

# Quick Setup Guide for VARA FM for Winlink on with Signalink on Windows

By Oliver K6OLI

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Thank you, **Scott KI6SC**, **Martin HB9AUR**, **Keith KD6PYD**, **Brian KM6IGY**, **Jeff W2JCL**, **Jim KM6TGJ** and **Scott NS7C** for testing, for your suggestions, insights and encouragement.


## Get the Software

### Download

- VARA FM: download VARA FM directly from here <https://rosmodem.wordpress.com/>, or follow the link for VARA FM in Winlink Express, then extract the install files in a location you can find easily (e.g. Desktop). Now double-click the install file and install it in C:\VARA FM\
- VARA FM is a separate program from VARA Modem. If you want to only use VARA FM, only download VARA FM. If you want to use VARA on HF you should also download and install VARA Modem.
- NOTE: Some antivirus programs may identify VARAFM.exe as a Trojan or virus. It is a false positive. Create an exception in your antivirus program for the folder VARAFM.exe is located in.

### Soundcard Considerations

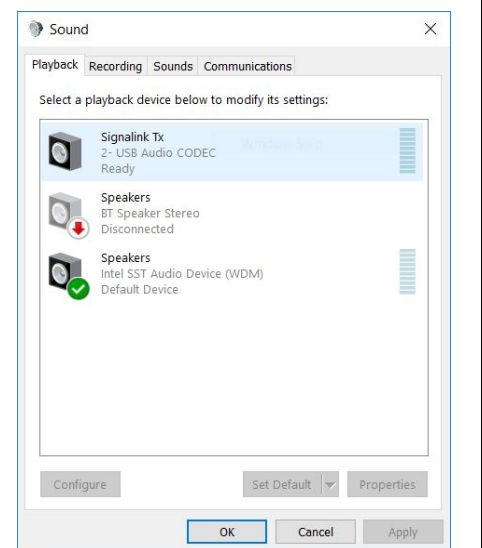
After you have hooked up your Signalink please make sure it is not selected as the default audio device by right mouse clicking

on the speaker icon  and selecting **Sounds**.


Then select **Playback**. Right-click your computer's internal soundcard and **Set as Default Device** and then right-click again and **Set as Default Communication Device**. There should be a green check mark on the internal soundcard device now.

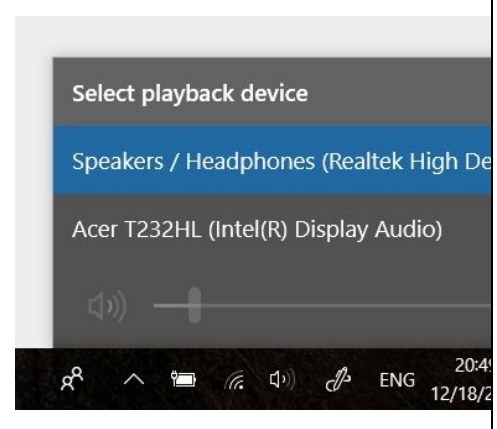
Do the same for **Recording**.

Then click **OK**.



Also make sure that Signalink is not your active Playback Device. You can select your active playback device by left

clicking on the speaker icon  and selecting any playback device other than USB Audio CODEC. Selecting Speakers/Headphones in the example here is a good idea.



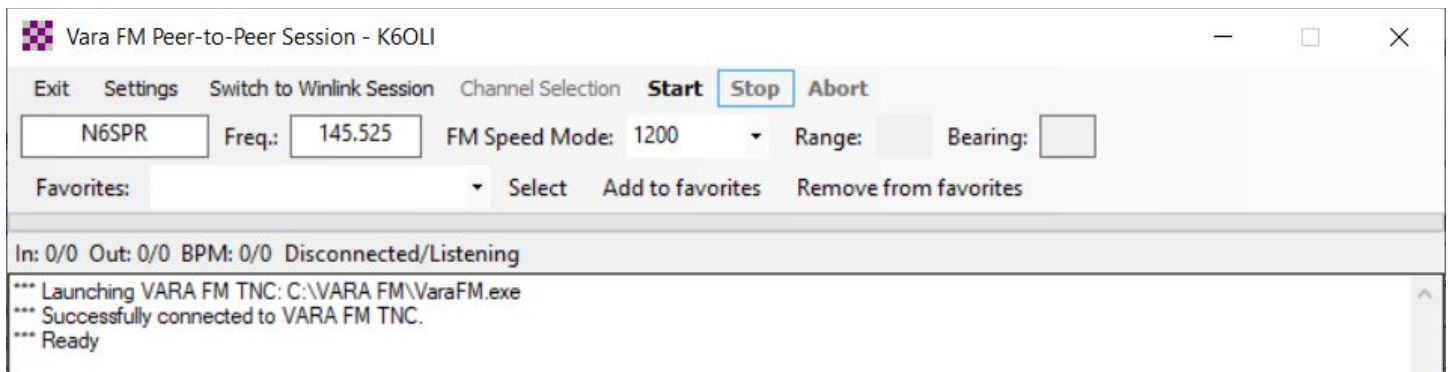
## Setting up Winlink for VARA FM

Open Winlink Express

In the Open Session window select **VARA FM P2P<sup>1</sup>**

Click on **Open Session**

You will see this screen:

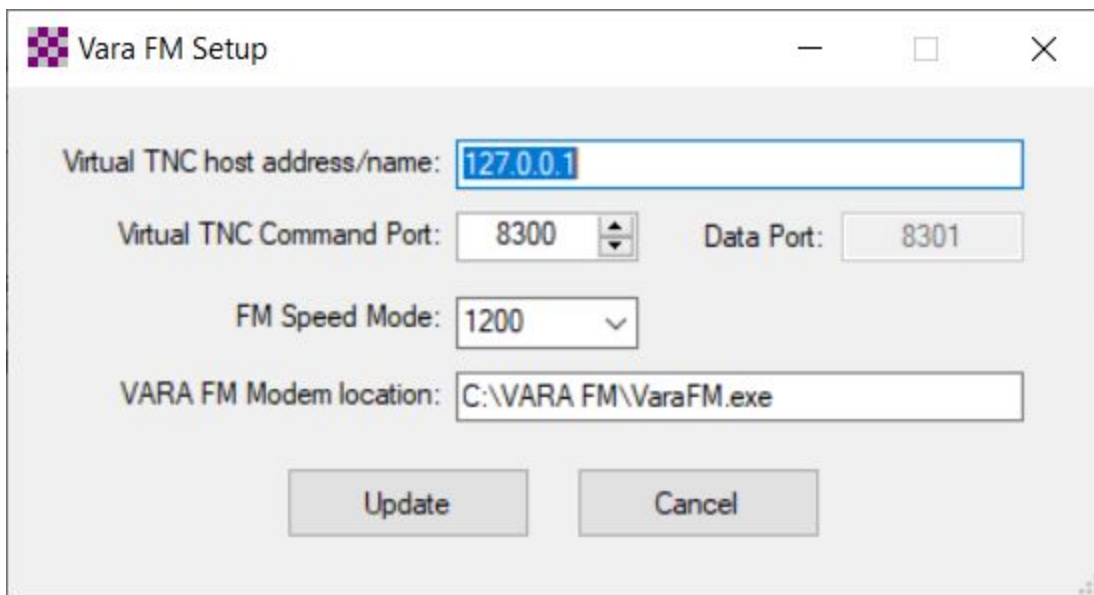


## VARA FM Winlink TNC Setup

Click on **Settings**

Select **VARA TNC Setup**

<sup>1</sup> VARA FM settings carry over from the VARA P2P to the Winlink VARA Session and vice versa



Virtual TNC host address/name: **127.0.0.1**

Virtual TNC Command Port: **8300**

Select an FM Speed Mode: **1200** for VHF.

VARA Modem location **C:\VARA FM\VaraFM.exe** (or the path you chose during VARA FM install, if different from default).

Click **Update**.

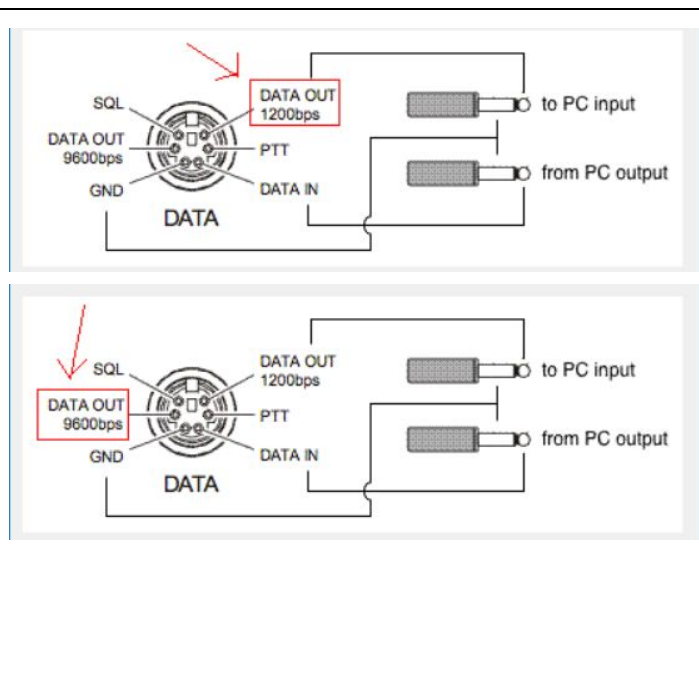
**Note:**

Pin 1200 is limited to 3kHz audio bandwidth.  
**Only VARA FM 1200** can be used with pin 1200.

Pin 9600 is limited to 6kHz audio bandwidth. So either VARA FM 1200 or 9600 can be used.

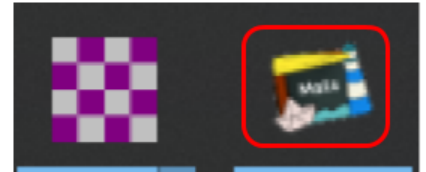
You need a 9600 capable transceiver in order to use VARA FM 9600 or a transceiver with a built-in soundcard, like the IC-7100, for example.

The transformers in current Signalinks max out at 4000Hz, whereas VARA FM 9600 can reach 5800Hz bandwidth.

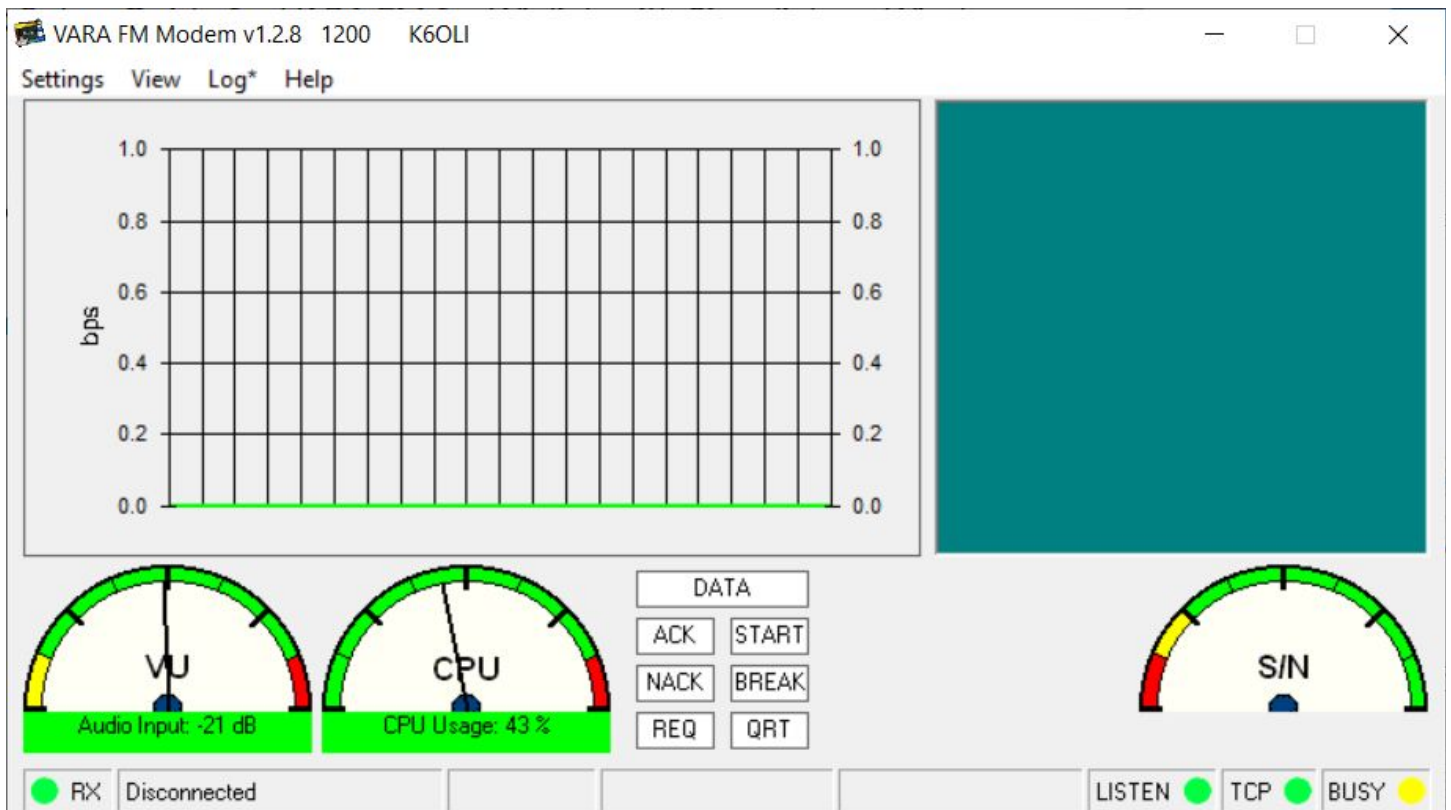


# VARA FM Modem Setup

Click on the VARA FM Modem icon next to the Winlink Express icon at the bottom of your screen.



You will see this screen:



## VARA FM Setup

Click on **Settings**  
Select **VARA Setup**

Make sure the following is set

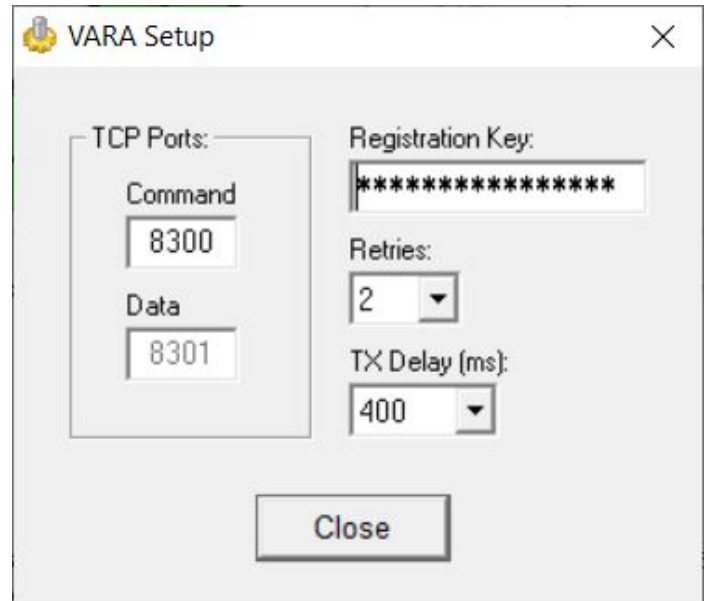
TCP Ports: Command **8300**

Registration Key: (here is where you enter your registration key if you have one)

Retries: **2**

TX Delay (ms): **400**<sup>2</sup>

Click **Close**



## VARA FM SoundCard Setup

Click on **Settings**  
Select **SoundCard**

Make sure the following is set

Device Input: **USB Audio CODEC**

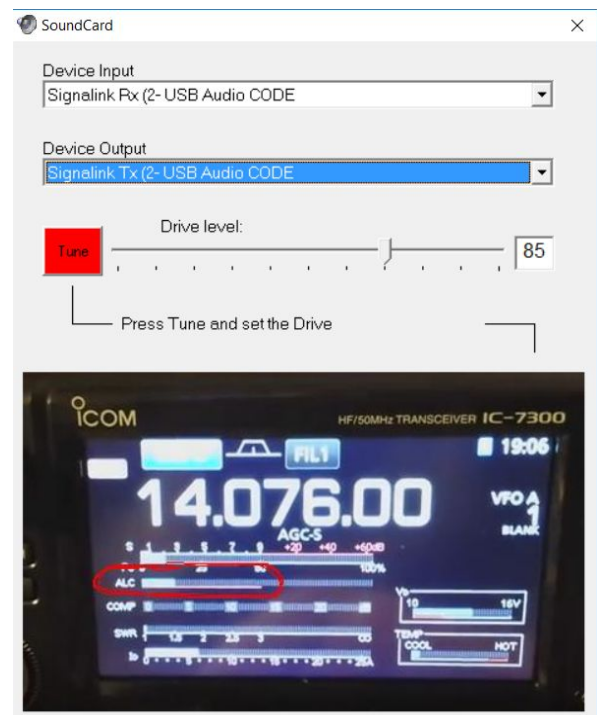
Device Output: **USB Audio CODEC**

Drive Level: **85**

Click **Close**

Note: This selects your Signalink as the Output and Input device for VARA FM and Winlink Express.

The Signalink may sometimes show up as 2-USB Audio CODEC or similar.



<sup>2</sup> TX Delay of 400ms is a good starting point for P2P and will support almost any manual setup. You can try 200ms and 100ms for faster performance, if your rigs support it. In most instances, 400ms will ensure everyone can connect.

**Note:** Try to match TX Delay on all the rigs for best performance.

## SignalLink

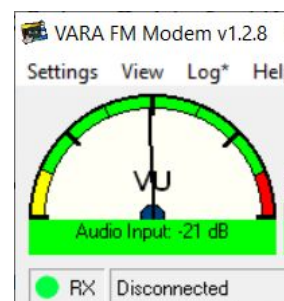
Set the TX and RX dials on your Signalink to the 9 o'clock position. You can adjust that later if needed. Set DLY(delay) to the lowest setting, i.e. no Signalink delay.

### VU Meter:

Open the squelch on your transceiver.

Adjust the Signalink RX dial on your Signalink so that the VU meter needle is in the center or slightly left of center.

You want to avoid the red zone.

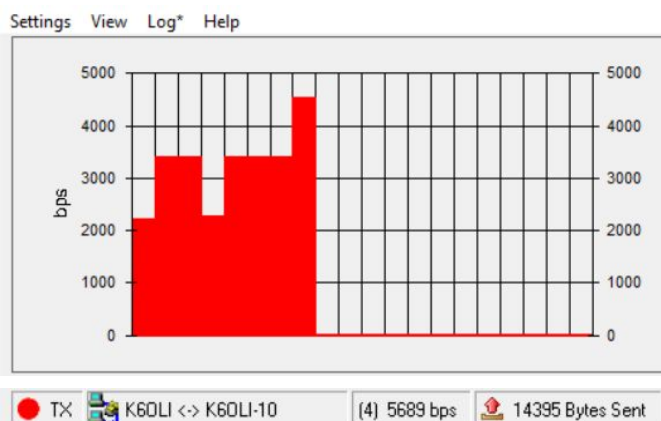


### Field tuning:

While transmitting a large file (30kB+) adjust the Signalink TX dial in small increments to increase your transmission speed.

You can observe the transmission level change in the bar chart and in the level window at the bottom of the VARA FM modem screen.

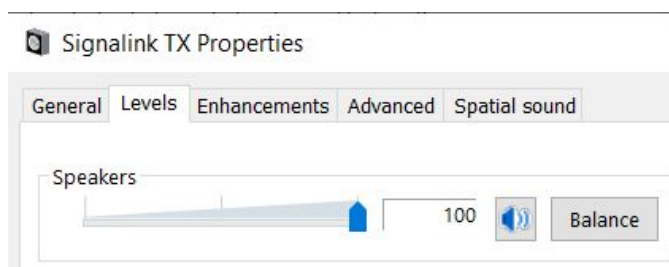
In most cases you will adjust the TX level down to increase transmission speed. Overdriving your signal will degrade performance, conversely lower signals will result in higher speed.



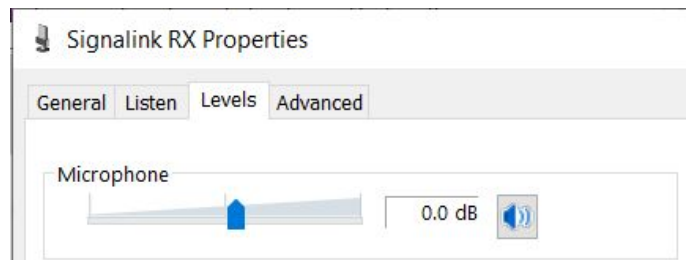
### Signalink Audio Settings in Windows:

With Signalinks your Windows settings for USB Audio CODEC audio levels should be

... 100% for Speakers and ...



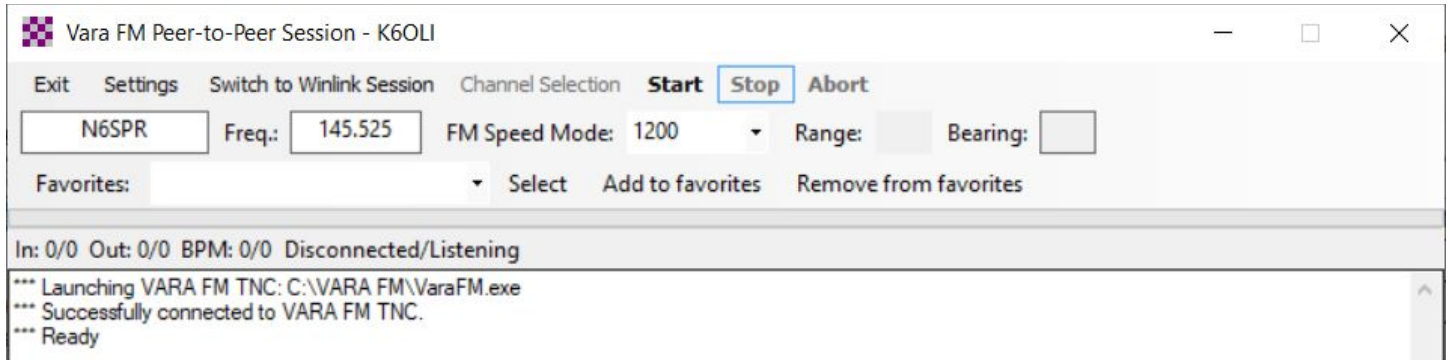
... as near to 0dB for Microphone as possible.



Done! You are now set up to use VARA FM. It is a good idea to exit your VARA FM P2P session at this point and re-initialize it to ensure the changes are saved.

## Winlink VARA FM P2P Connection

Make sure both stations are in a VARA FM P2P session



Enter the call sign of the station you are trying to connect with.

Enter a frequency in the **Freq.:** field.

Note: For Signalinks the frequency itself is of no consequence, but it is best operating practice to enter the frequency you are working. It will matter once you use a rig with CAT.

Ensure that your transceiver is set to the correct frequency.

Click **Start**

VARA FM will connect and any Peer-to-peer traffic in your outbox addressed to the receiving station will be passed.



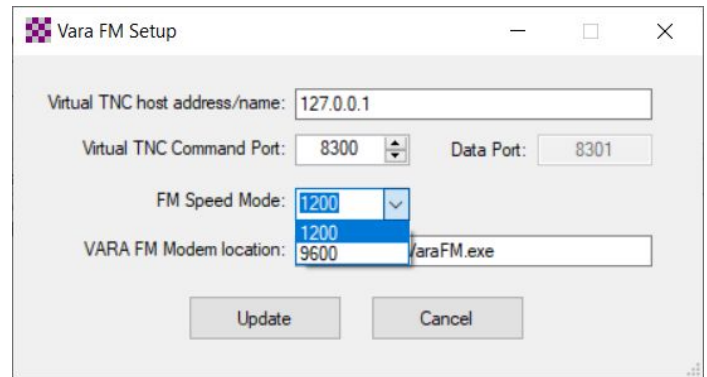
## Change to 1200 or 9600 mode

Click **Settings**

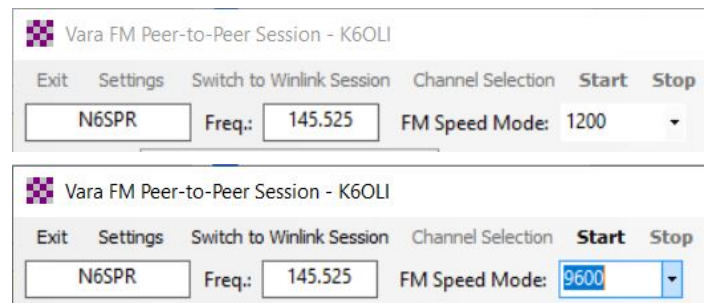
Click **VARA TNC Setup**

Select **1200** or **9600**

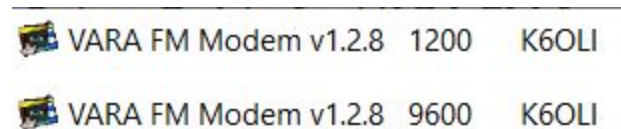
Click **Update**



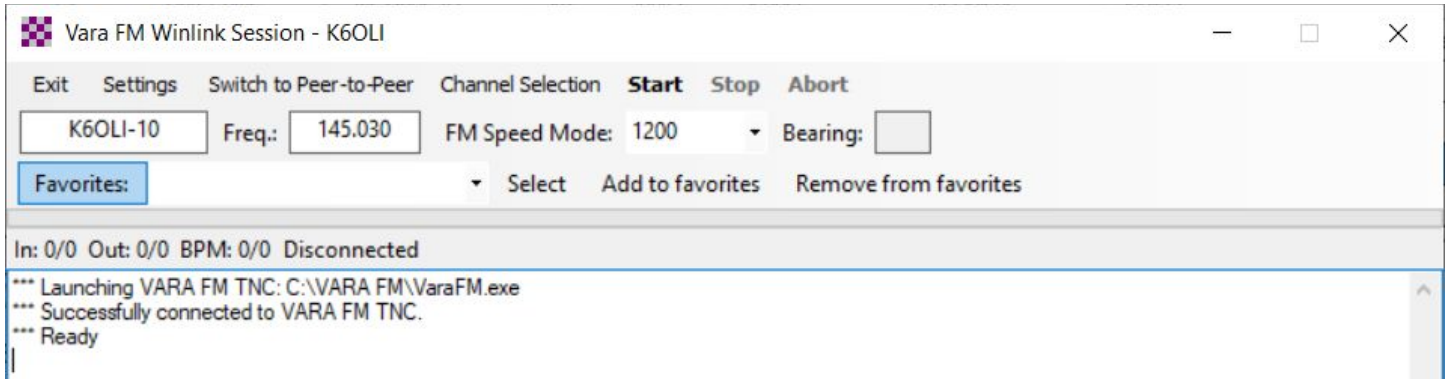
The current mode will be indicated in your Winlink VARA FM Session...



... and in your VARA FM Modem screen



## VARA FM Winlink Session



Enter the call sign of the Gateway you are trying to connect with.

Enter a frequency in the **Freq.:** field.

Note: For Signalinks the frequency itself is of no consequence, but it is best operating practice to enter the frequency you are working. It will matter once you use a transceiver with CAT.

**Ensure** that your transceiver is set to the correct frequency.

Click **Start**

VARA FM will connect and any traffic in your outbox addressed to the receiving station will be passed.

### Using the VARA FM Channel Selector

In the session Window

Click on **Channel Selection**

Highlight a channel

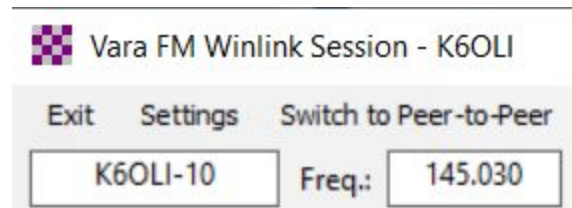
Click **Select Channel** or **Double-click** the channel

Winlink will populate the channel information in the Winlink Session window for you.

**Remember** to set your transceiver to the frequency shown in the **Freq.:** field!

Note: Update your channel table regularly, at least once a month. If you have access to the internet

Callsign	Frequency (MHz)	Baud	Grid Square	Group	Distance (km)	Bearing (Degrees)
K6OLI-10	145.030	1200	DM04WD	EMCOMM	000	000
NH6WR-12	145.050	1200	DM13LM	PUBLIC	123	125



Click **Update Table Via Internet**

## Winlink Express

### Quick Tip: Winlink Express Setup

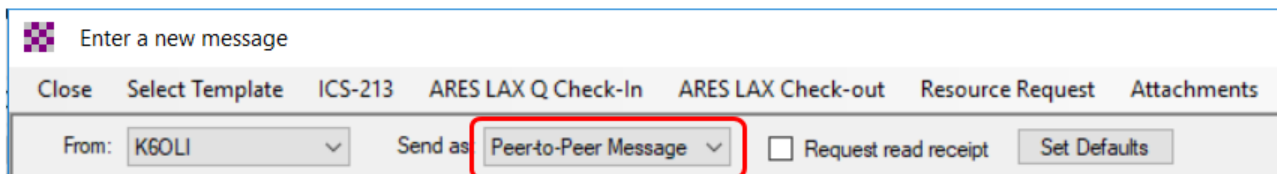
If you have not setup Winlink Express, go to **Settings -> Winlink Express Setup** and fill in the appropriate fields.

You only have to do this once (unless your personal information or location changes, e.g. Call Sign, Registration Number, Locator, etc., then update in Winlink Express Setup).

Entering your locator here will help you later finding Winlink Gateways near you. You can look up your Maidenhead Locator at [http://www.levinecentral.com/ham/grid\\_square.php](http://www.levinecentral.com/ham/grid_square.php)

## Peer-to-peer message

If you want to send a message as a Peer-to-Peer Message (P2P) you need to ensure that you select Peer-to-Peer Message in the Send as drop-down menu. Then click Post to Outbox.

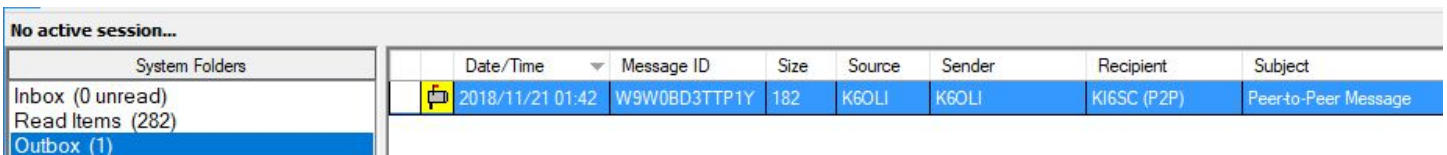


Enter a new message

Close Select Template ICS-213 ARES LAX Q Check-In ARES LAX Check-out Resource Request Attachments

From: K6OLI Send as Peer-to-Peer Message Request read receipt Set Defaults

Double-check that the message is P2P by clicking on the **Outbox** and verifying under **Recipient** recipient's call sign is followed by **(P2P)**. In this example **KI6SC (P2P)** indicates the message is P2P.



No active session...	
System Folders	
Inbox (0 unread)	
Read Items (282)	
Outbox (1)	

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2018/11/21 01:42	W9W0BD3TTP1Y	182	K6OLI	K6OLI	KI6SC (P2P)	Peer-to-Peer Message

- P2P Messages can only be sent to the call sign in the **To:** field and only when in a P2P session with that station.
- Both stations need to be in the same type of session at the same time for P2P traffic to be exchanged.
- You can push a message to the other station or they can pull the message from your Winlink by initiating the session on their end. Only the initiating station needs to enter the target station's call sign and then press start in a P2P session.

- You can enter multiple addresses in the To: field and Winlink will create separate, but identical messages for each recipient. Each recipient has to either pull the message from your system or you have to push each message to each respective recipient in separate sessions, i.e. enter each recipient's call sign in the Session window and pressing start. Having stations pull messages is more efficient for a central station.

## Winlink Message (via Gateway, Telnet CMS, etc.)

If you want to send a message as a Winlink Message via a gateway or the internet you need to ensure that you select **Winlink Message** in the Send as drop-down menu. Then click **Post to Outbox**.

Enter a new message

Close Select Template ICS-213 ARES LAX Q Check-In ARES LAX Check-out Resource Request Attachments

From: K6OLI Send as: **Winlink Message**  Request read receipt Set Defaults

Double-check that the message is a Winlink Message by clicking on the Outbox. Winlink Messages are preceded by **//WL2K** in the **Subject** have no (P2P) after the call sign under Recipient.

No active session...

System Folders	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
Inbox (0 unread)	2018/11/2...	CUG4N9V...	196	K6OLI	K6OLI	HB9AUR	//WL2K Winlink Message Example
Read Items (282)	2018/11/21 01:42	W9W0BD3TTP1Y	182	K6OLI	K6OLI	KI6SC (P2P)	Peer-to-Peer Message
Outbox (2)							

- In the example above, we could first initiate a regular Winlink Session with a Gateway (or through the Internet via Telnet) and the message to HB9AUR would be sent. The message to KI6SC (P2P) would stay in the Outbox.
- We could also first initiate P2P Session with KI6SC and the message to KI6SC (P2P) would be sent. The message to HB9AUR would stay in the Outbox in this example.
- You can change whether a message is sent via Winlink Gateway or P2P after the fact by double-clicking on the message in the **Outbox**, changing the mode (**Winlink Message, Radio Only, Peer-to-Peer**) in the **Send as** dropdown menu and then clicking **Post to Outbox**.