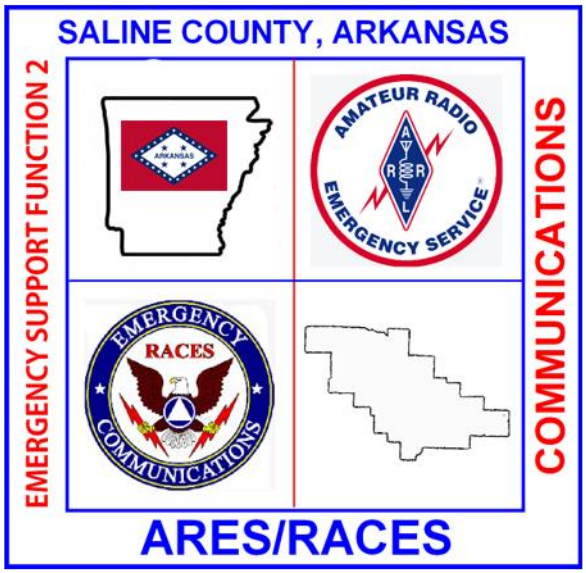


SalCo ARES Digital Data Messaging

Kenwood TS-480SAT set up and configuration

With or without full rig control of the TS-480SAT

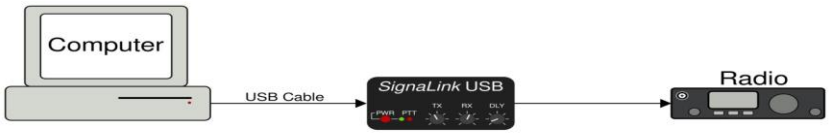
February 2019

V 1.1

Contents

The Kenwood TS-480SAT does not have a built in sound card unlike a few of the newly released radios out there. Since there is not internal soundcard, an external one must be used. The Signalink TNC is a relatively inexpensive unit that can be used with many different radios by reconfiguring the jumper wires and procuring the appropriate connection cables. The TNC will not, however, provide the appropriate commands for rig control. A separate USB to serial (RS2322) cable must be used for rig control. You can use the Signalink TNC by itself by manually tuning the radio to the appropriate frequencies as needed.

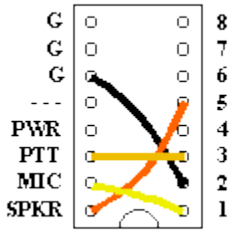
Signalink



You can purchase a Signalink USB interface from many different sources for around $129.00 (February 2019) including the appropriate cable to connect to your specific radio. (For Kenwood TS-480SAT and TM-V71A, the same cable may be used which is an RJ45 to a 6 pin Mini DIN connector) The Signalink is powered by the USB port from your computer.

Ensure you look at the configuration of the jumper wires for your specific radio (Also available at many sources).

SIGNALINK JUMPER SETTINGS
Same for both TS-480SAT.
6-pin Mini-DIN Data Port (use part # SLUSB6PM, SL1+6PM, or SLCAB6PM)

JP-1	Pin-out	Radio Models	Notes
	Pin 1 – Data In Pin 2 – Ground Pin 3 – PTT Pin 4 – 9600 Out Pin 5 – 1200 Out Pin 6 – Squelch	DR-735T/E	

Ensure you radio is powered off. Connect the 6 pin Mini Din connector to the DATA port on the back of the radio. Connect that cable to the RJ45 port on the back of the Signalink. Connect the USB cable (USB A to USB B just like the cable to connect to a printer) to any USB port on your computer, then plug the USB connector into the USB B port on the back of the Signalink. (In Windows 7 and above, the computer already has the appropriate drivers and will install them automatically.)

The TS-480 requires a serial cable (plugged into the RS232 port on the front of the transceiver unit) for computer control of the radio.

USB to Serial (F) FTDI cable

There are several USB to serial cables available, but only the ones with an FTDI chip works. The source I found that does work is: https://www.ebay.com/itm/USB-CAT-Cable-for-Kenwood-ts-480-ts-570-ts-590-ts-870-ts-2000-TM-D2000/112649509122?_trkparms=aid%3D222007%26algo%3DSIM.MBE%26ao%3D2%26asc%3D20160323102634%26meid%3D3e7fe0485b6644a1ad0aea3eb290d9b2%26pid%3D100623%26rk%3D2%26rkt%3D5%26sd%3D112766218535%26itm%3D112649509122&_trksid=p2047675.c100623.m-1

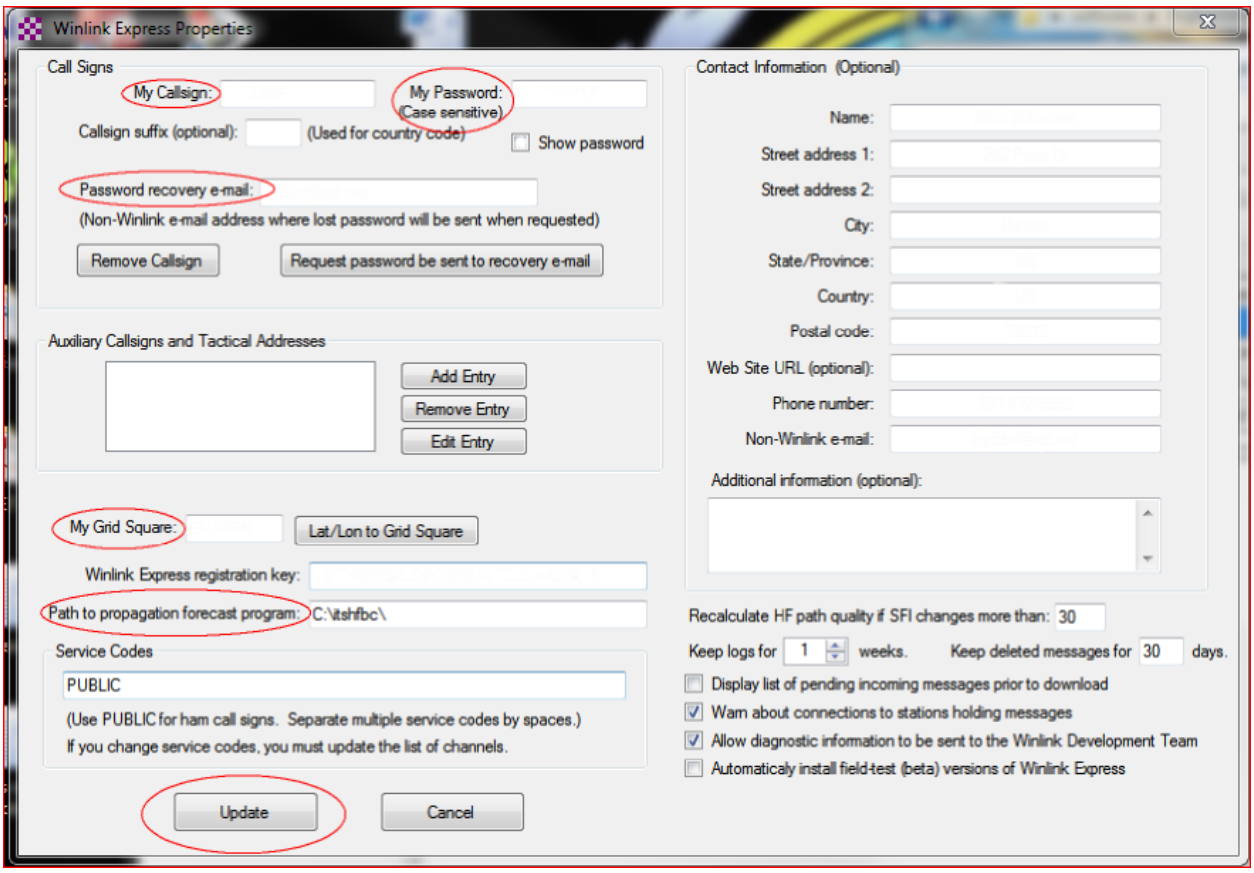
Installation of the serial cable is fairly straight forward: connect to the RS232 port on the front of the transceiver, turn the radio on then connect to the computer. Drivers will install automatically. After driver installation is complete, you will need to check to see what COM port number was assigned. This is done by clicking on [Computer] [System Properties] [Device Manager] [Ports (COM & LPT]. Make note of the newly assigned “Silicon Labs CP210x USB to UART Bridge COM port number” – this will be required for configuration of the software.

Winlink Express Installation

Download Winlink Express Software

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).

Install the RMS (Winlink) Express software using the default location for file storage and location. When you start Winlink Express for the first time, you will see: (fill in the items circled in red)

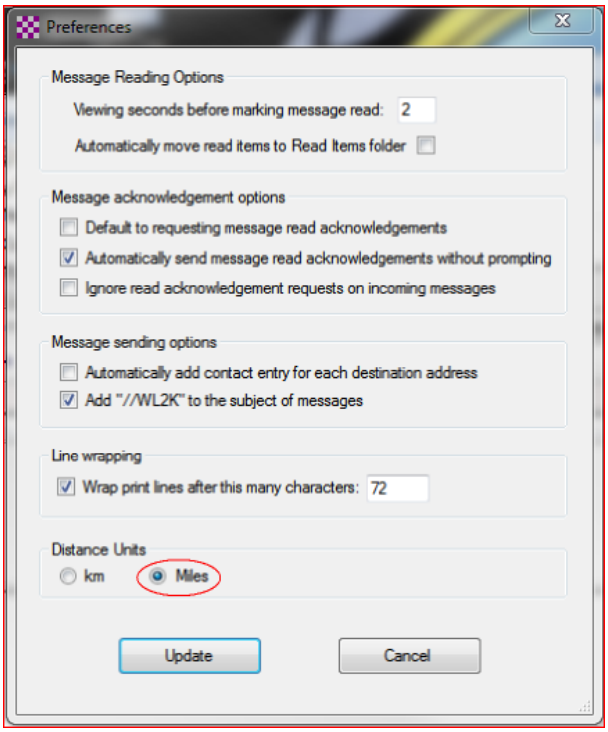


NOTE: a Winlink registration key is not required! (However if you decide to donate to further the research and development of Winlink, the registration fee is currently $24.00)

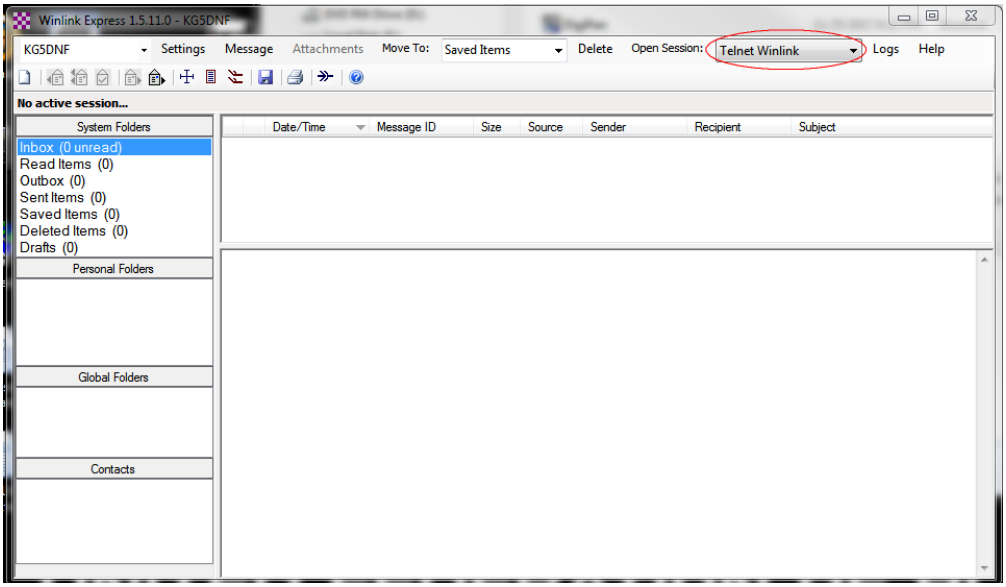
Finally, click “Update” to save the changes you made, then click “Close” to close this window.

If you prefer to have distances indicated in miles instead of kilometers, “click” on Settings > Preferences

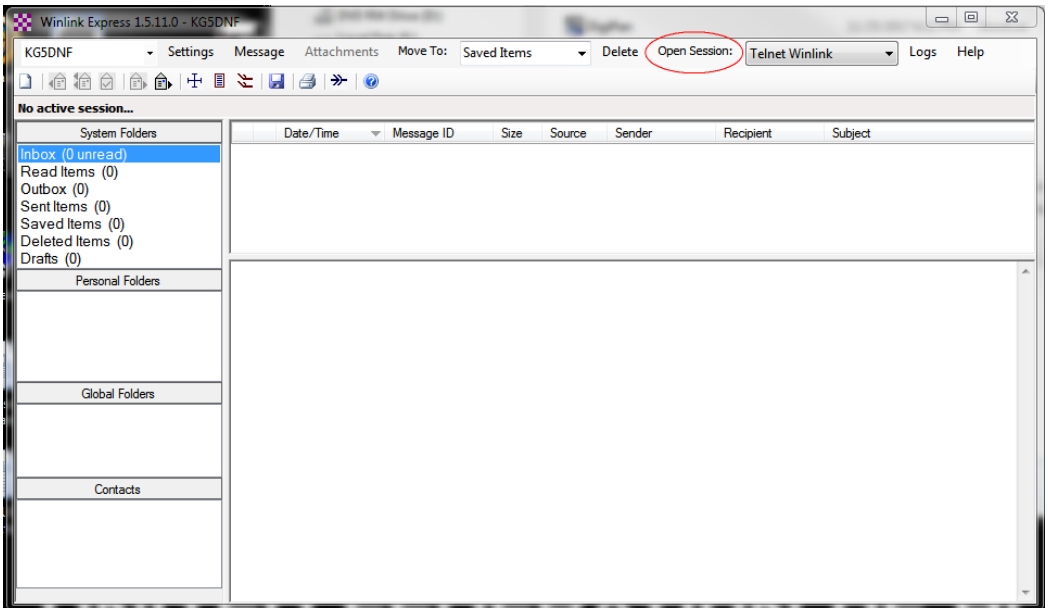
Near the bottom of the new window, you will see radio buttons for kilometers and miles. Click on the button next to miles, then click Update.



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:

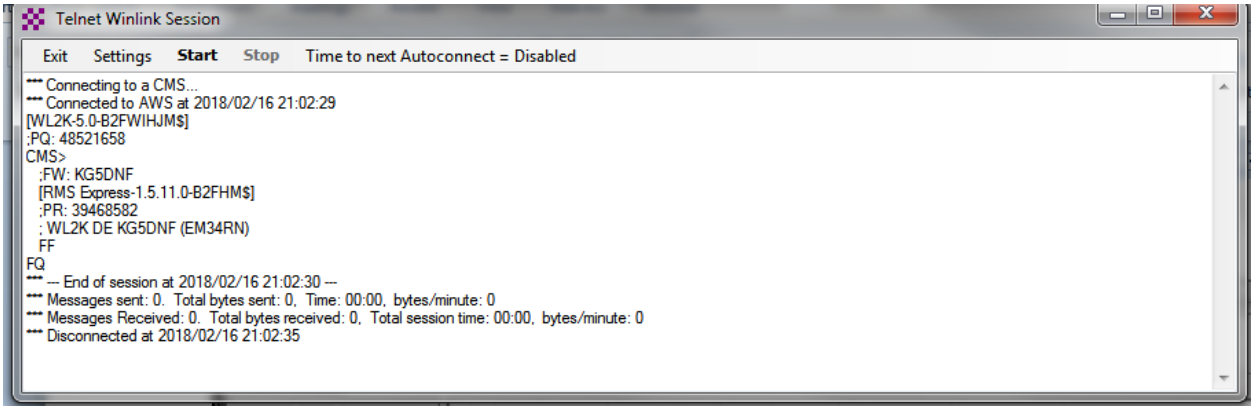


Then “click” on the “Open Session” text (it actually is a button).



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.



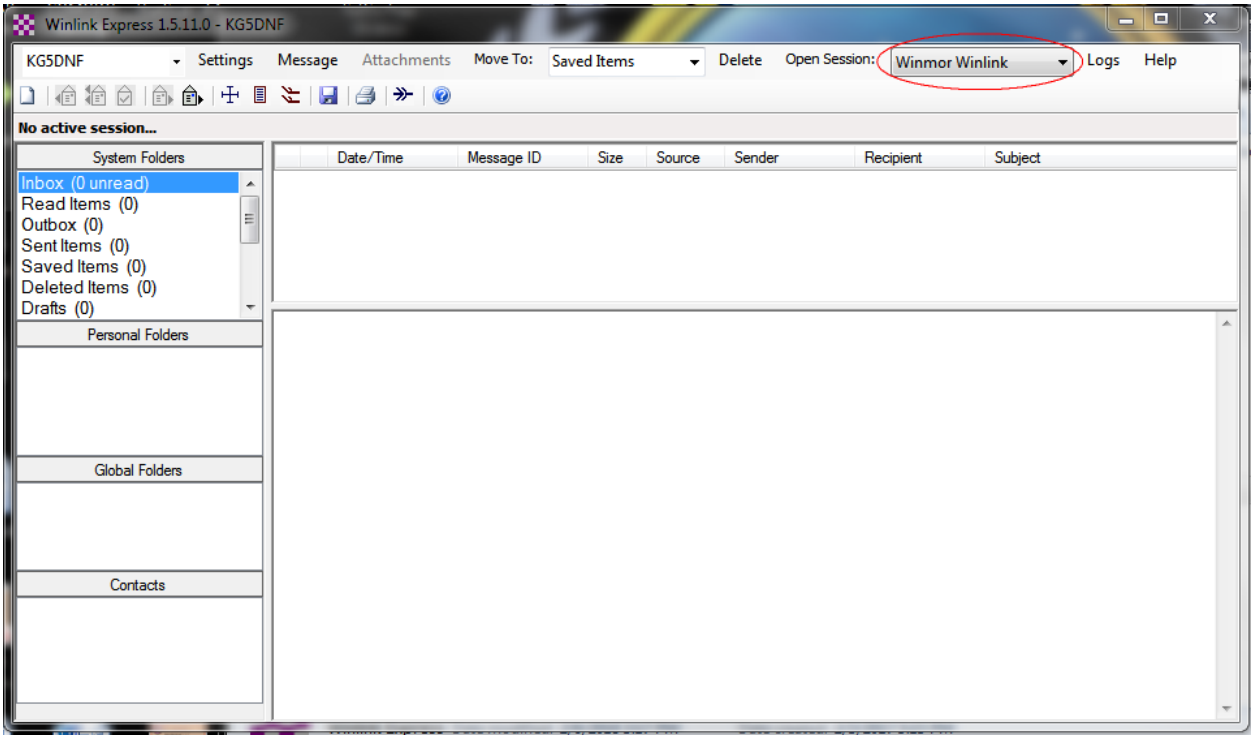
(NOTE: You may receive a pop-up notification that your password was changed)

After Winlink completes its connection press either Exit or the Red “X” to exit the session. Your call sign (Winlink User Name) has now been registered!

Close this window (click the red “X”).

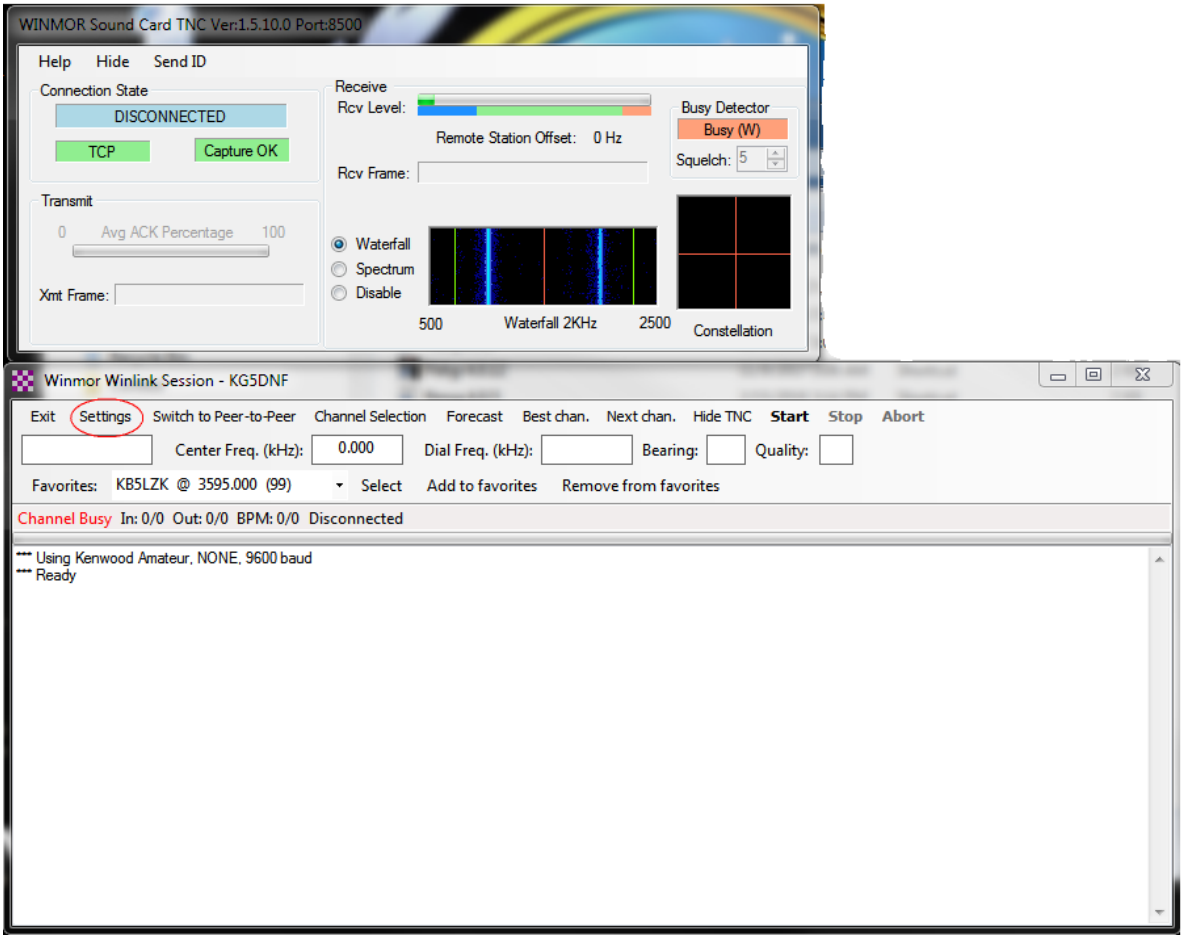
Winlink Winmor Set-up

On the pull-down menu for type connection, select Winmor Winlink:

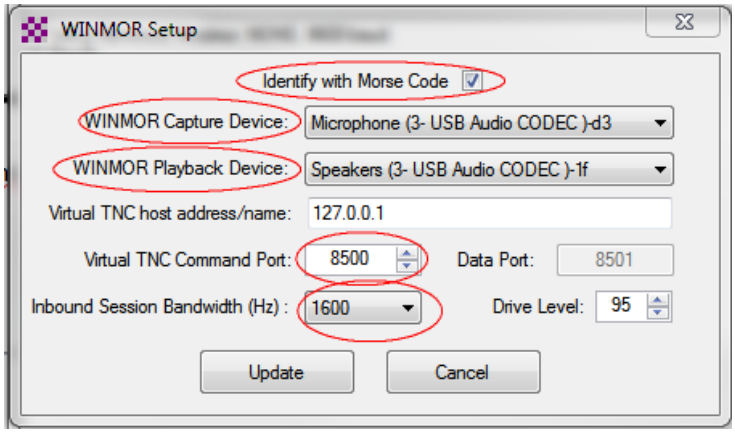


Then “click on the “open session” button:

Two new windows will appear: 1) The TNC Soundcard status window and the Winmor Status Window. In the Winmor Status Window, Select “Settings”

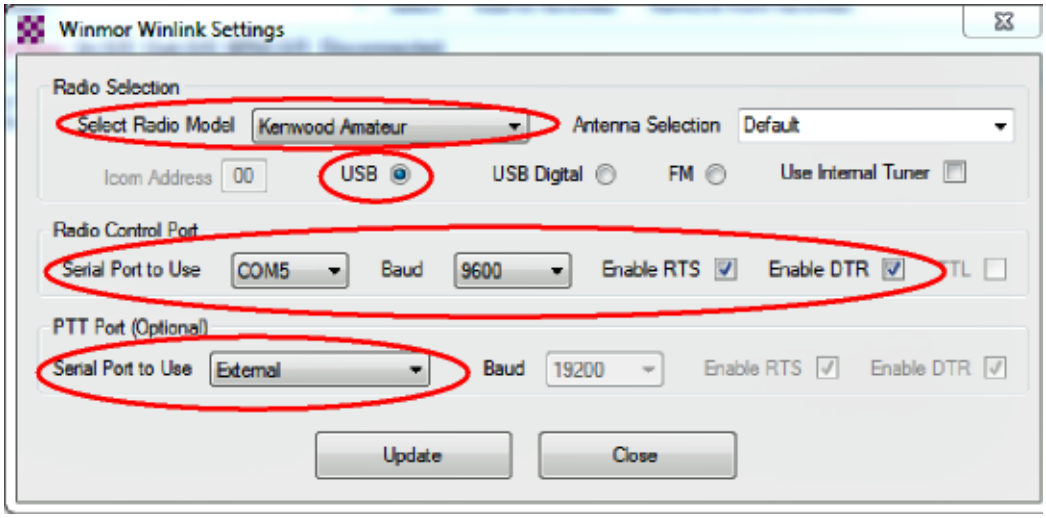


Select “Winmor TNC Setup”. Fill in the appropriate spaces with the values indicated.



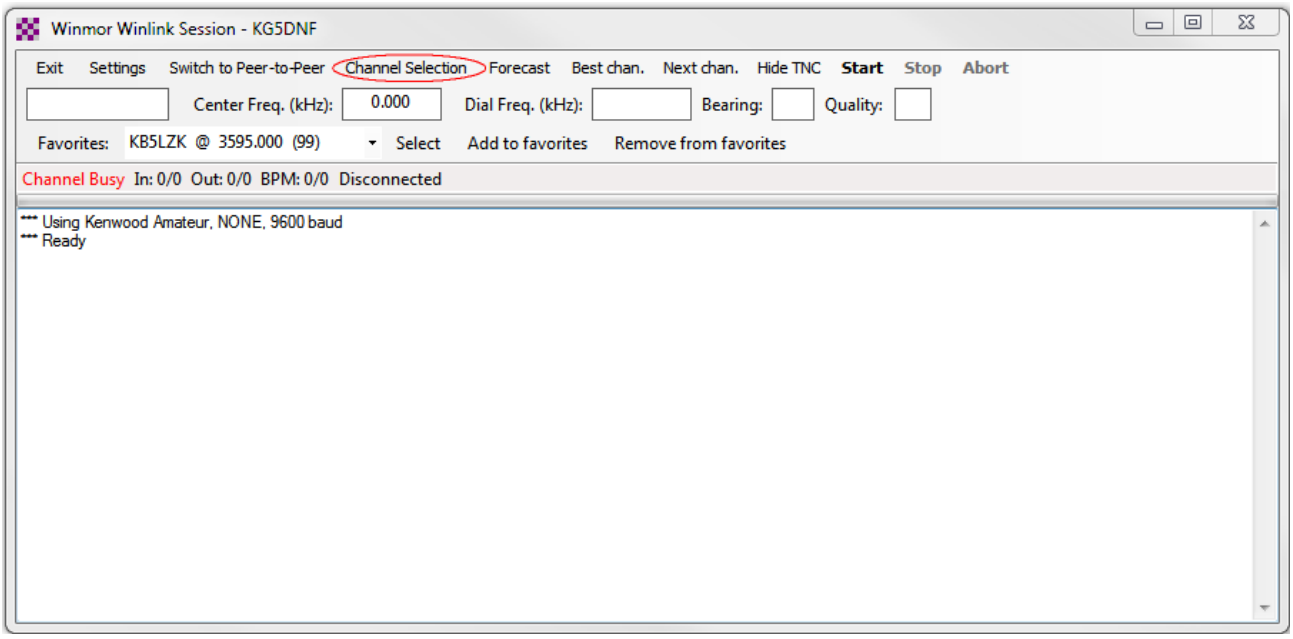
Please ensure you select the “USB Audio CODEC” (the number may be different based on the number of TNC soundcards you have AND if you use a different USB port on your computer) for both the Microphone and Speaker Device.
Then click “Update”, then “Close”

Once again, select “Settings” then Radio Setup:

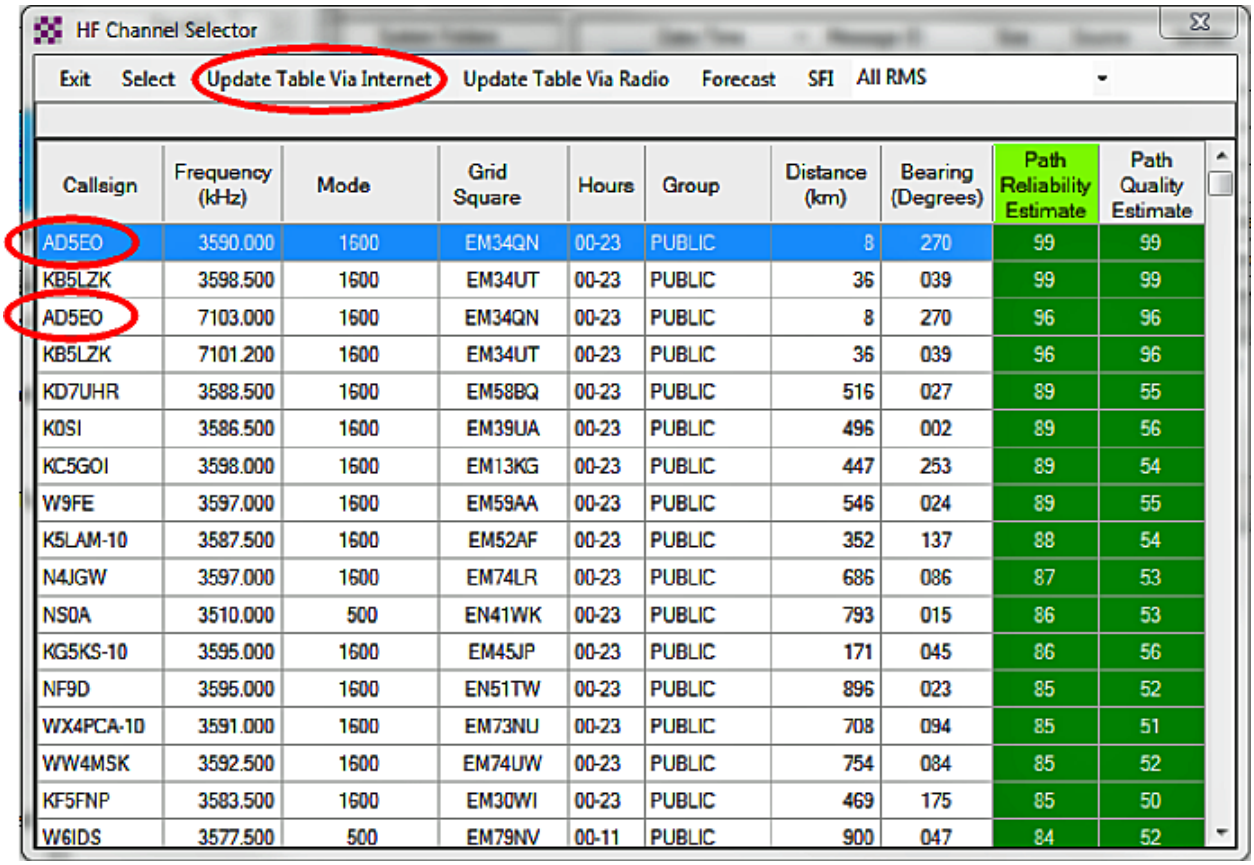


Set the values indicated to match those in the picture, then click “Update”, then “Close”
(NOTE: If you do not want to use RIG control, instead of selecting the COM Port number, leave it as “None”

The next step is to click on “Channel Selection”:



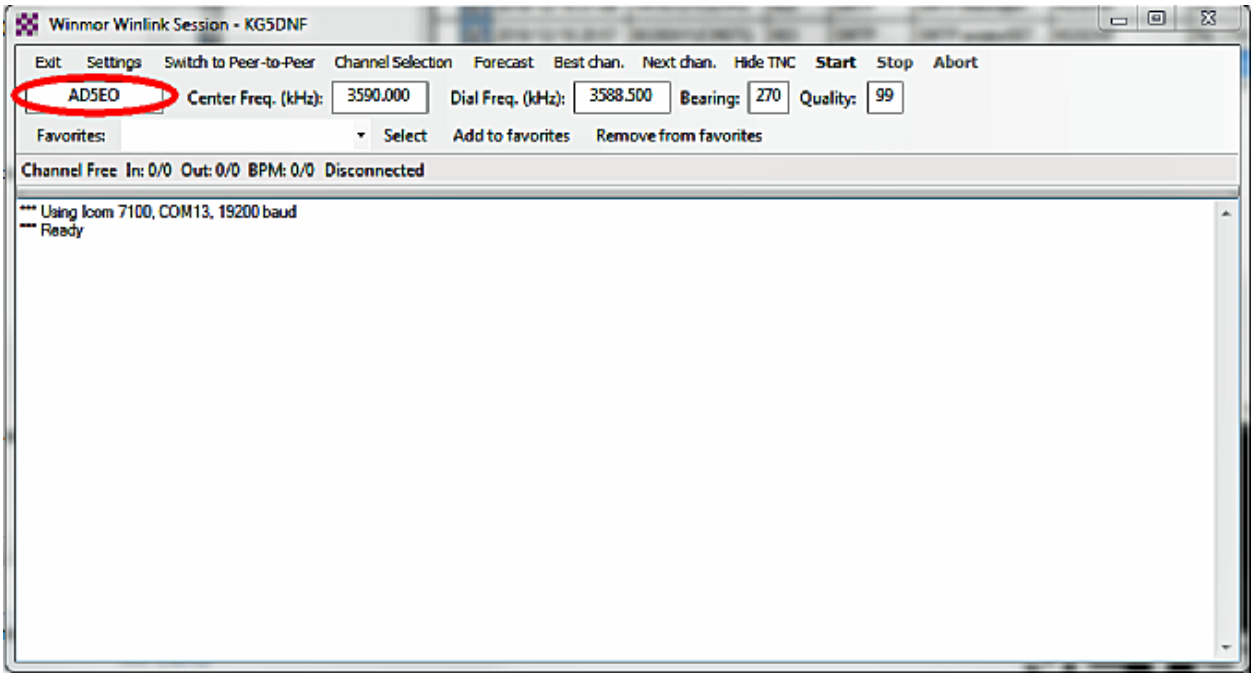
A new window will appear. Select (click) on “Update Table Via Internet”:



Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
AD5EO	3590.000	1600	EM34QN	00-23	PUBLIC	8	270	99	99
KB5LZK	3598.500	1600	EM34UT	00-23	PUBLIC	36	039	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
KD7UHR	3588.500	1600	EM58BQ	00-23	PUBLIC	516	027	89	55
K0SI	3586.500	1600	EM39UA	00-23	PUBLIC	496	002	89	56
KC5GOI	3598.000	1600	EM13KG	00-23	PUBLIC	447	253	89	54
W9FE	3597.000	1600	EM59AA	00-23	PUBLIC	546	024	89	55
K5LAM-10	3587.500	1600	EM52AF	00-23	PUBLIC	352	137	88	54
N4JGW	3597.000	1600	EM74LR	00-23	PUBLIC	686	086	87	53
NS0A	3510.000	500	EN41WK	00-23	PUBLIC	793	015	86	53
KG5KS-10	3595.000	1600	EM45JP	00-23	PUBLIC	171	045	86	56
NF9D	3595.000	1600	EN51TW	00-23	PUBLIC	896	023	85	52
WX4PCA-10	3591.000	1600	EM73NU	00-23	PUBLIC	708	094	85	51
WW4MSK	3592.500	1600	EM74UW	00-23	PUBLIC	754	084	85	52
KF5FNP	3583.500	1600	EM30WI	00-23	PUBLIC	469	175	85	50
W6IDS	3577.500	500	EM79NV	00-11	PUBLIC	900	047	84	52

Just a few words on this. This part of the program uses the new 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. (Our EOC has the call sign AD5EO.) 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.

When you double click on the station you wish to connect with, this window will close and you will see that the selection has been transferred to the Winmor Winlink control (and if you are using RIG control, the frequency will be set on your radio automatically). If you aren't using rig control, tune your radio to the value indicated by "Dial Frequency" (Center Frequency is for the center of the passband).



For digital modes, it is recommended not to exceed 35 watts RF power! (Digital signals are considerably more compressed and have a much higher duty cycle than phone modes and will travel further with less power.)

When all radio adjustments have been made and verified, click "**Start**" the program will take control of your radio and hopefully make contact with the station you have selected.

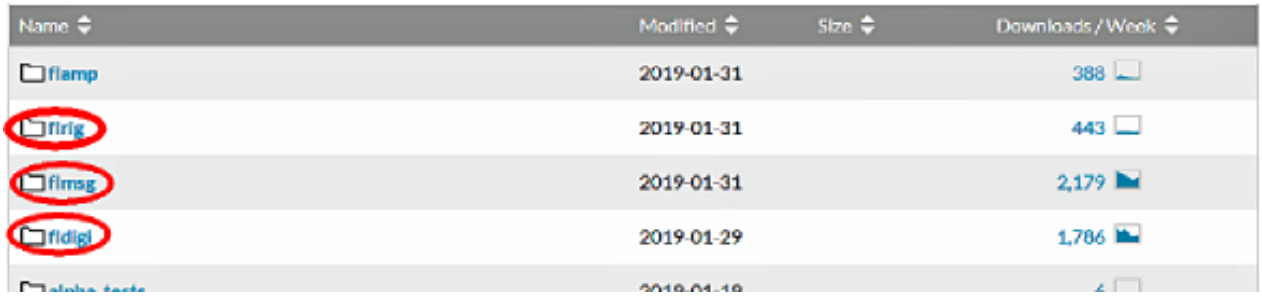
IF for some reason, the program/Signalink/Radio aren't working together, please recheck all the previous listed settings.

Winlink ARDOP set-up

The procedure and settings for Winlink ARDOP are identical to the Winmor set-up but must be done!

FLDIGI Files Installation

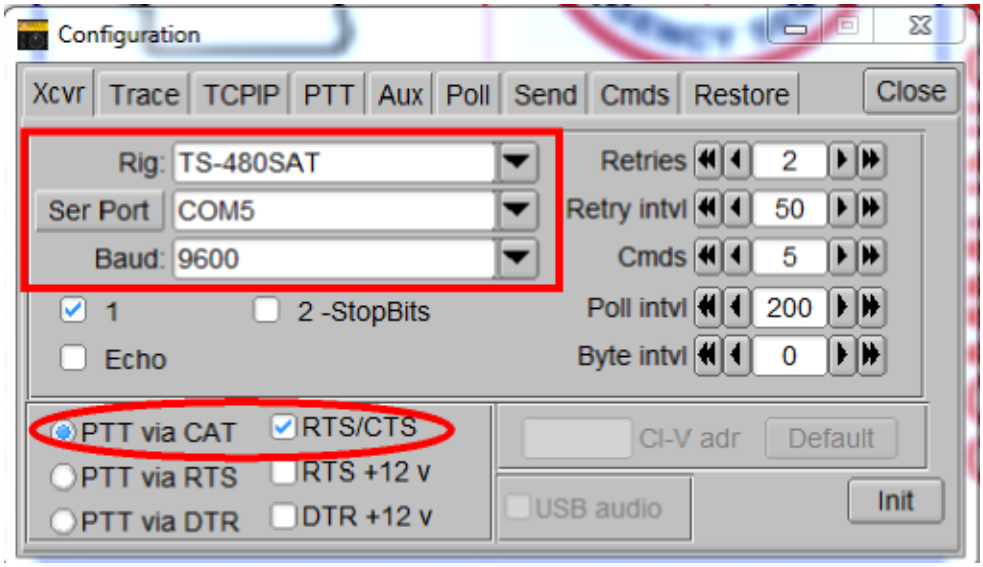
Download fldigi files from: https://sourceforge.net/projects/fldigi/files/ (fldigi-#### setup.exe). Save to your desktop, then move to a convenient location. While you are at sourceforge, also download FLMSG and FLRIG (save to your desktop, then move to a convenient location.)



Install FLRIG and FLMSG to your computer using the standard installation options. Please opt to have an icon for the shortcut placed on your desktop.

FLRIG Installation

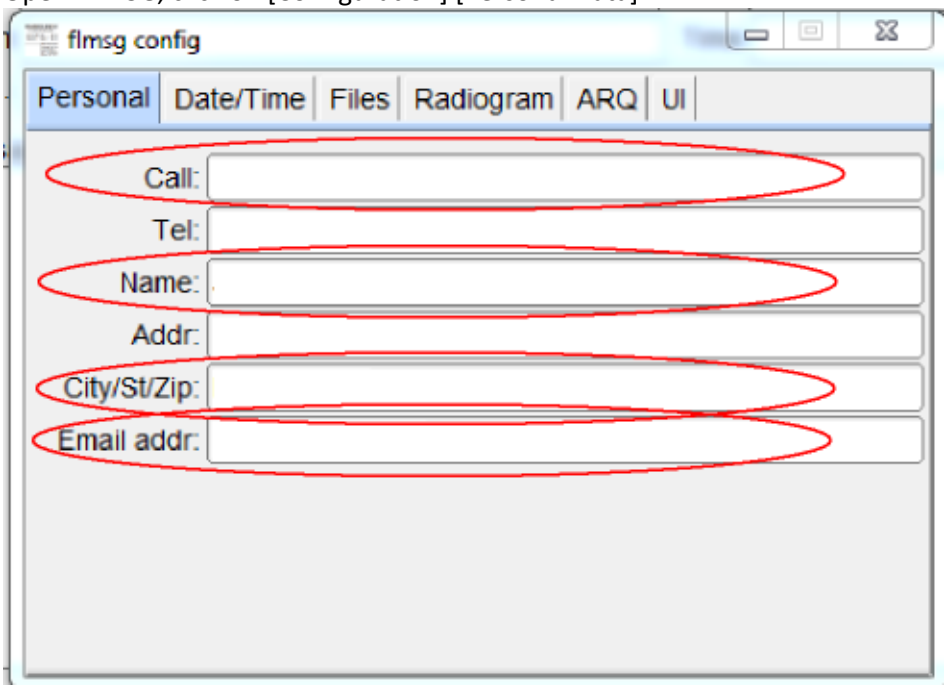
Open FLRIG. Click on [Config] [Setup] [Transceiver]



Remember to use the COM Port number assigned to your TS-480SAT, and adjust settings to match those indicated. When finished Click the [Init] button. The program will reinitialize and if all settings are correct you will not receive any error messages. After re-initialization, please close FLRIG by clicking on the red [X]

FLMSG Installation

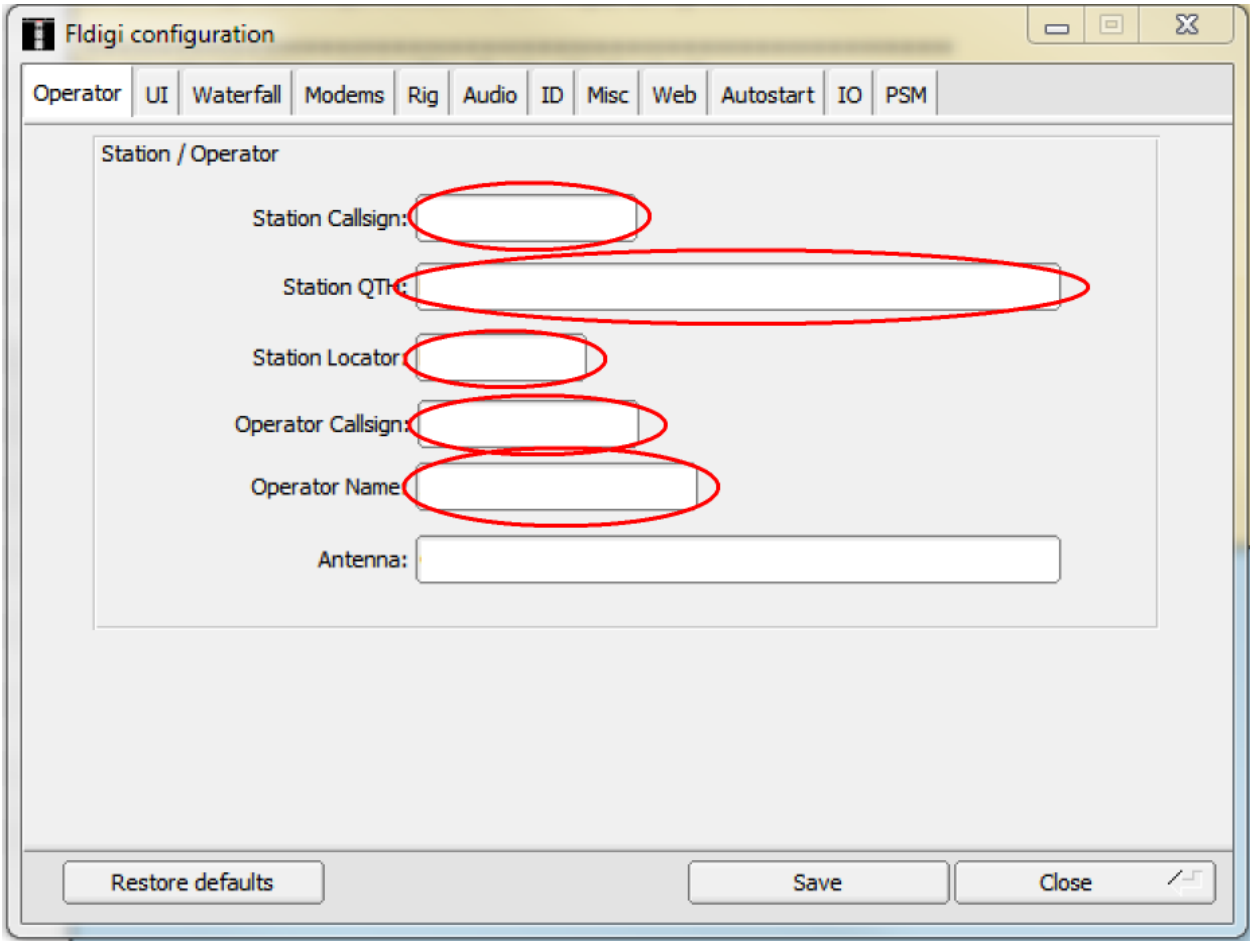
Open FLMSG, click on [Configuration] [Personal Data]



Fill your information into the indicated areas (Call Sign, First Name (only), and email address are the recommended fields). When finished click the red [X] to close the Config window, then close FLRIG by clicking the red [X].

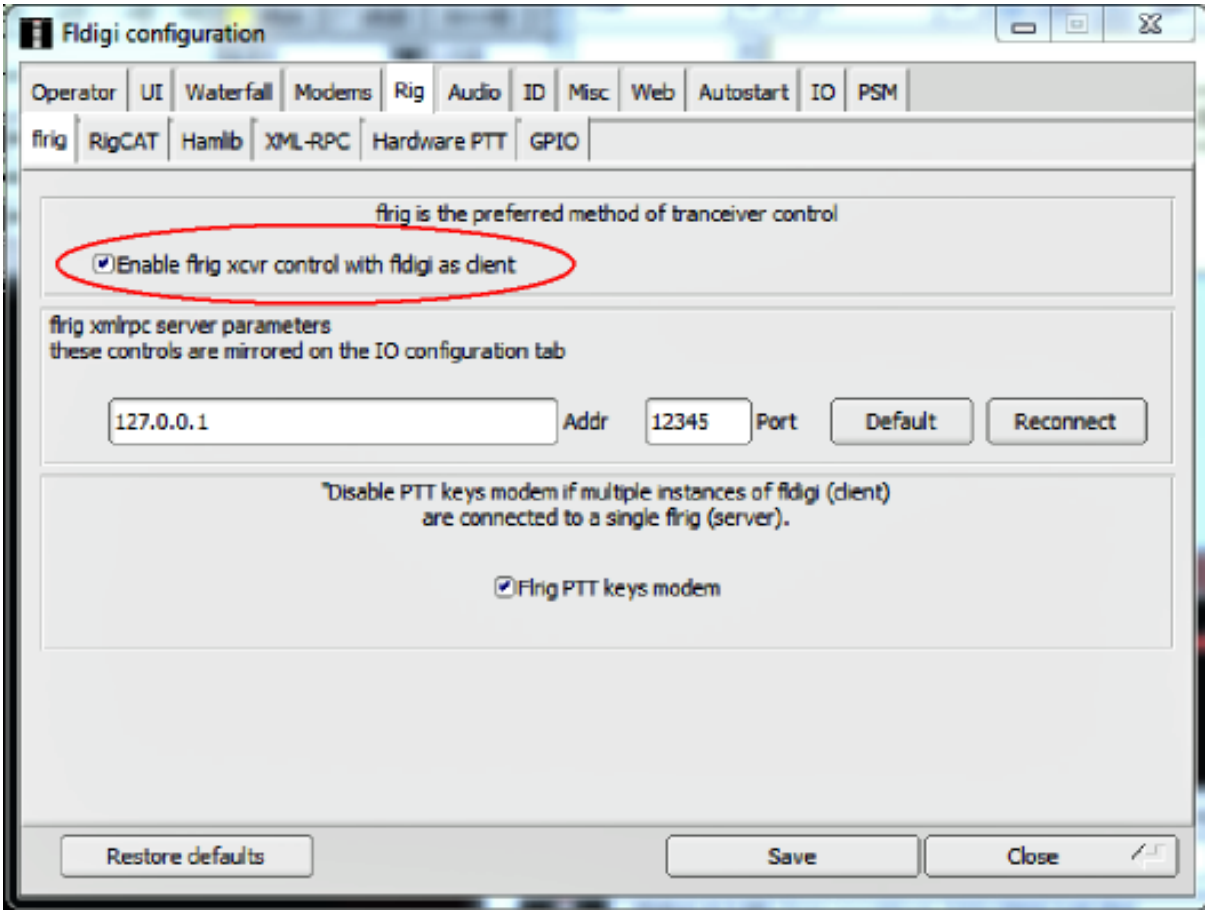
FLDIGI Installation

Double click on the FLDIGI setup file. Once the program opens, click on [Configure] [UI] [Operator]



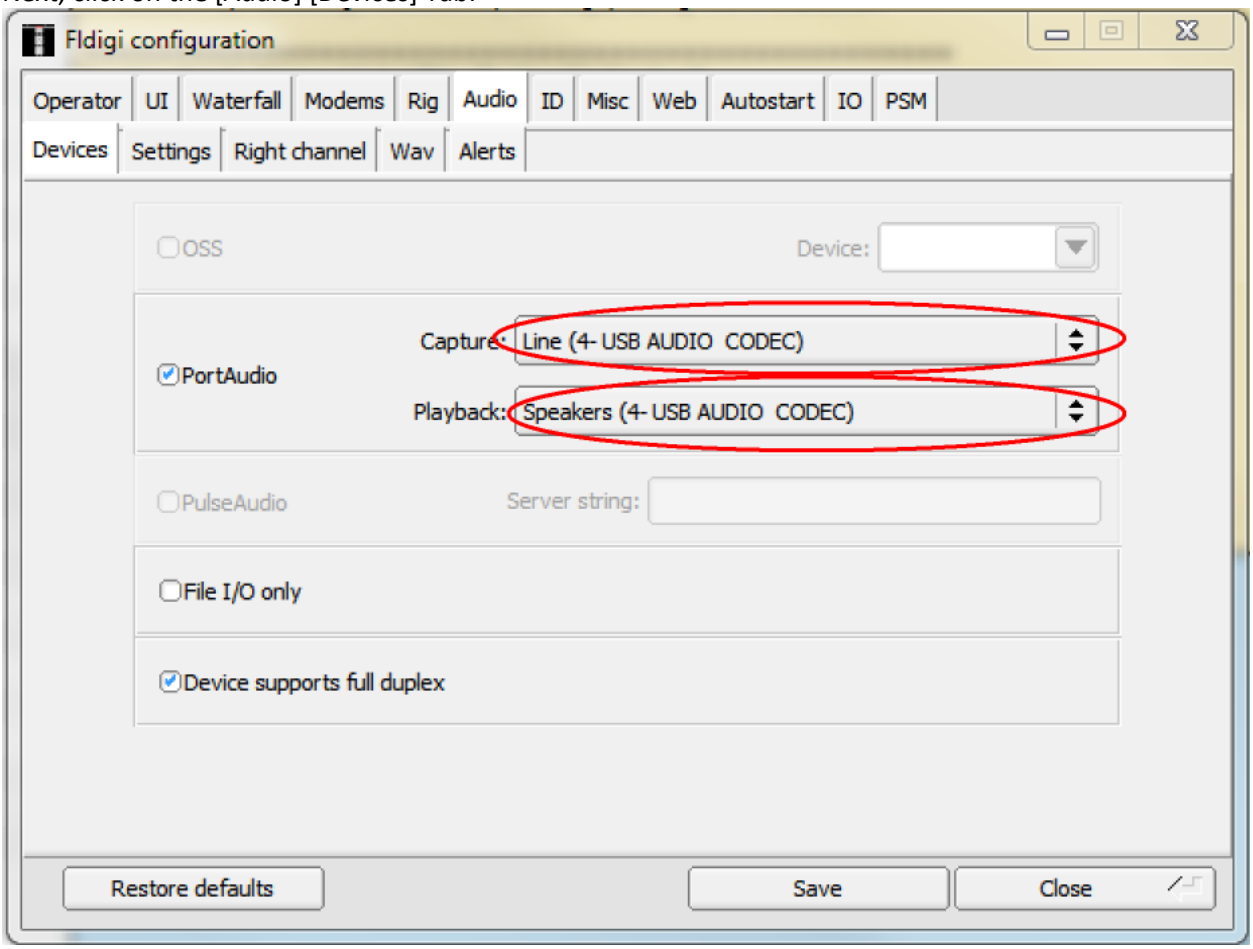
Fill in the indicated areas, Station QTH is the name of your city and State, Station Locator is your maidenhead grid location. Once completed, click [Save].

Next, click on the [Rig] tab

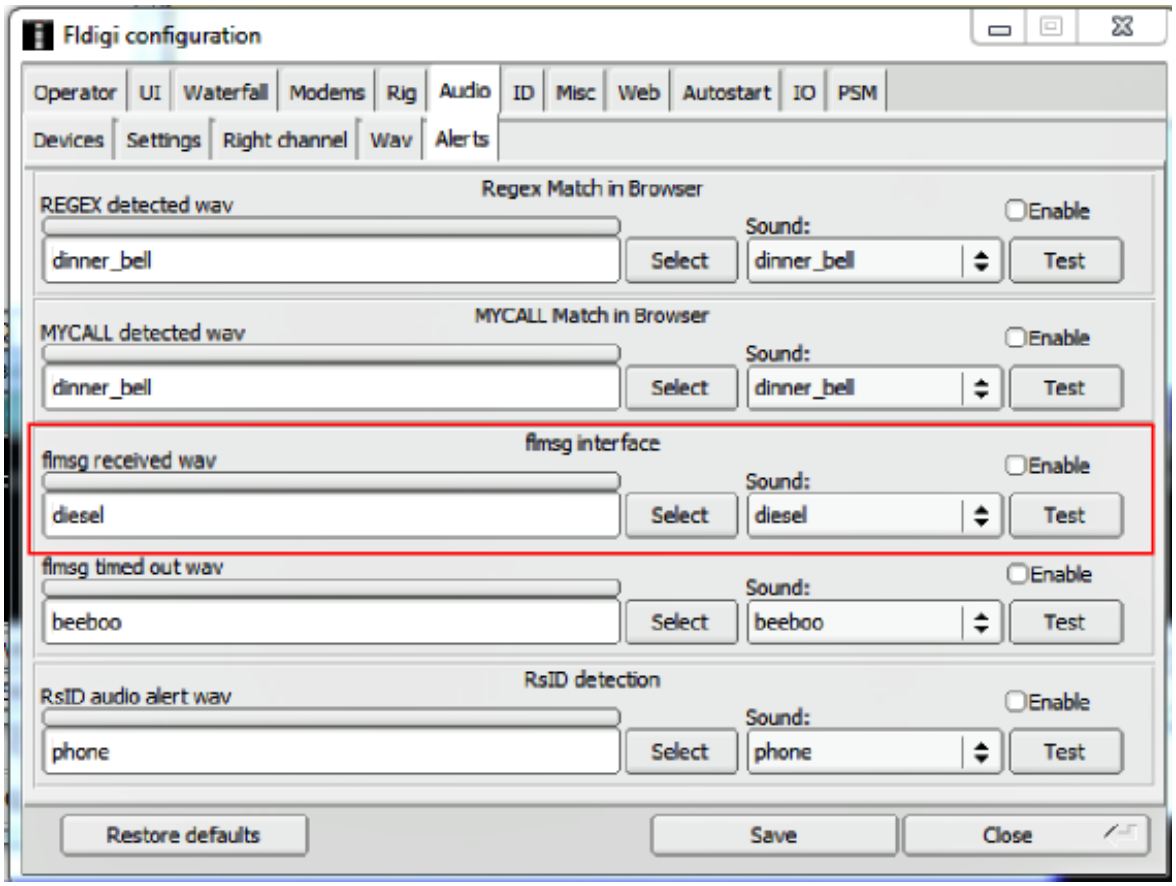


If you plan on using Rig Control, please ensure the indicated box is checked. If you ARE NOT going to use Rig control, leave the box unchecked.

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

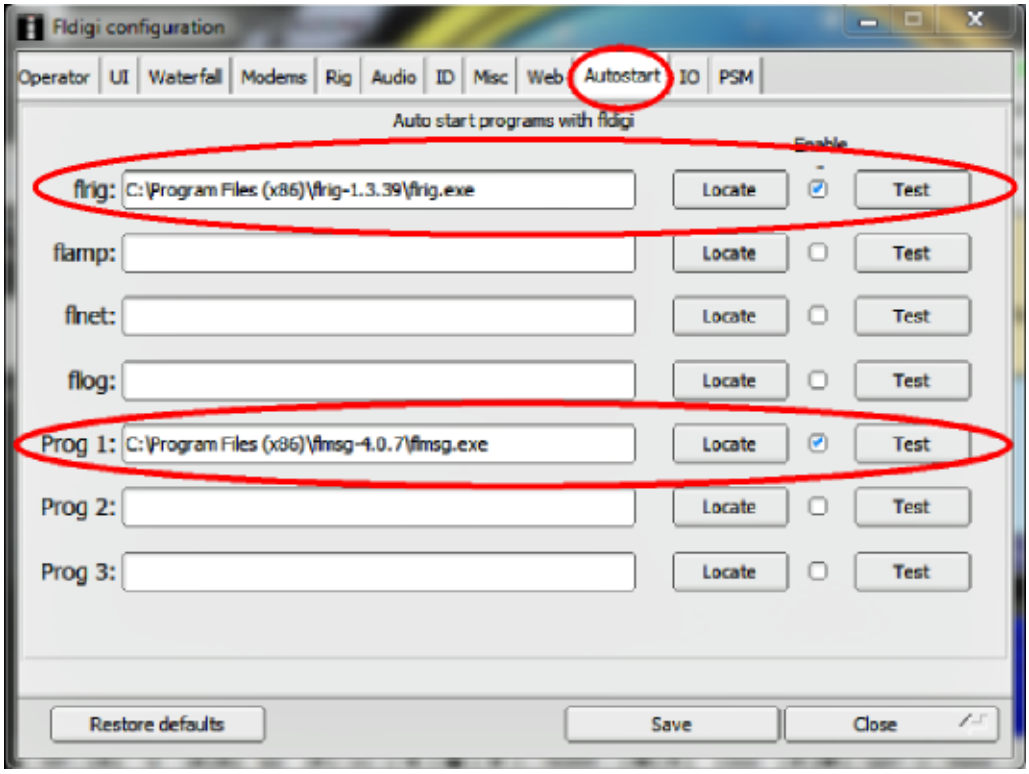


Select the appropriate entry associated with the USB Audio CODEC listed on your computer. (The number will probably be different on your computer.) Once completed, click [Save]. While on the Audio tab, click on the sub-tab [Alerts].



You can have an alert sounded when FLMSG receives a form. To do so, ensure the checkbox [Enable] is marked. You can also select the sound to be played when a message arrives by using the pull-down list under [sound].

Next, click the [Autostart] tab.

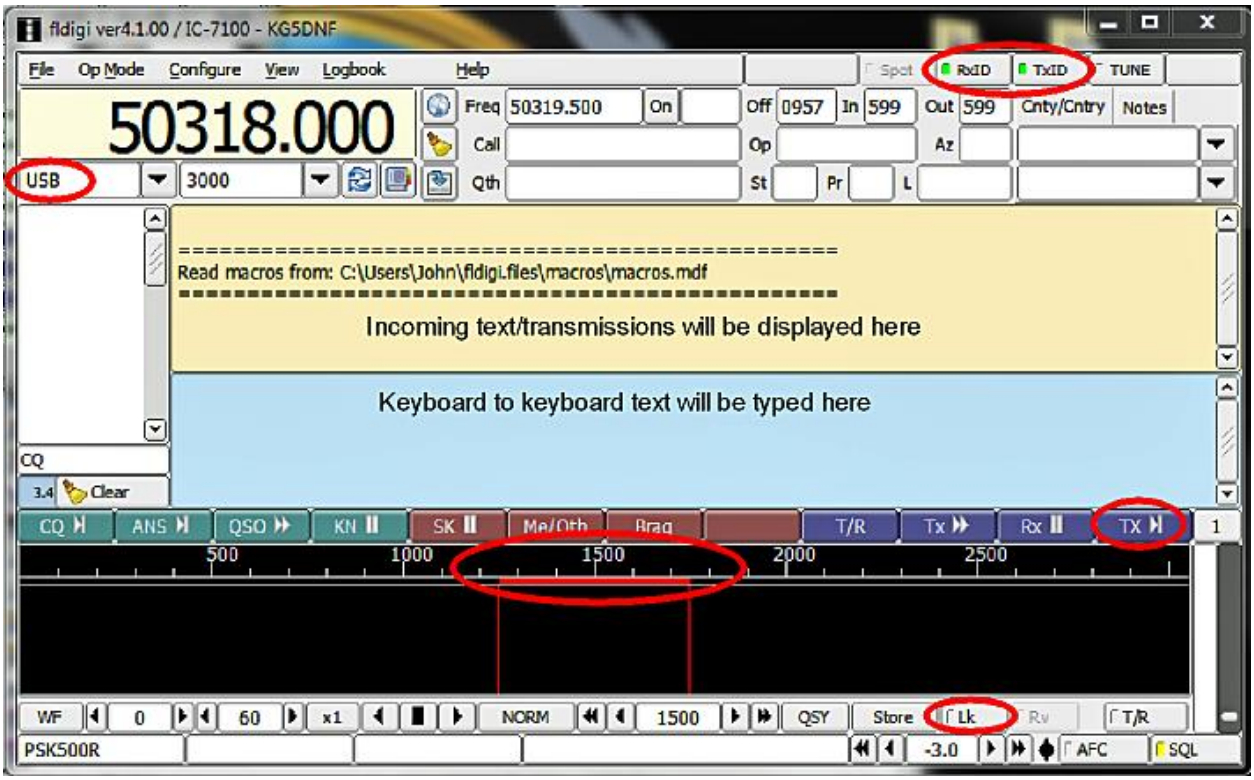


You can have FLRIG and FLMSG automatically start every time you open FLDIGI. To do so, click on the [Locate] button associated with [flrig] then browse your way th C:\Program Files (x86)\flrig xx.xx (current version number)\flrig.exe then click [OK]. Check the enable box to allow the program to automatically start.

Repeat under [Prog 1] to locate the correct file for FLMSG and repeat the steps.

Once all these actions have been completed, click [Save] then click [Close].

FLDIGI is now fully configured to work with (or without) computerized RIG control.



Please ensure that both RxID and TxID are checked to allow for automatic mode switching.
If using HF or 6 meters, ONLY Upper Side Band is used (6 meter FM can also be used).

NOTE: you will see a red rectangle on your waterfall. This is the center frequency for the passband. It is easy to change by clicking with your mouse (or tapping with your finger), but changing this location will make the difference between being able to decode incoming transmissions/messages and not (conversely, transmitting with the center of the passband changed will make it difficult for other stations to decode your transmission.) The small Lock [Lk] button will lock your center frequency in place.

Once you have either typed a message or pasted text into the blue window for transmitting, then press the indicated transmit [Tx] button.

Receiving is simple – watch the yellow part of the screen.