second highlighted block, you need to enter the "Center Frequency" for the frequency to use. This is a little strange. Ultimately, when you enter this center frequency, the actual frequency you will be using will be listed in the Dial Frequency block, but you cannot enter any information in that block. The center frequency will be 1500 Hz higher than the dial frequency! One advantage of the IC-7100 using the flrig software, is you may manually tune your radio to the desired transmit frequency and the software will reflect that change.

Appendix B

Windows Update Issues

Windows 10 ver 2004

If your computer receives the Windows 10 2004 Update, there are some issues that will need to be resolved. The Audio CODECs for Winmore, ARDOP, VARA and Soundmodem will all need to be reestablished in Winlink when you first open the respective session.

Additionally, the virtual Port created for the CAT7200 will also need to be recreated in the Device Manager, however, this update (June 2020) precludes installation of unsigned drivers (therefore, will not create the required virtual COM port). Follow the guide below for the work-around:

In order to achieve maximum security, Windows 10 requires digitally signed drivers.

This is usually a good feature if you're concerned about your safety, but sometimes you need to install drivers that aren't digitally signed, and today we're going to show you how to do that.

As a quick reminder, 64-bit versions of Windows require that you install digitally signed drivers. Digitally signed drivers come with an electronic fingerprint that guarantees that the driver was created by the hardware manufacturer and that it hasn't been modified since it was created. Thanks to driver signature enforcement you'll be sure that your drivers are authentic and not altered by a malicious third party. This feature is great if you want to protect your PC, but some manufacturers don't make digitally signed drivers and this can lead to all sorts of problems.

If your drivers aren't digitally signed you won't be able to install them at all which means that you won't be able to use the hardware that is associated with them.

This is a big problem, but fortunately, you can disable driver signature enforcement with ease.

Change the Startup settings:

This is the simplest way to disable driver signature enforcement on Windows 10 but bear in mind that this method will only disable driver signature temporarily.

After you restart your computer driver signature enforcement will automatically turn itself on.

To disable driver signature enforcement do the following:

1. Press and hold the **Shift** key on your keyboard and click the **Restart** button.
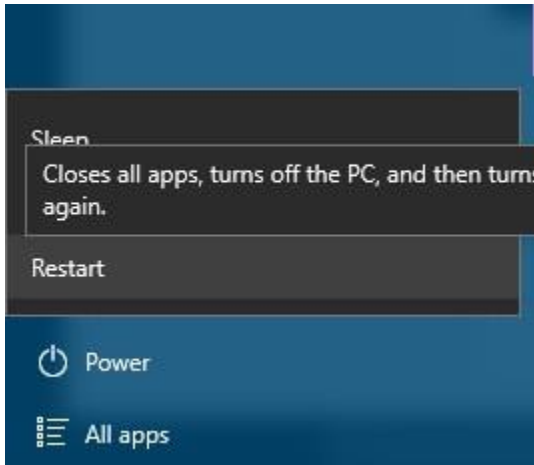
2. Choose **Troubleshoot > Advanced options > Startup Settings** and click the **Restart** button.
3. When your computer restarts you'll see a list of options. Press **7** on your keyboard to select **Disable driver signature enforcement**.
4. Your computer will now restart and you'll be able to install unsigned drivers.

Bear in mind that this method only temporarily disables driver signature enforcement, so be sure to install all the unsigned drivers as soon as you can.