

Montgomery Amateur Radio Club
Rockville, Maryland

Getting Started with Winlink on VHF

David, W2LNX

August 17, 2022

introduction

- over two years ago, I saw a need for Winlink radio settings training
 - started a project to collect radio Winlink settings
 - collected over [30 HF and VHF radio Winlink settings](#) so far
- this presentation: Getting Started with Winlink on **VHF**
- next presentation: Getting Started with Winlink on **HF**

overview

- introduction to the Winlink system
- setting up Winlink
- radios with standard 6-pin mini-DIN audio port
 - example: setting up a Kenwood TM-V71A VHF/UHF FM radio
- setting up Signalink USB audio interface
 - setting up Windows USB audio device
- configuring EA5HVK VARA FM software modem
- configuring UZ7HO packet software TNC

- demonstration
 - sending Winlink messages via email gateway

Winlink system

- provides global email on VHF and HF remote gateways over ham radio
 - Live System Information with maps and station lists
<https://www.winlink.org/RMSChannels>
- supports direct station-to-station peer-to-peer message exchange
- used for emergency communications by ham radio volunteers

setting up Winlink

- download Winlink Express client

<https://www.winlink.org/>

- set up Winlink user account with your callsign

<https://winlink.org/user>

- voluntary Winlink registration – turns off reminder

<https://arsfi.org/express.aspx>

Winlink Express 1.6.5.0 - W2LNX

W2LNX Settings Message Attachments Move To: Saved Items Delete Open Session: Vara FM Winlink Logs Help

No active session...

System Folders	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
Inbox (0 unread)	2022/06/2...	Q2FGFL8...	10...	W2L...	W2LNX	W2LNX (P...	FW: testing peer-to-peer
Read Items (0)	2022/06/2...	OB1IN8Q...	99...	W2L...	W2LNX	W2LNX (P...	testing peer-to-peer
Outbox (0)	2022/06/2...	34UNCID...	45...	WB2U	WB2U	ETO-03	WX Report 403 Russell Ave, Gaithersburg, 2022-06-23 09:52:41
Sent Items (76)	2022/06/2...	5REPN1E...	34...	WB2U	WB2U	WP4QZH	Winlink Check In [Exercise]-WB2U-HOME
Saved Items (28)	2022/06/2...	Z7CTXMX...	335	WB2U	WB2U	KN4LQN	WINLINK WEDNESDAY CHECK-IN
Deleted Items (5)	2022/06/2...	C1G9FG3...	14...	WB2U	WB2U	AD3F...	Winlink Wednesday Reminder
Personal Folders	2022/01/1...	BB177F65...	710	K1E...	K1EHZ	W2LNX	Re: cannot connect to K1EHZ on 40 m
	2022/01/1...	O2GVM0Y...	12...	WB2U	WB2U	W2LNX	Re: greetings via KP3CR
	2022/01/1...	ISHHVOF...	355	WB2U	WB2U	W2LNX	ACK: greetings via KP3CR
	2021/09/1...	M8I2575I3...	461	SYS...	SERVICE	W2LNX	Undelivered Message
Global Folders	2021/09/1...	7HD52BS...	557	KB3...	KB3CS	WB2U...	Re:Am I missing an important email subscription (or two).
	2021/09/1...	VFLHEQI...	659	KB3...	KB3CS	WB2U...	Re:Am I missing an important email subscription (or two).
	2021/09/1...	CL1KZMQ...	777	KB3...	KB3CS	WB2U...	Re://WL2K testing KX2 and HARDROCK-50 via K1EHZ on 40 m
	2021/09/1...	ASDC6RX...	721	WB2U	WB2U	KB3CS	Re://WL 2K testing KX2 and HARDROCK-50 via K1EHZ on 40 m
Contacts	Message ID: CZXIM2CVIB3M						
AC3N@ARRL.NET	Date: 2020/08/23 00:46						
K1EHZ	From: W2LNX						
KB3CS	To: W2LNX						
KB3CS@ARRL.NET	Source: W2LNX						
KN3U@ARRL.NET	Downloaded-from: Peer-to-peer:W2LNX						
MDCASEC	P2P: True						
VA2XMP	Subject: FW: testing over cable						
W2LNX	----- Message from W2LNX was forwarded by W2LNX at 2020-08-23 00:46 UTC -----						
W2LNX@ARRL.NET	Message ID: C7L2MWE5F5T9						
W3TDH@ARRL.NET	Date: 2020/08/23 00:41						
WB2U	From: W2LNX						
	To: W2LNX						
	Source: W2LNX						
	P2P: True						

Winlink Express

Winlink Express Properties ✕

Call Signs

My Callsign: My Password: (Case sensitive)

Callsign suffix (optional): (Used for country code)

Password recovery e-mail:
 (Non-Winlink e-mail address where lost password will be sent when requested)

Auxiliary Callsigns and Tactical Addresses

6 character Grid square

My Grid Square:

Winlink Express registration key:

Service Codes

(Use PUBLIC for ham call signs. Separate multiple service codes by spaces.)
 If you change service codes, you must update the list of channels.

Contact Information (Optional)

Name:

Street address 1:

Street address 2:

City:

State/Province:

Country:

Postal code:

Web Site URL (optional):

Phone number:

Non-Winlink e-mail:

Additional information (optional):

Recalculate HF path quality if SFI changes more than:

Keep logs for weeks. Keep deleted messages for days.

Display list of pending incoming messages prior to download

Warn about connections to stations holding messages

Allow diagnostic information to be sent to the Winlink Development Team

Automatically install field-test (beta) versions of Winlink Express

enter your password and registration key

Preferences

Message Reading Options

Viewing seconds before marking message read:

Automatically move read items to Read Items folder

Message review before downloading

Display list of pending incoming messages prior to download

Message acknowledgement options

Default to requesting message receipts

Automatically send message receipts when requested

Automatically send message receipts for all messages

Ignore message receipt requests on incoming messages

Message sending options

Automatically add contact entry for each destination address

Disallow editing or altering messages you send

Line wrapping

Wrap print lines after this many characters:

Distance Units

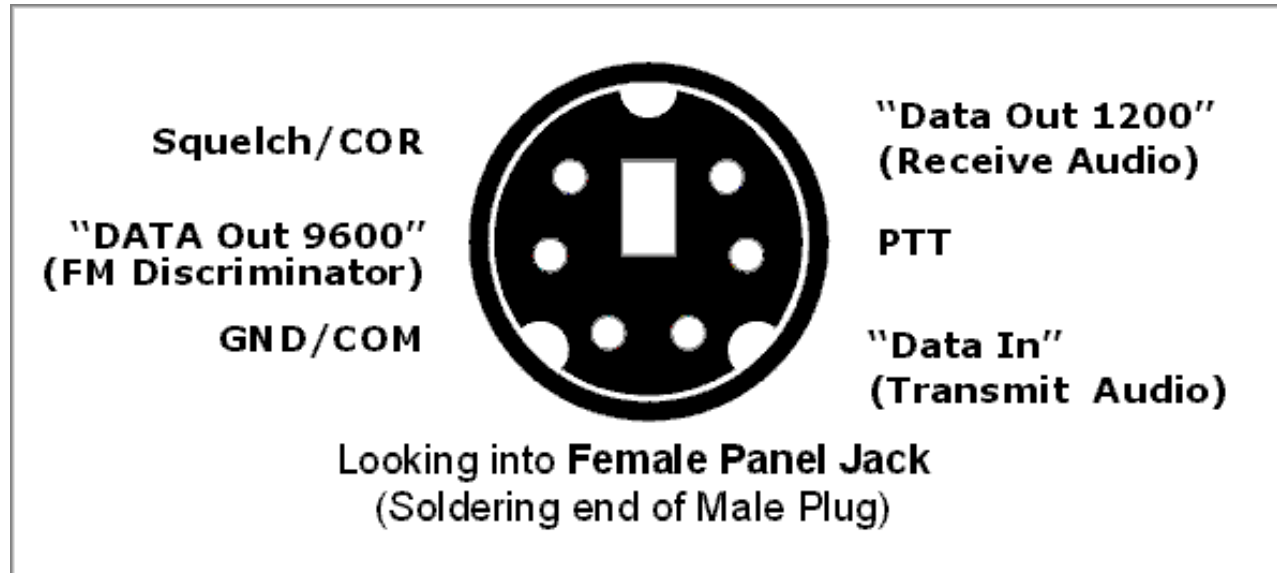
km Miles

Update Cancel

add contacts automatically

6-pin mini-DIN flat audio port

- standard used by Yaesu, Icom and Kenwood



- Alinco uses a DE-9 D-sub 9-pin female connector

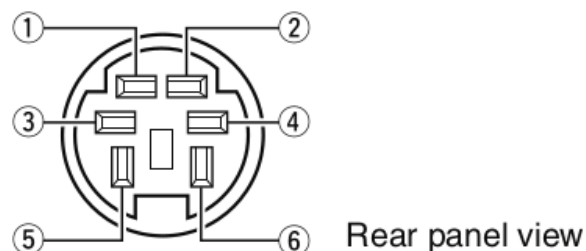
- often labeled “data” or “packet”
- data input/output is **audio**, not digital data
 - pin 5: audio output for “1200”
 - from 1200 bps AFSK AX-25 TNC days
 - pin 4: audio output for “9600”
 - flat, wider audio bandwidth direct from FM discriminator
 - from 9600 bps GMSK and G3RUH modems days
 - pin 1: audio input for 1200 and 9600
- radio menu setting for “1200” or “9600”
- recommendation: always use “9600” setting and pin 4

- radios with 6-pin mini-DIN connectors
 - <https://masterscommunications.com/products/radio-adapter/faq/radios-with-mini-din6.html>
 - search for "SLUSB6PM" on https://www.tigertronics.com/sl_wirebm.htm

Yaesu FT-8800R:

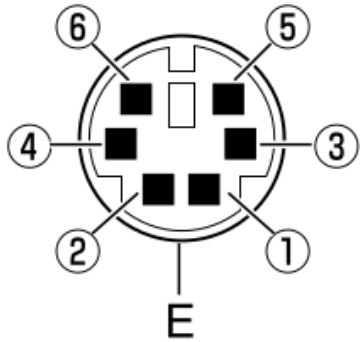
Pin	Label	Note	CT-39A Wire Color
1	PKD (DATA IN)	Packet Data Input <i>Impedance: 10 kΩ,</i> <i>Maximum Input Level: 40 mV p-p for 1200 bps</i> <i>2.0 Vp-p for 9600 bps</i>	Brown
2	GND	Signal Ground	Red
3	PTT	Ground to Transmit	Orange
4	RX9600	9600 bps Packet Data Output <i>Impedance: 10 kΩ, Maximum Output: 500 mV p-p</i>	Yellow
5	RX1200	1200 bps Packet Data Output <i>Impedance: 10 kΩ, Maximum Output: 300 mV p-p</i>	Green
6	SQL	Squelch Control <i>Squelch Open: +5 V, Squelch Close: 0 V</i>	Blue

Icom IC-880H:



- ① DATA IN
Input terminal for data transmit. See previous page for details on how to toggle data speed between 1200 (AFSK) and 9600 bps (G3RUH, GMSK).
- ② GND
Common ground for DATA IN, DATA OUT and AF OUT.
- ③ PTT P
PTT terminal for packet operation only. Connect ground to transmit data.
- ④ DATA OUT
Data out terminal for 9600 bps operation only.
- ⑤ AF OUT
Data out terminal for 1200 bps operation only.
- ⑥ P SQL
Output is high (+5 V) when the transceiver receives a signal which opens the squelch.
 - To avoid unnecessary TNC transmission, connect squelch to the TNC to inhibit transmission when receiving signals.
 - Keep audio output at a normal level, otherwise a “P SQL” signal will not be output.

Kenwood TM-V71A:



No.	Name	I/O	Function
①	PKD	Input	Audio signal for packet transmission
②	DE	—	PKD terminal ground
③	PKS	Input	'L' is transmitted and the microphone is muted
④	PR9	Output	9600 (bps) repeat signal
⑤	PR1	Output	1200 (bps) repeat signal
⑥	SQC	Output	Squelch control signal; Closed: 'L', Open: 'H' (The default settings can be changed in Menu 520)
	E	—	Common ground

setting up TM-V71A for 9600

MENU SETUP: for software modems

517 DAT.BND: B

518 DAT.SPD: 9600

519 PC.SPD: 9600

setting up a Signalink

Signalink USB USB sound interface with built-in **VOX PTT**

TX: maximum

RX: half

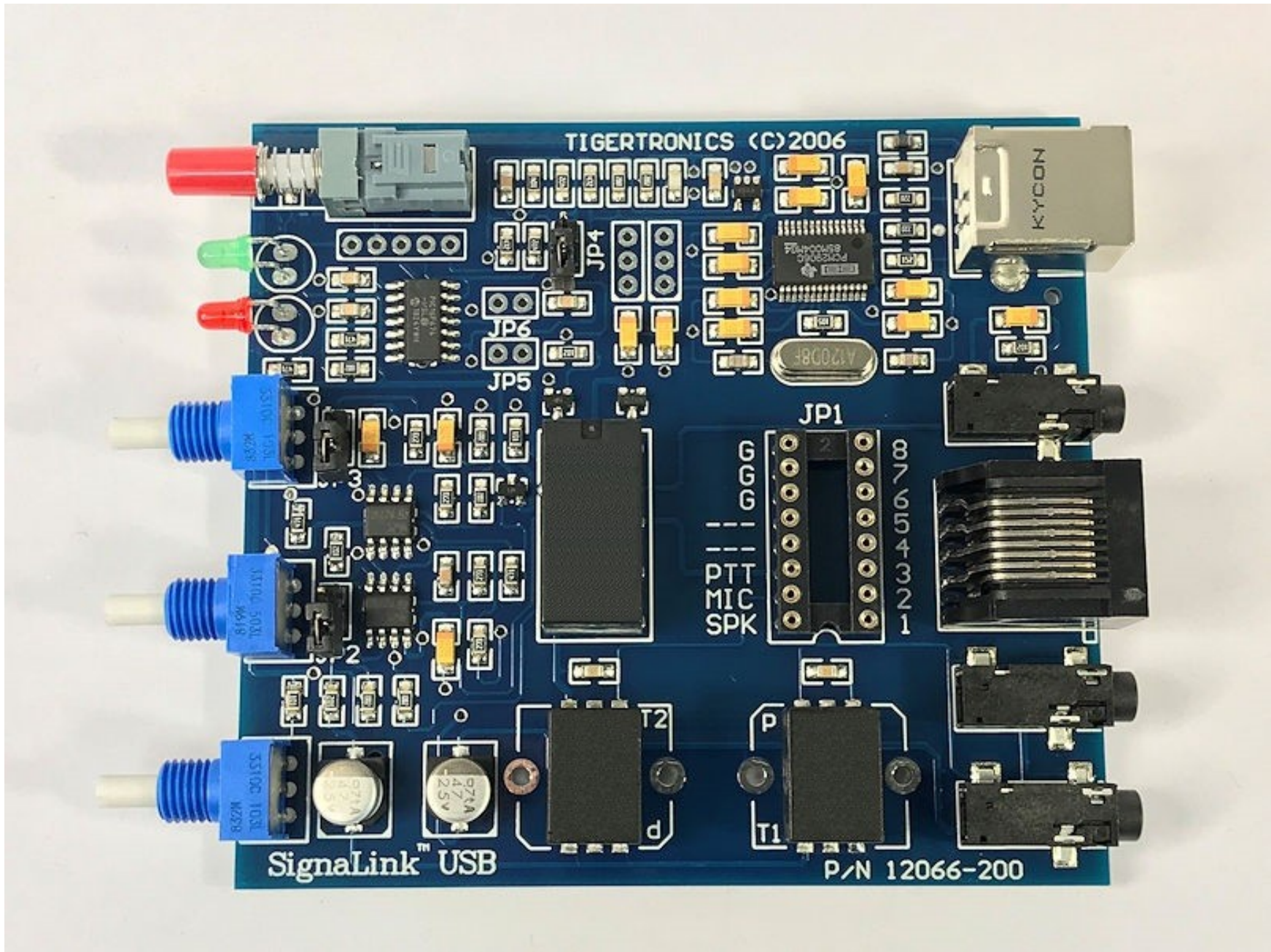
DLY: minimum

cable: SLCAB6PM for 6-pin mini-DIN flat audio port

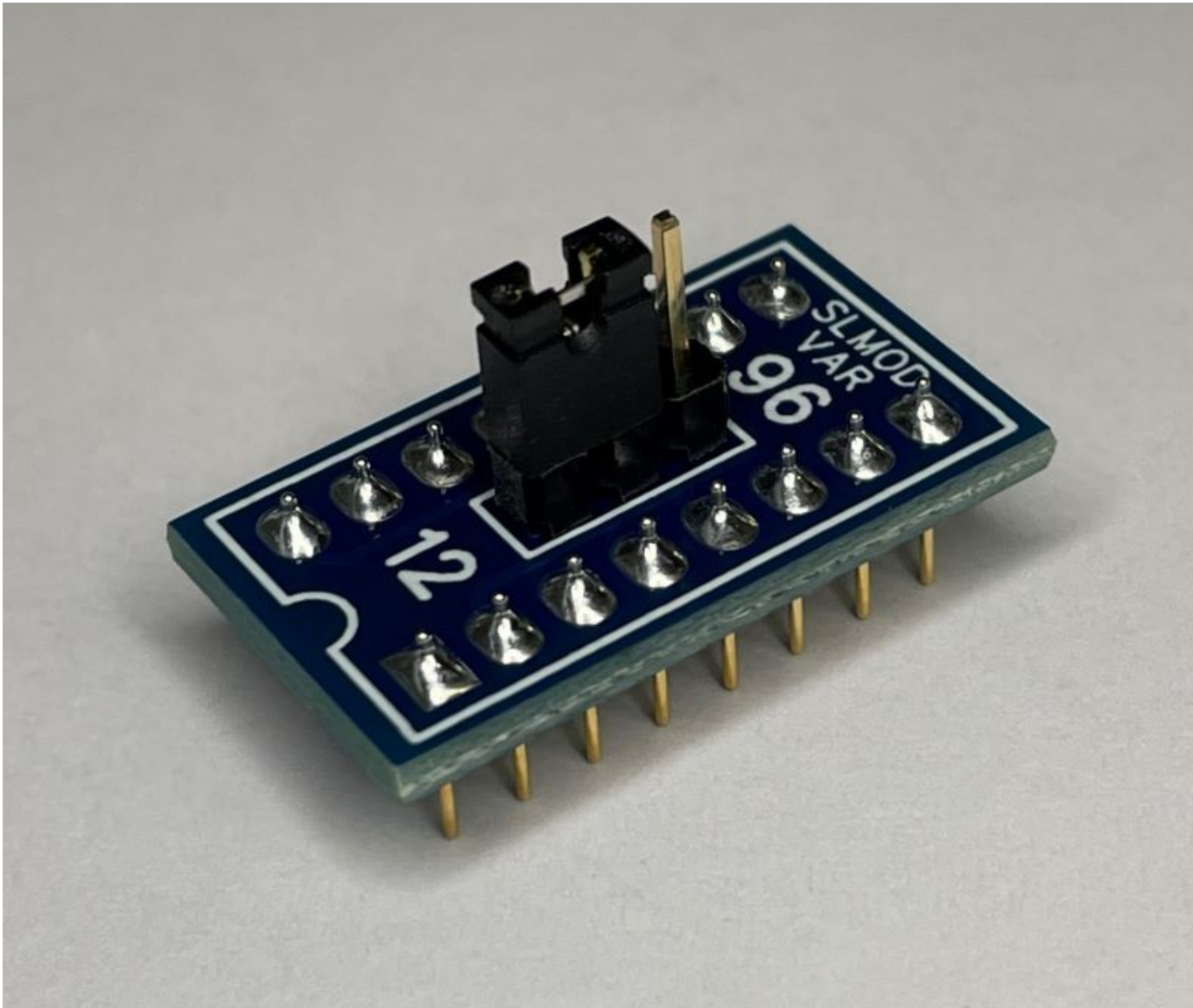
jumper module: SLMODVAR set to **96**



<https://shop.tigertronics.com/Signalink-USB-p-n-SLUSB6PM-SLUSB6PM.htm>



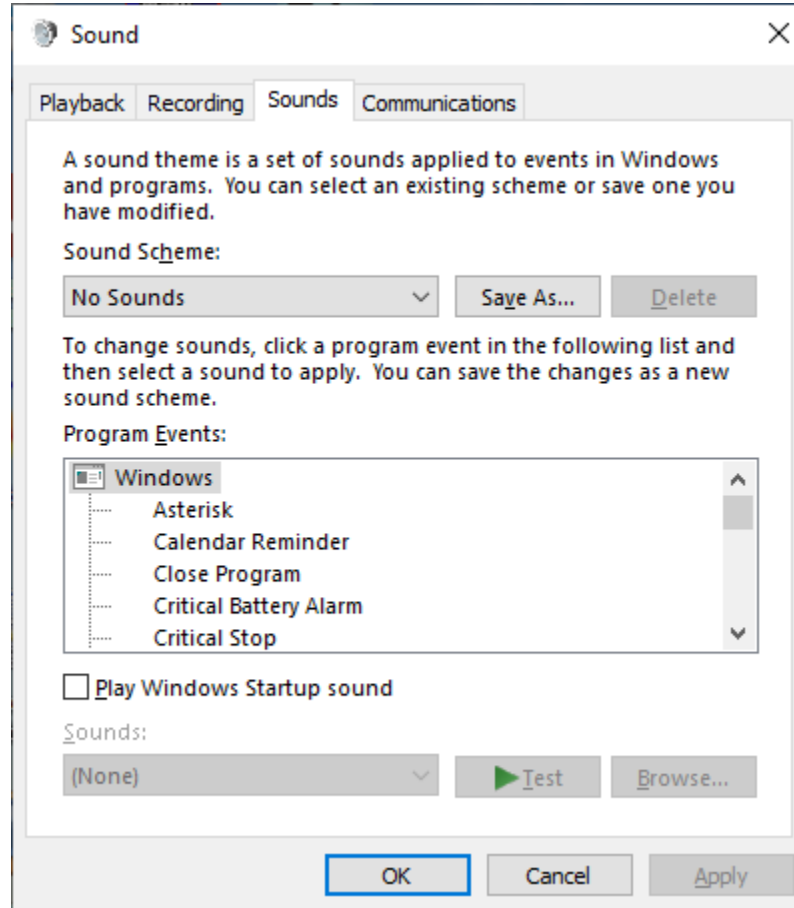
built with BOURNS **audio isolation** transformer – supports VARA FM WIDE



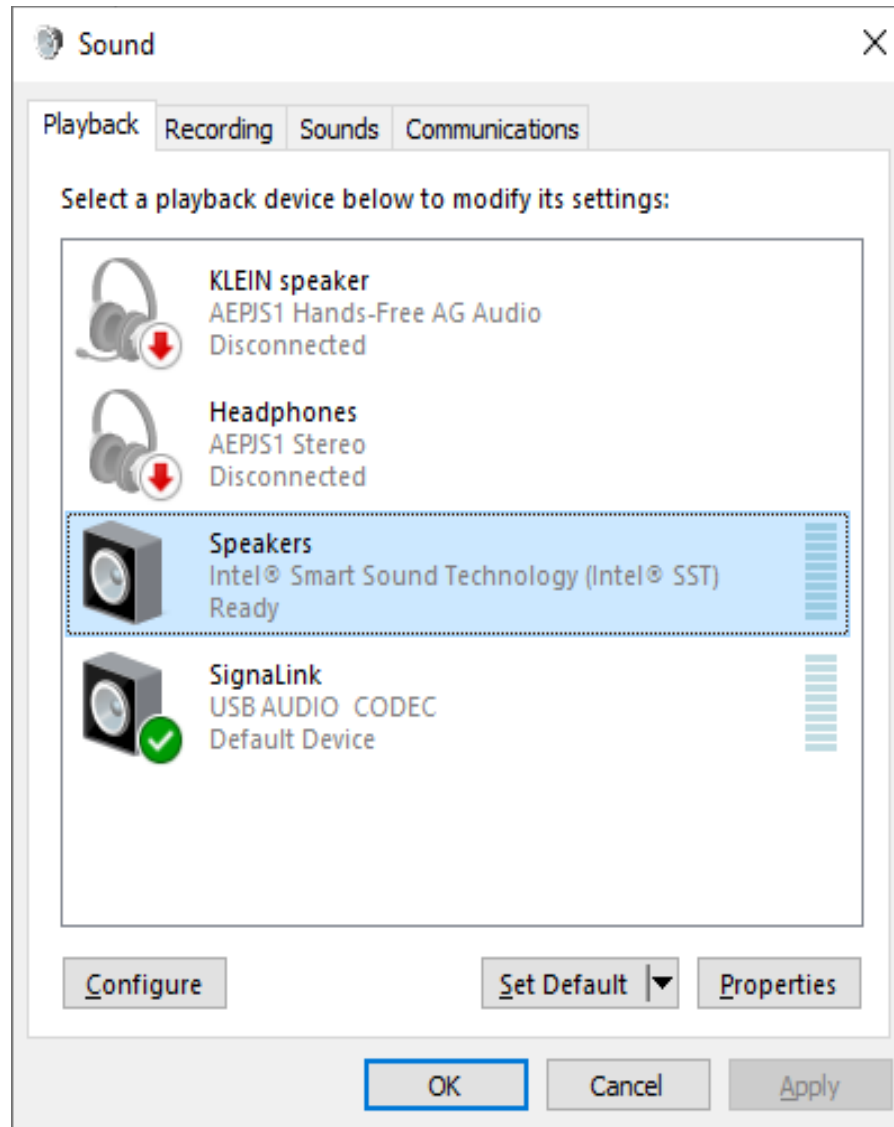
<https://shop.tigertronics.com/Plug-Play-Jumper-Module-p-n-SLMODVAR-SLMODVAR.htm>

Windows sound settings

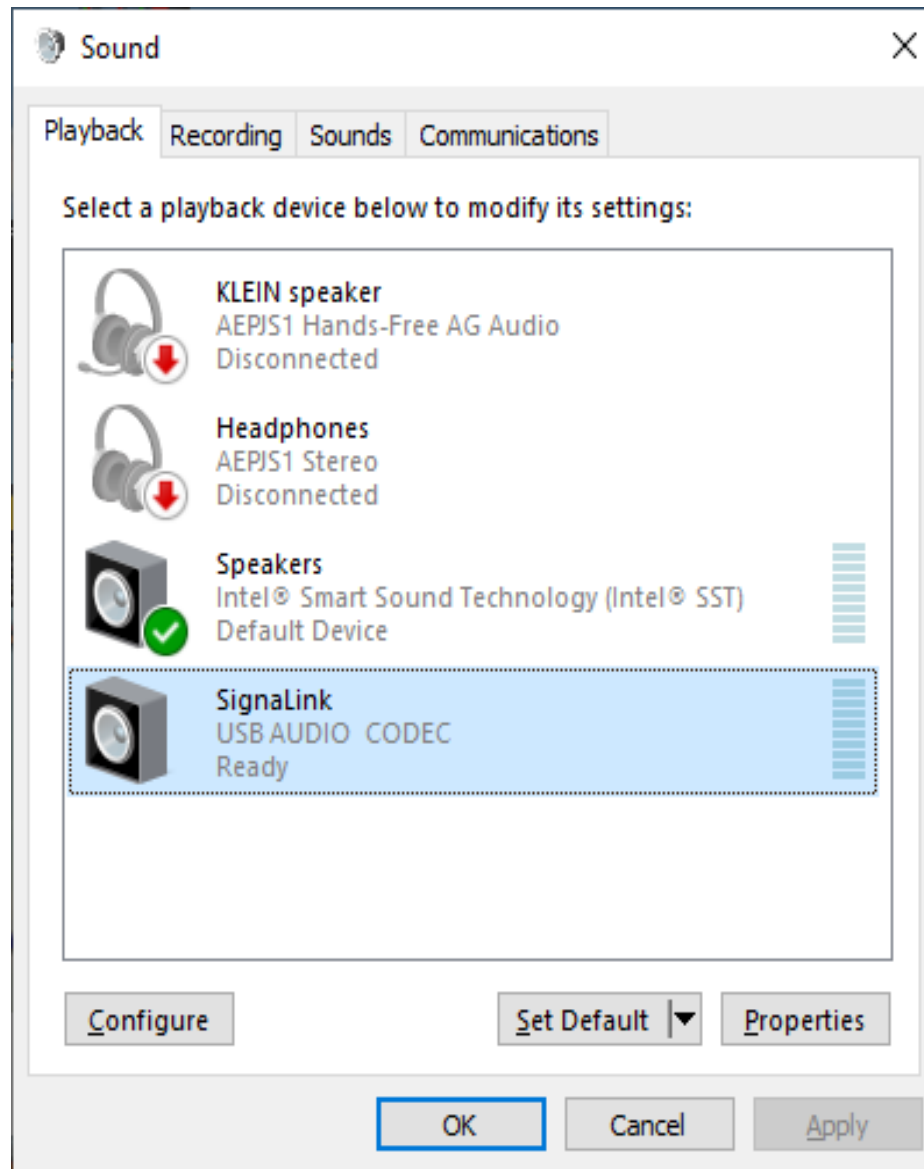
right-click on the speaker icon on the tool bar and select **Sounds**



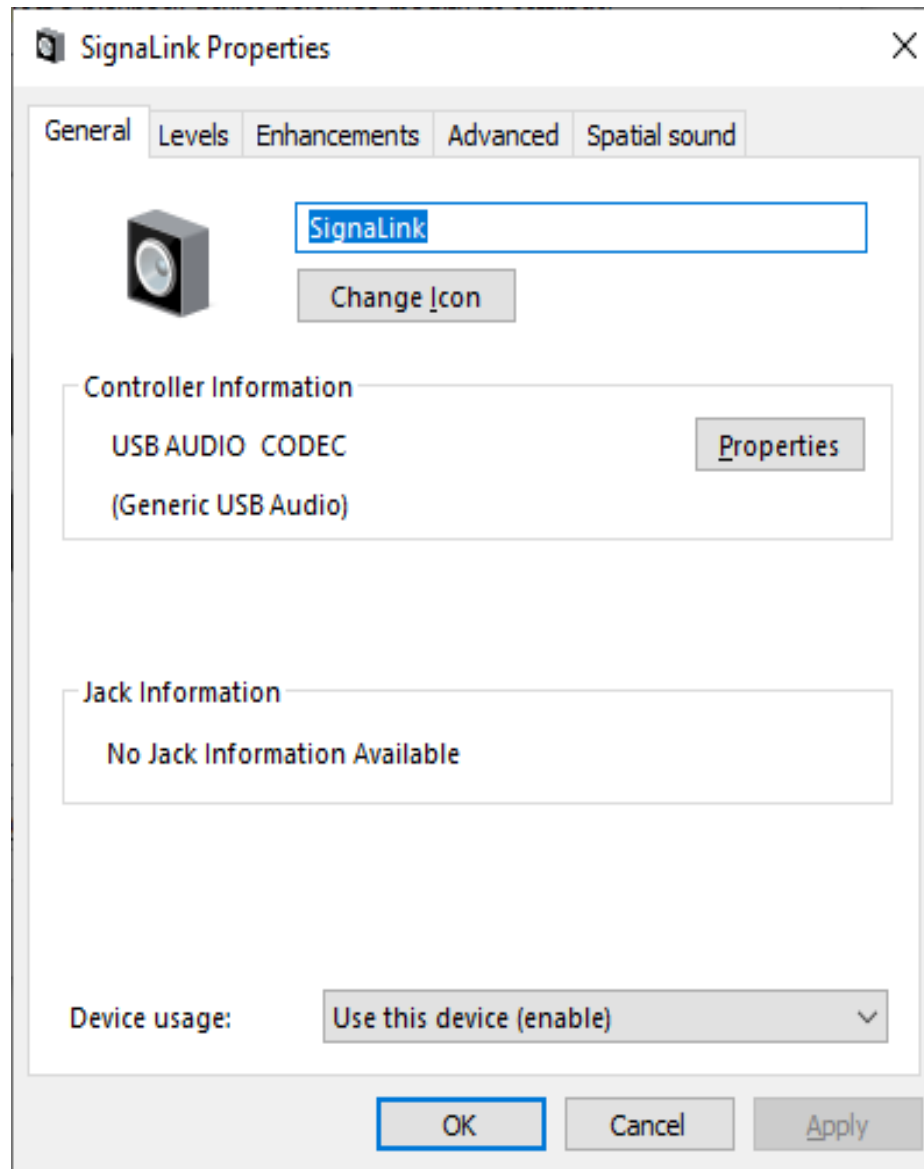
click on **Sound Control Panel**



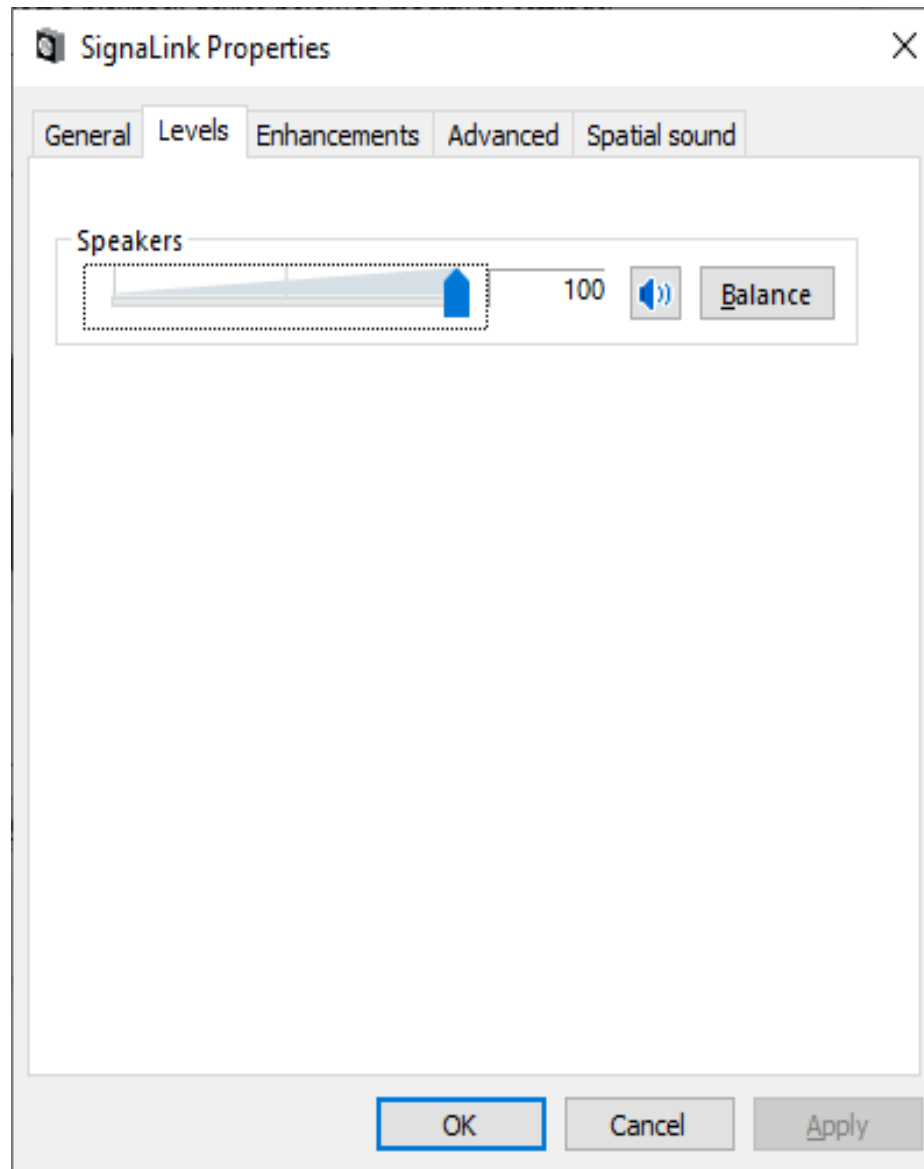
set default device



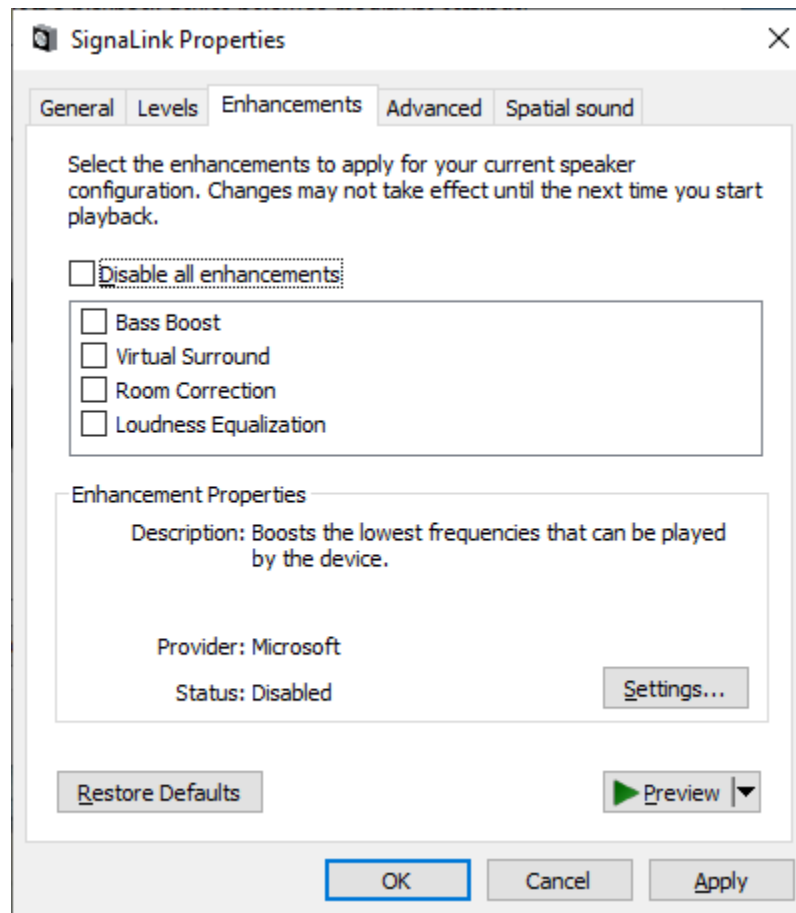
select SignalLink



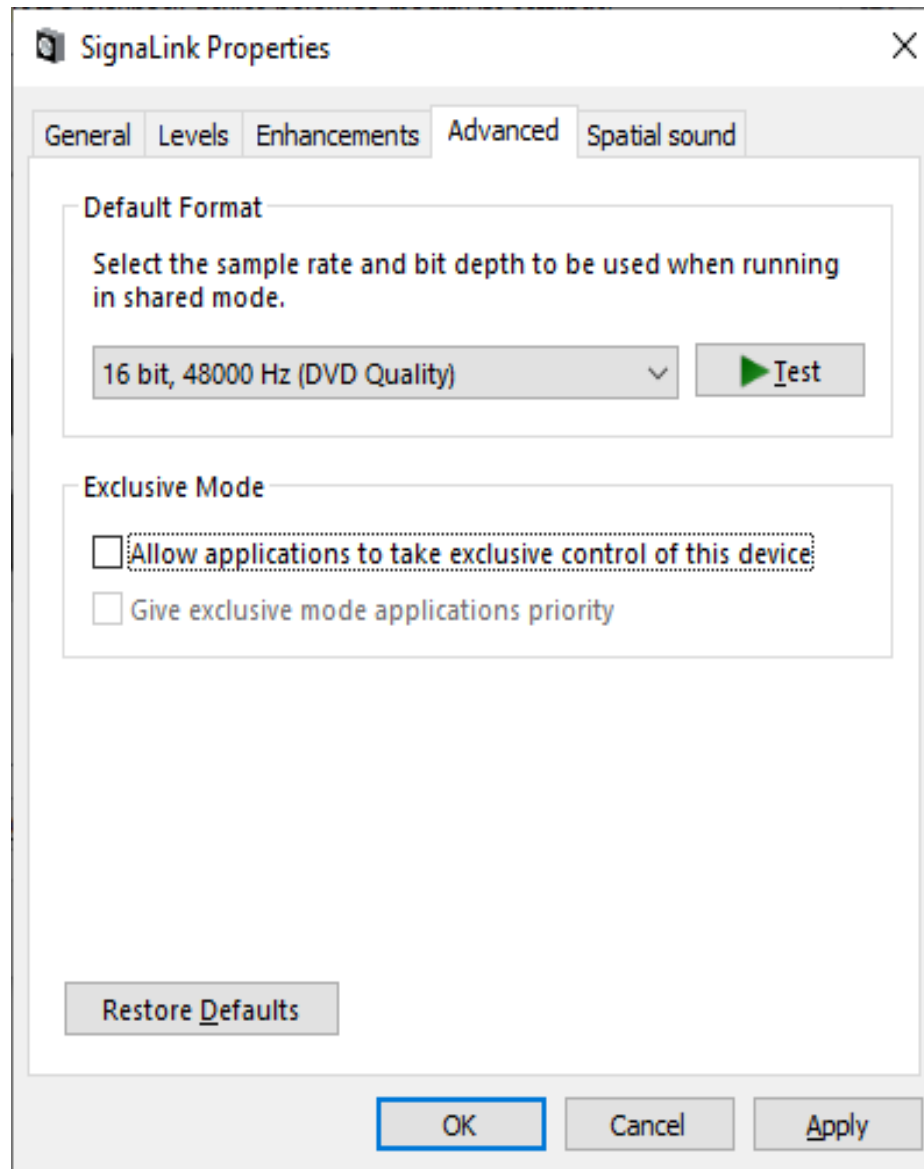
rename device as necessary



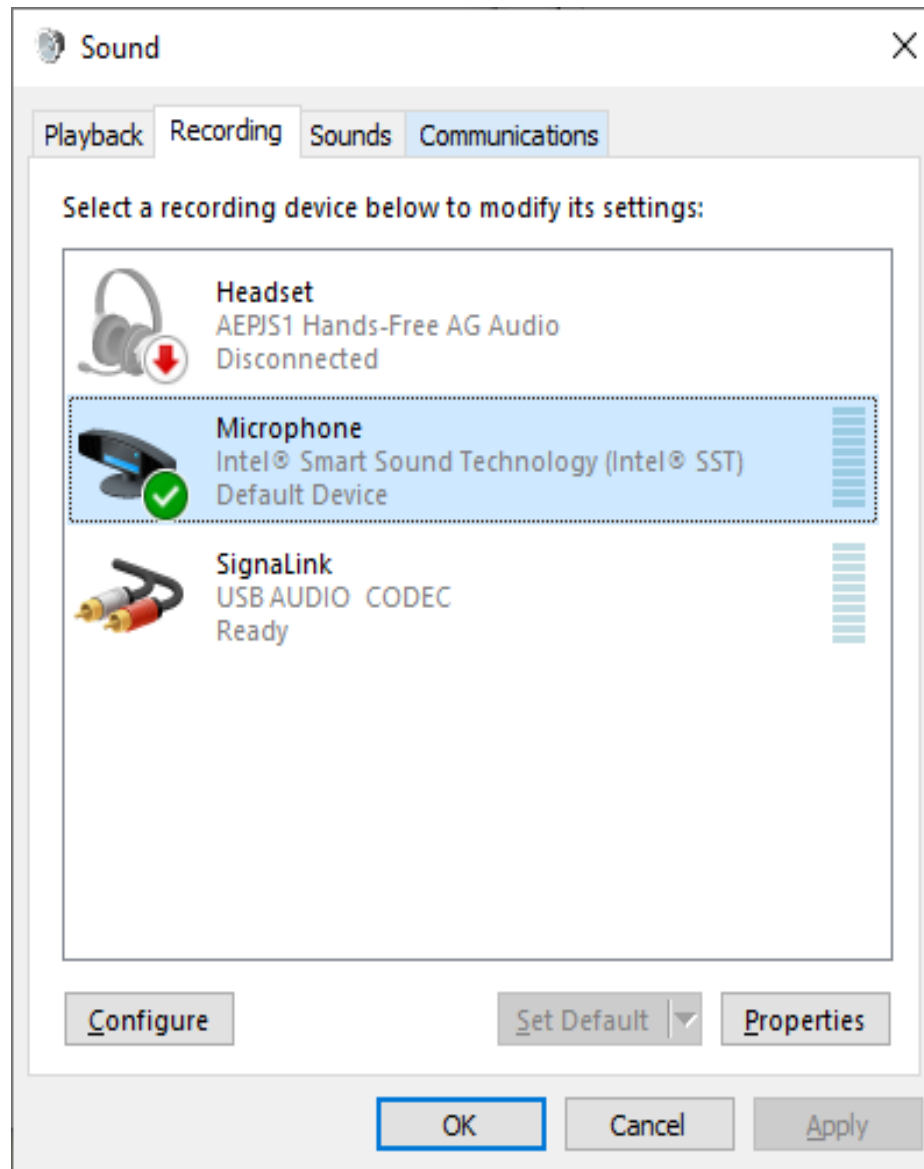
set initial audio output level



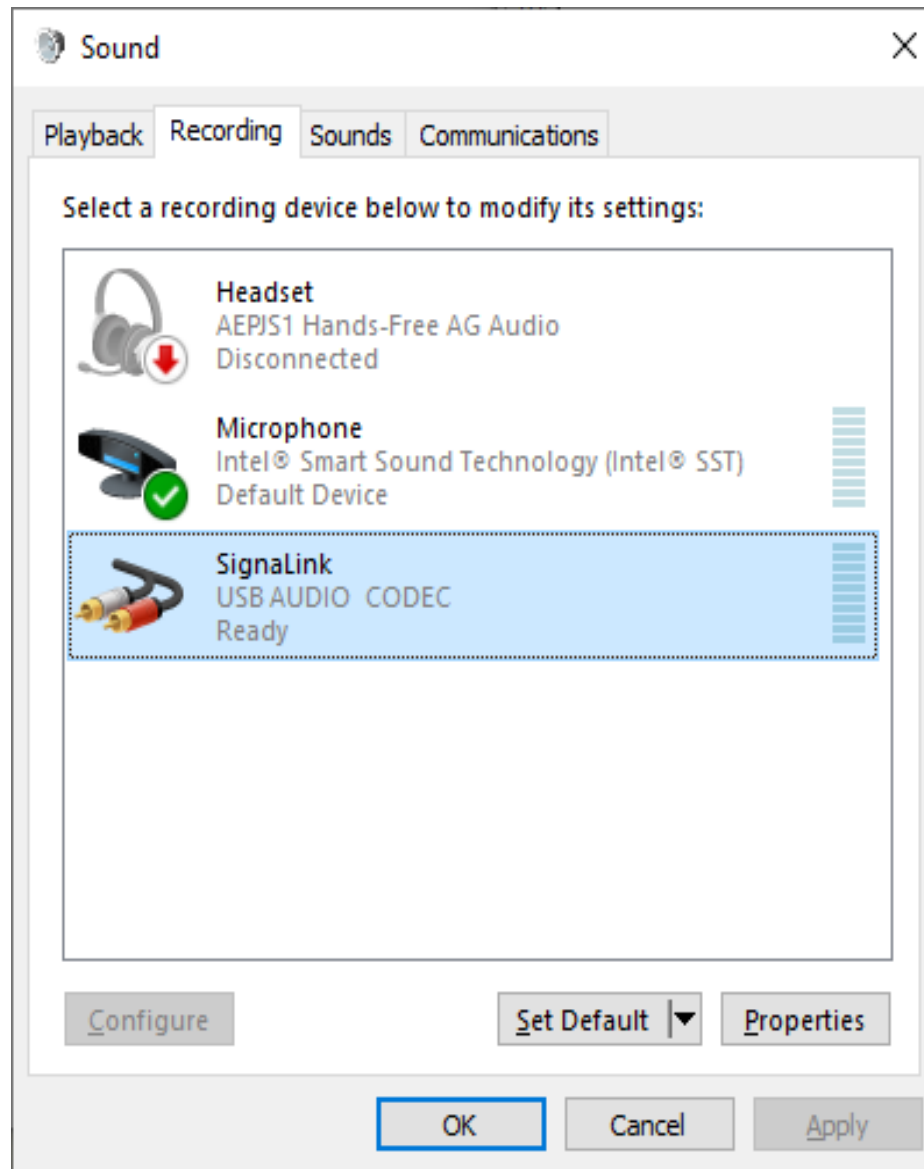
no enhancements



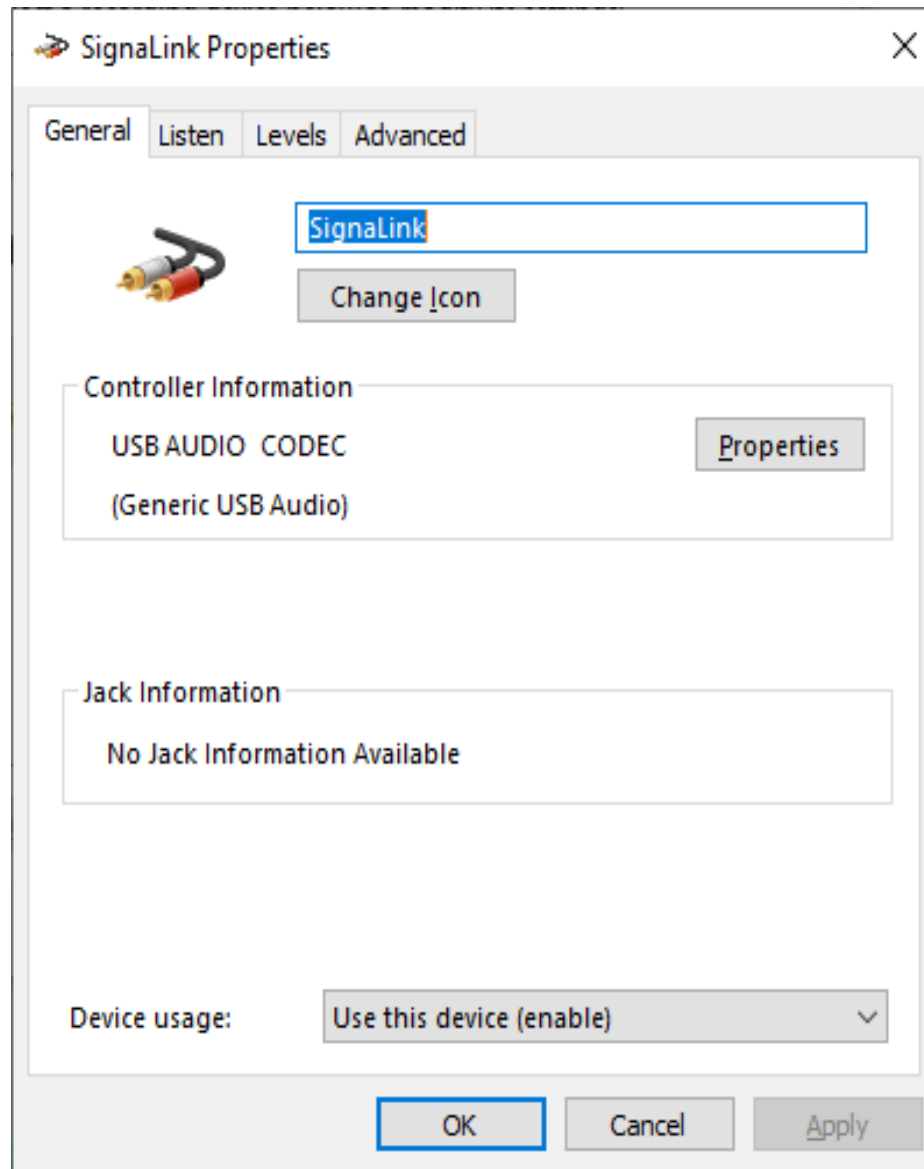
set audio quality



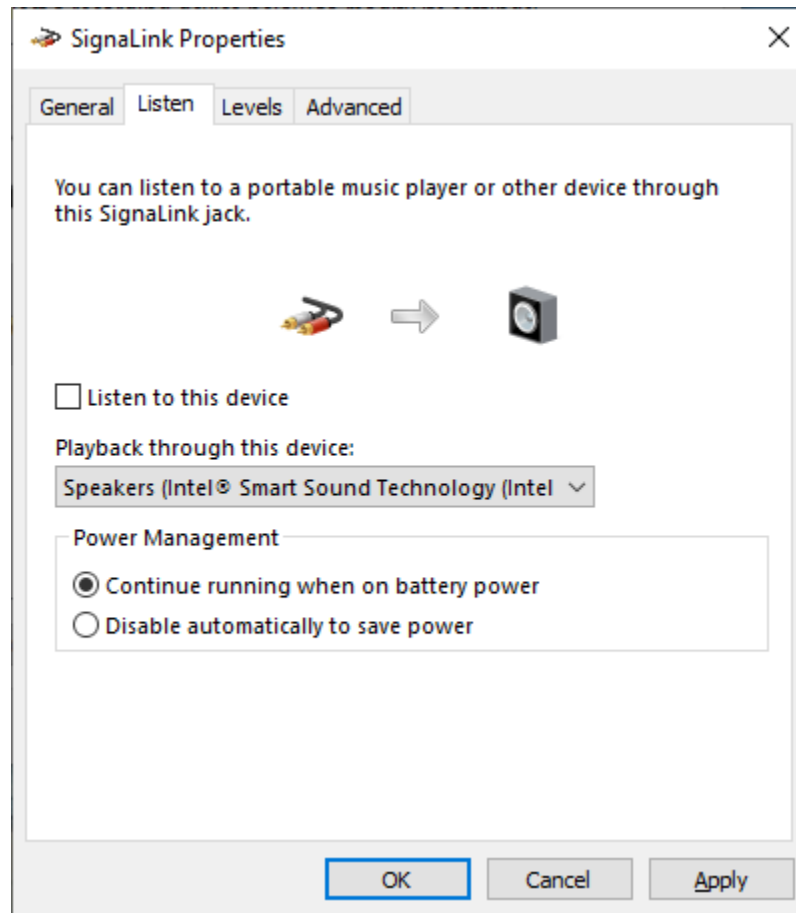
set default device



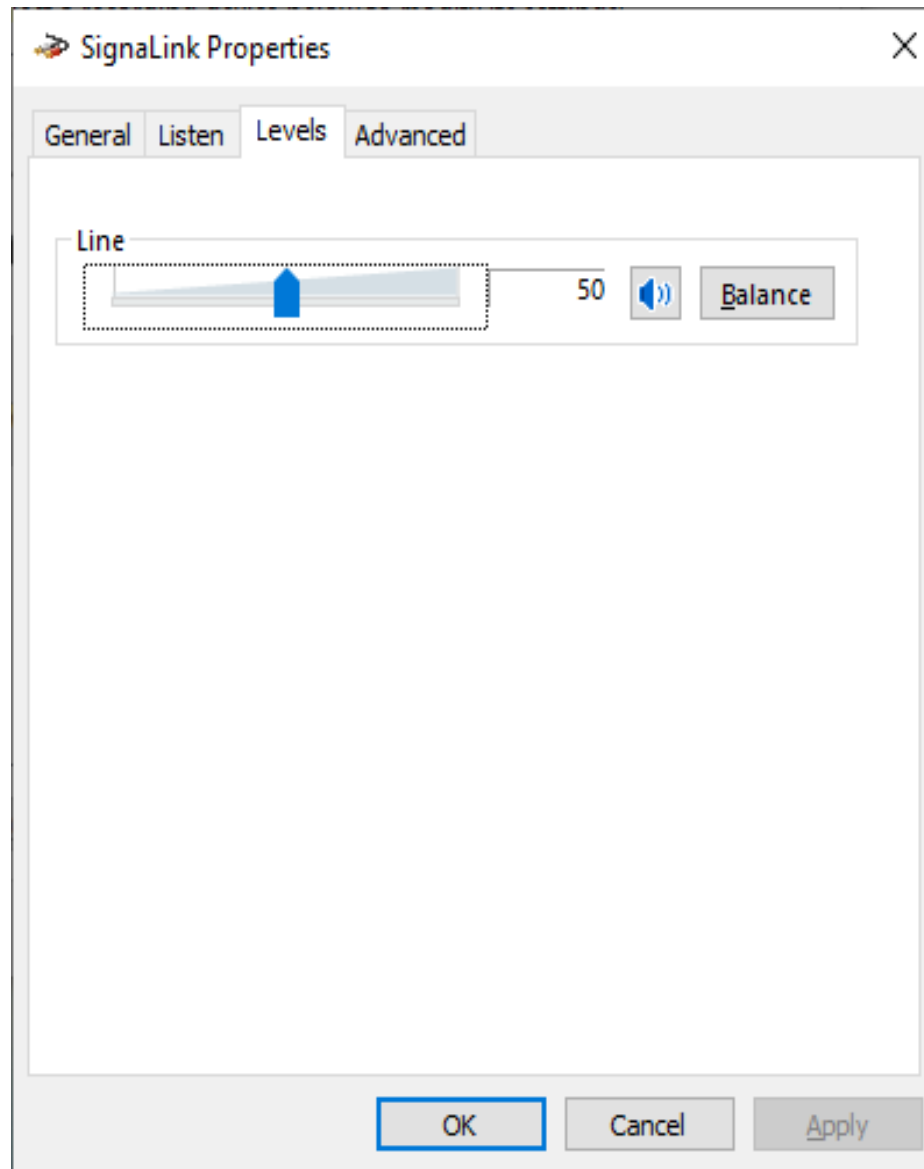
select SignalLink



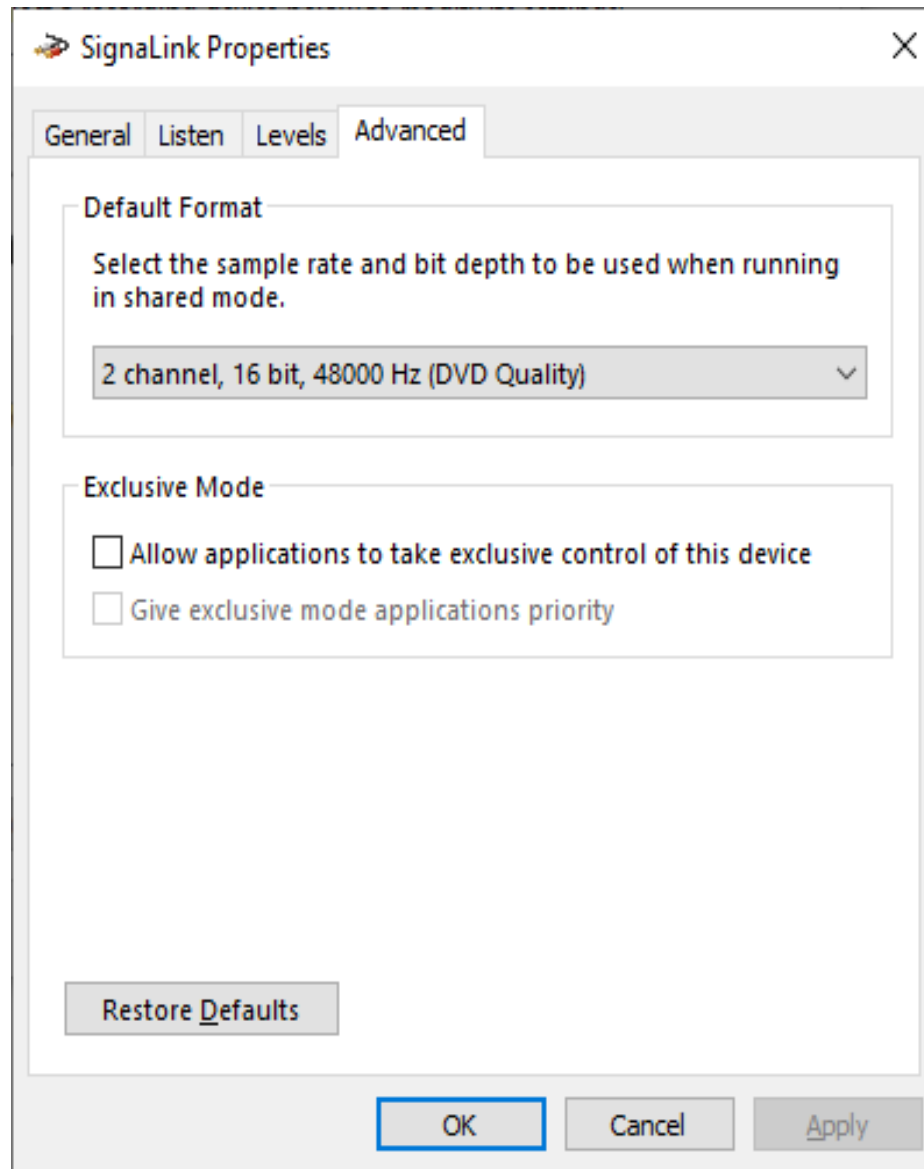
rename device as necessary



handy way of monitoring receive audio



set initial audio input level



set audio quality

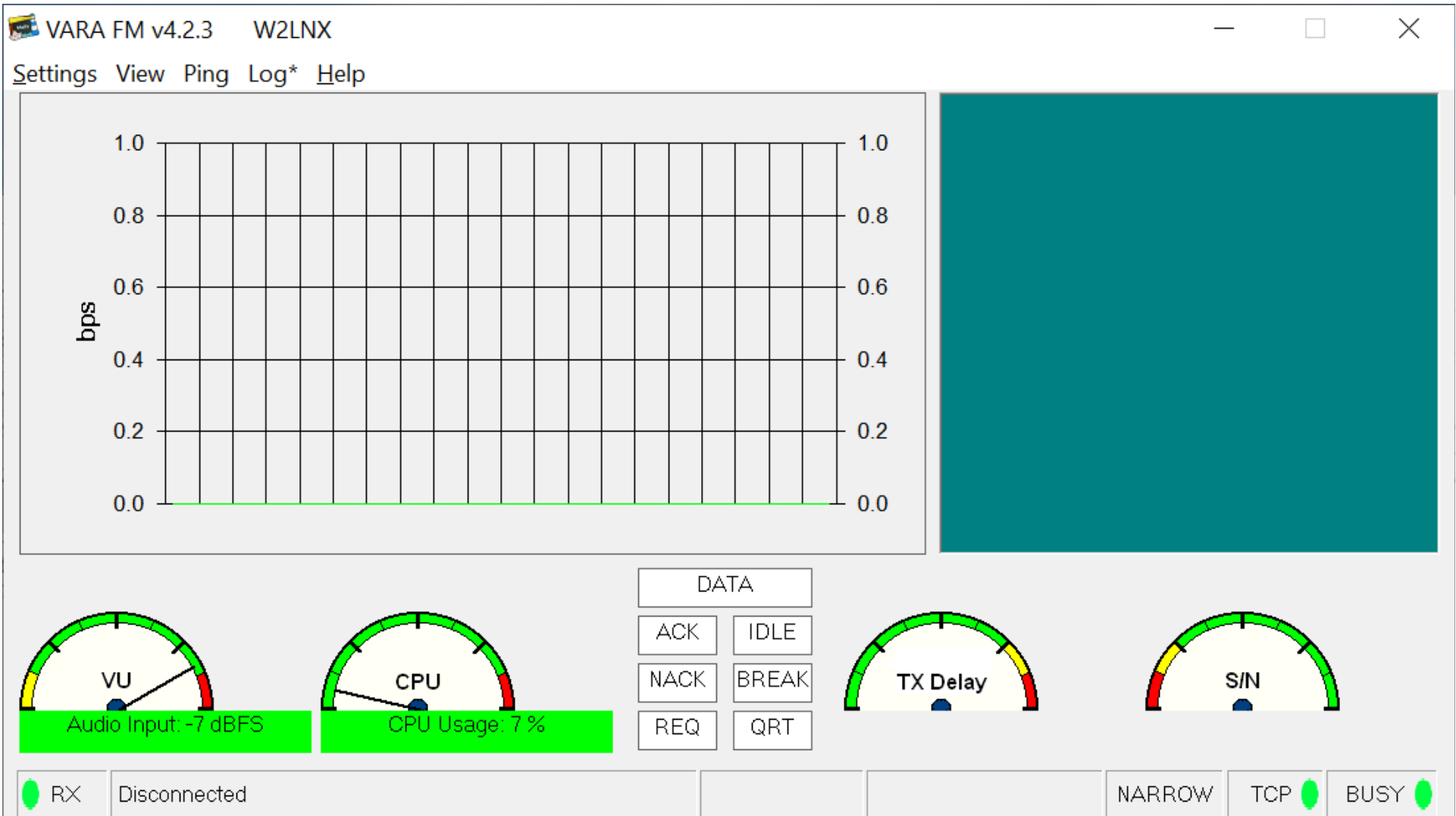
setting up VARA FM

- download VARA FM software

<https://rosmodem.wordpress.com/>

- recommend buying registration key for full speed

<file:///C:/VARA%20FM/Buy.html>



VARA FM

VARA Setup [Close]

TCP Ports:

Command:

Data:

FM System:

Digipeater:

Retries:

Allow VARA check for updates

KISS interface SysLog

VARA Licenses

Callsign: <input type="text" value="W2LNX"/>	Registration Key: <input type="text" value="*****"/>
Callsign: <input type="text"/>	Registration Key: <input type="text"/>
Callsign: <input type="text"/>	Registration Key: <input type="text"/>
Callsign: <input type="text"/>	Registration Key: <input type="text"/>

* VARA FM WIDE needs a FM rig set for 9600 Packet operation, with a special soundcard interface (6 kHz BW) connected to rear panel: RA-Board, Signalink "Black" transforms, Modified Signalink (red audio transforms removed), homebrew interface (a simple direct cable)...

* In other case, you must select VARA FM NARROW

VARA Setup [Close]

TCP Ports:

Command:

Data:

FM System:

Digipeater:

Retries:

Allow VARA check for updates

KISS interface SysLog

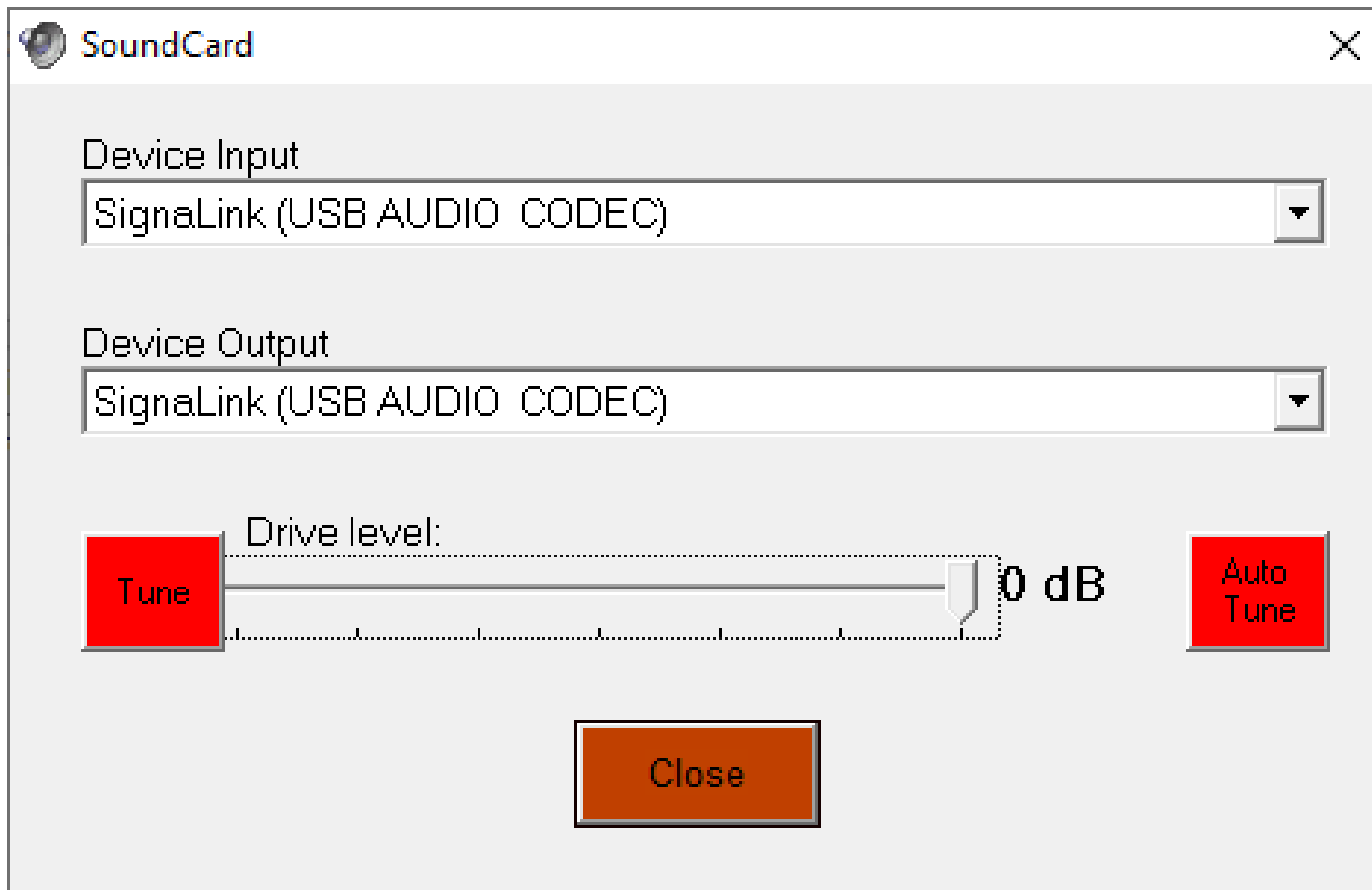
VARA Licenses

Callsign: <input type="text" value="W2LNX"/>	Registration Key: <input type="text" value="*****"/>
Callsign: <input type="text"/>	Registration Key: <input type="text"/>
Callsign: <input type="text"/>	Registration Key: <input type="text"/>
Callsign: <input type="text"/>	Registration Key: <input type="text"/>

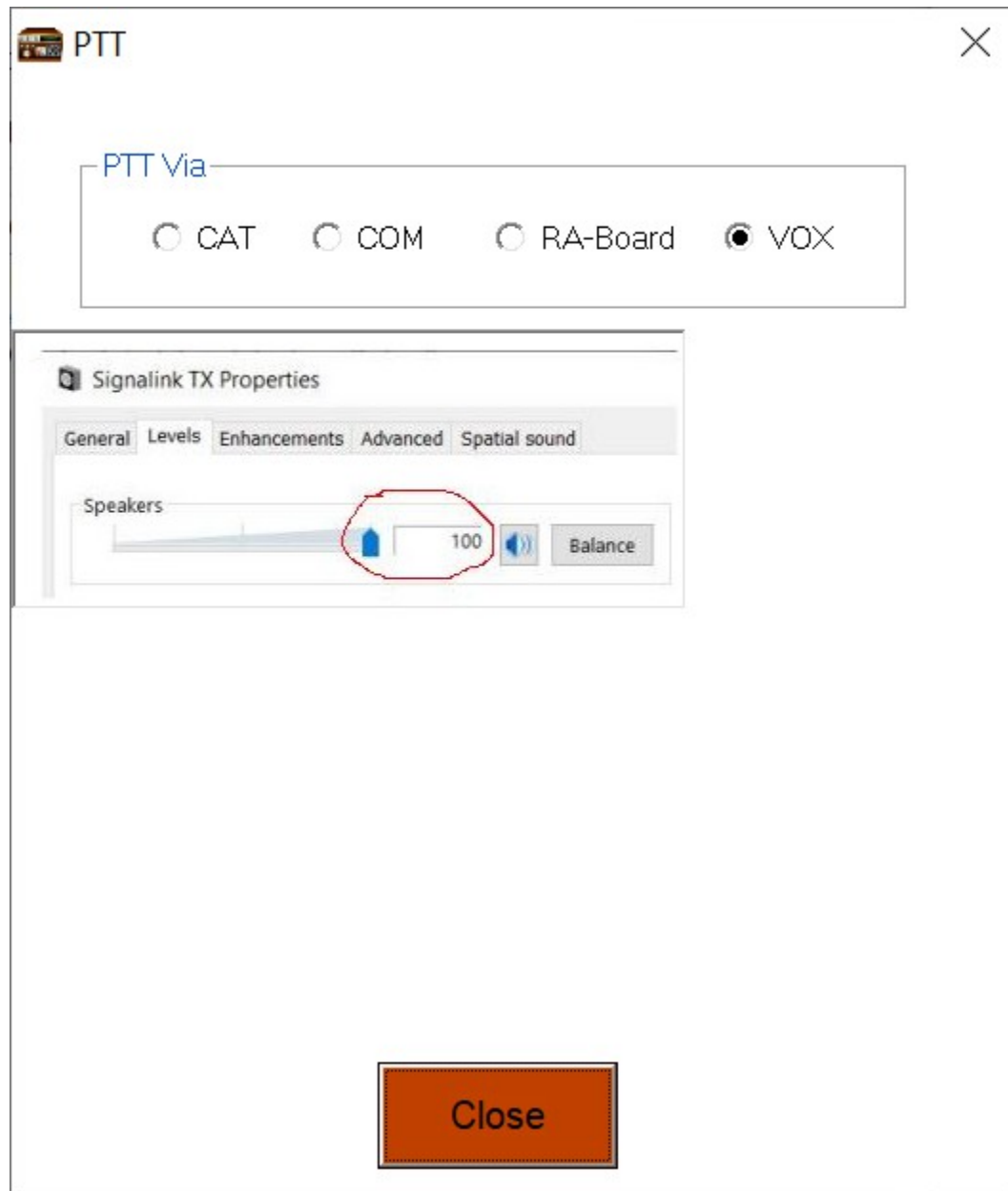
**42 baud Symbol Rate
Legal on 2 meters band**

* VARA FM WIDE needs a FM rig set for 9600 Packet operation, with a special soundcard interface (6 kHz BW) connected to rear panel: RA-Board, Signalink "Black" transforms, Modified Signalink (red audio transforms removed), homebrew interface (a simple direct cable)...

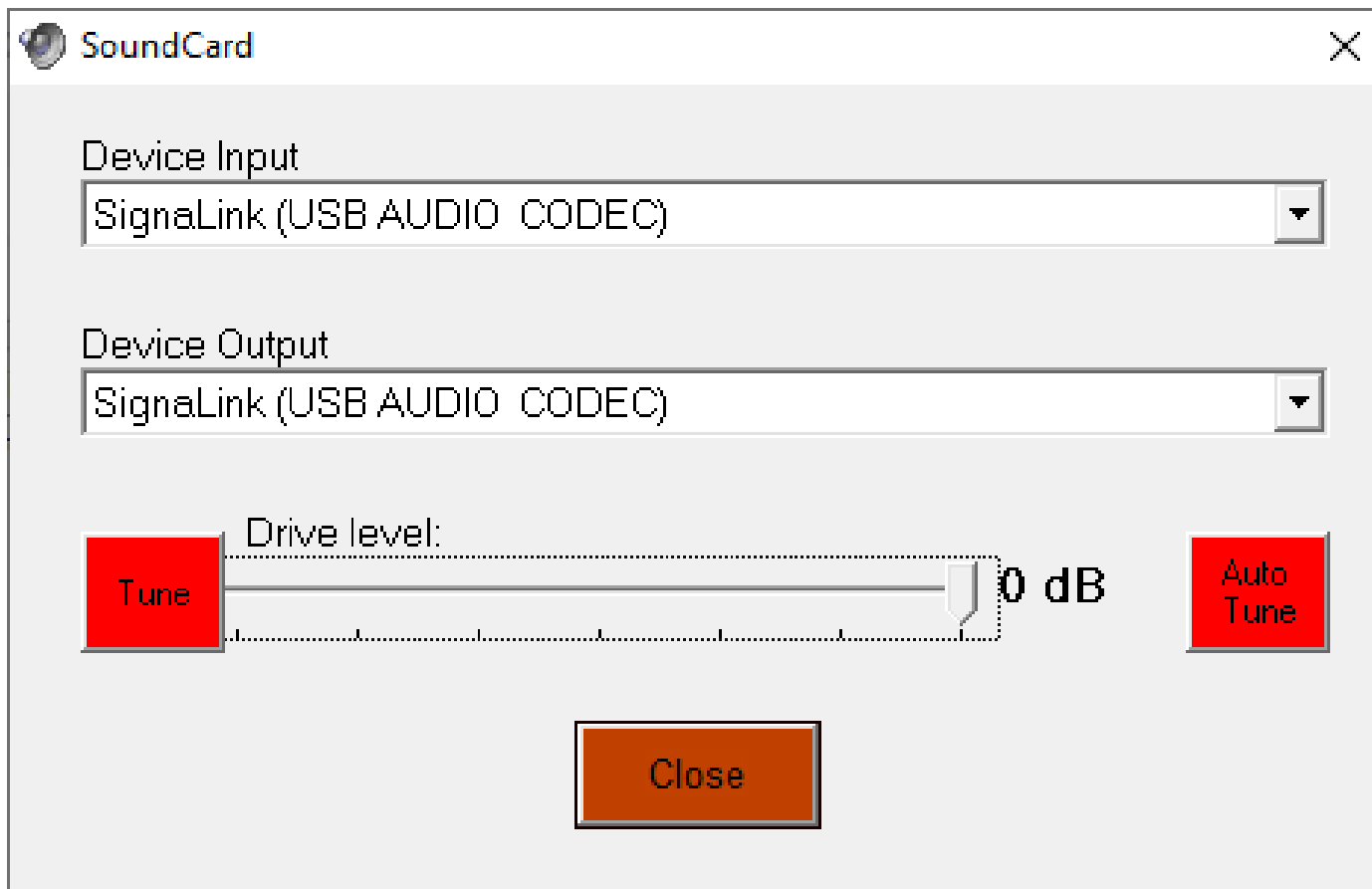
* In other case, you must select VARA FM NARROW



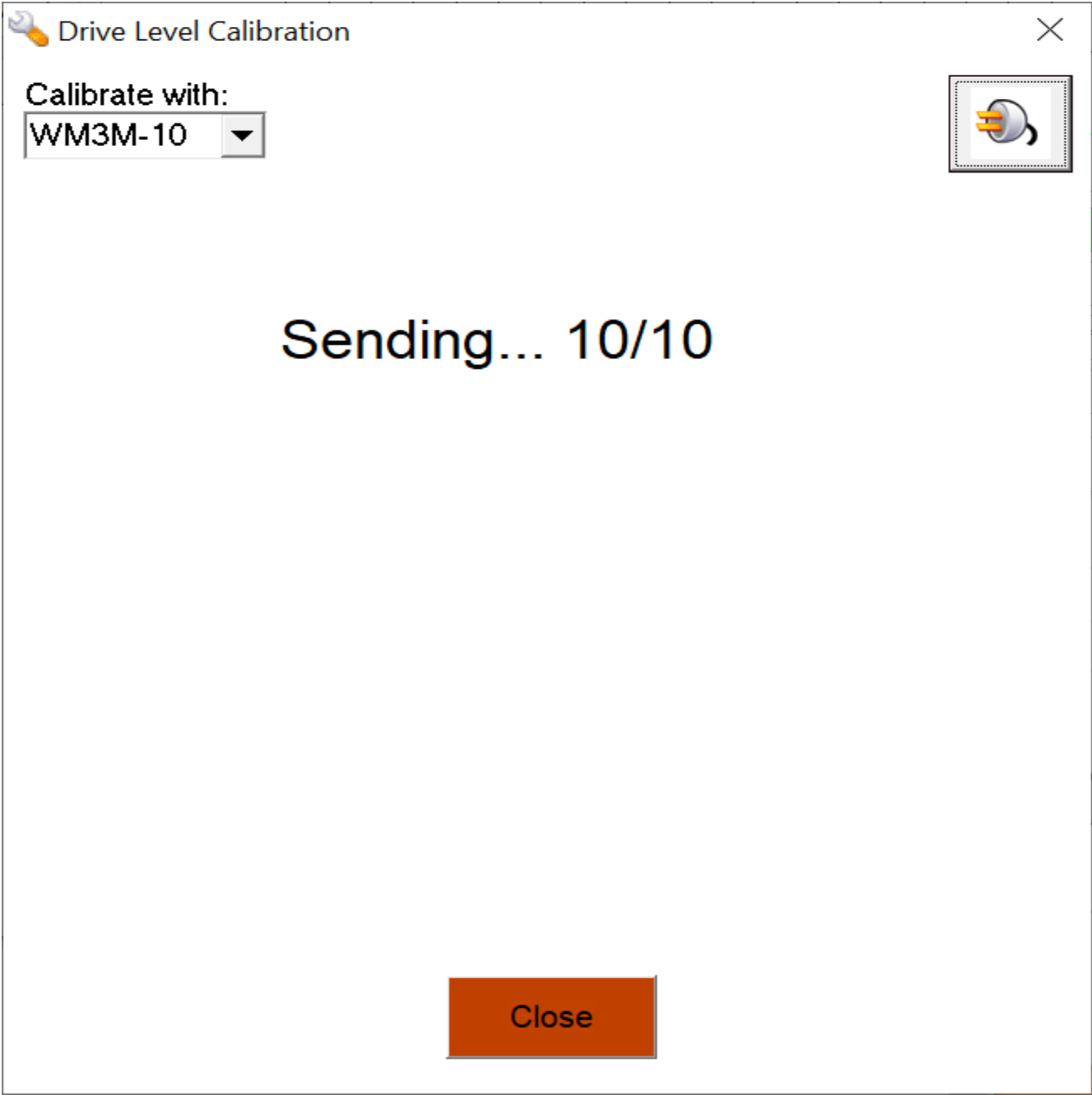
select correct audio device



Signalink has a VOX circuit



click on Auto Tune




Drive Level Calibration

Calibrate with:
WM3M-10

Drive Level: +0 dB

S/N: +13.6 dB

VU: -14 dB

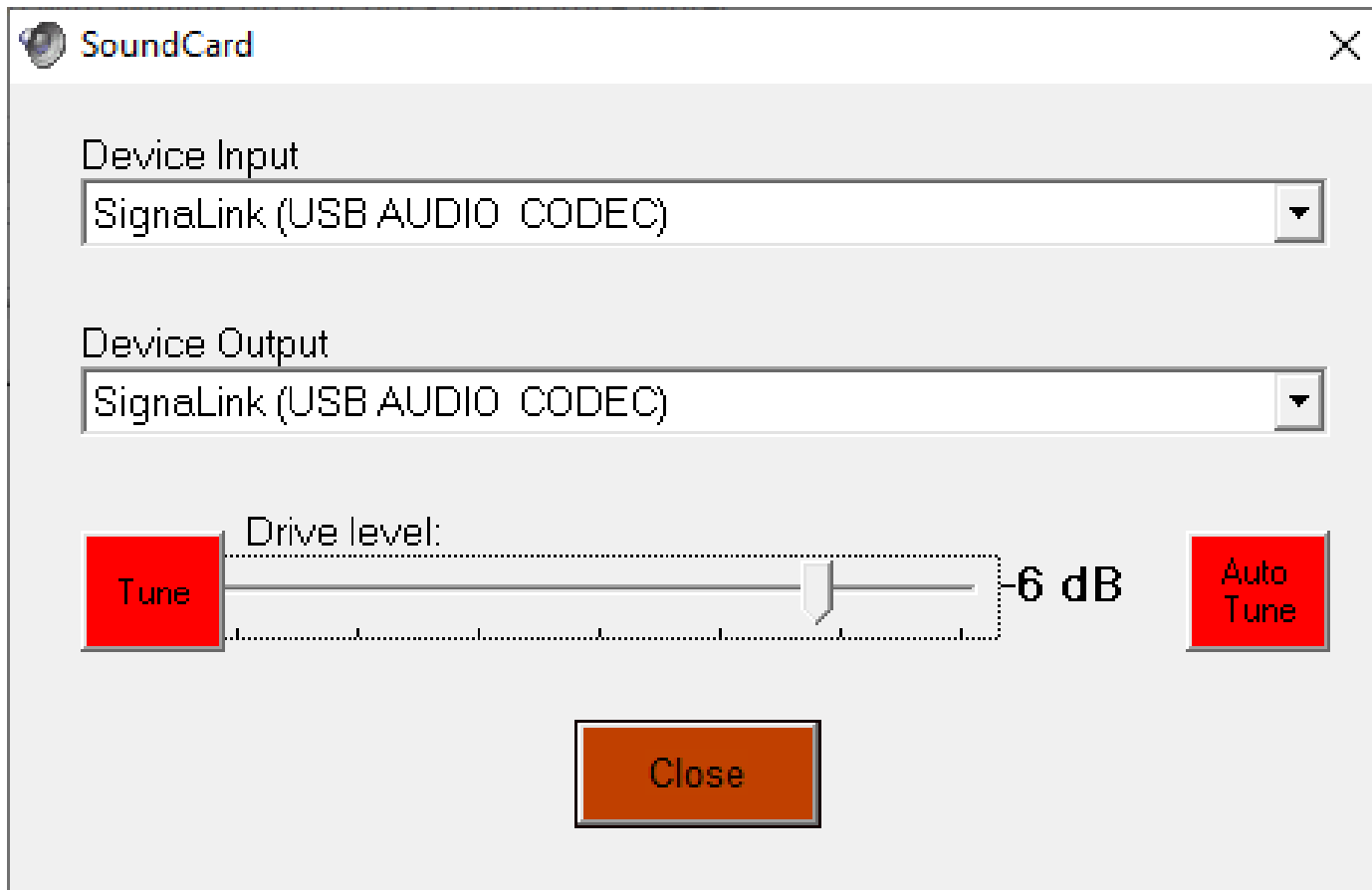


Turn the TX knob to the right

Close

The image shows a software window titled "Drive Level Calibration" with a close button in the top right. Below the title bar, there is a "Calibrate with:" label and a dropdown menu showing "WM3M-10". Three data points are displayed in colored boxes: "Drive Level: +0 dB" in yellow, "S/N: +13.6 dB" in green, and "VU: -14 dB" in green. Below these is a photograph of a "SignalLink™ USB Integrated USB Sound Card" with knobs for PWR, PTT, TX, RX, and DLY. A red arrow points to the TX knob. At the bottom, there is a text instruction "Turn the TX knob to the right" and a brown "Close" button.

responded with signal quality



automatically sets audio level

Ping

Ping to: WM3M-10 Via1: Via2:

S/N: +23.3
VU: -15 dB

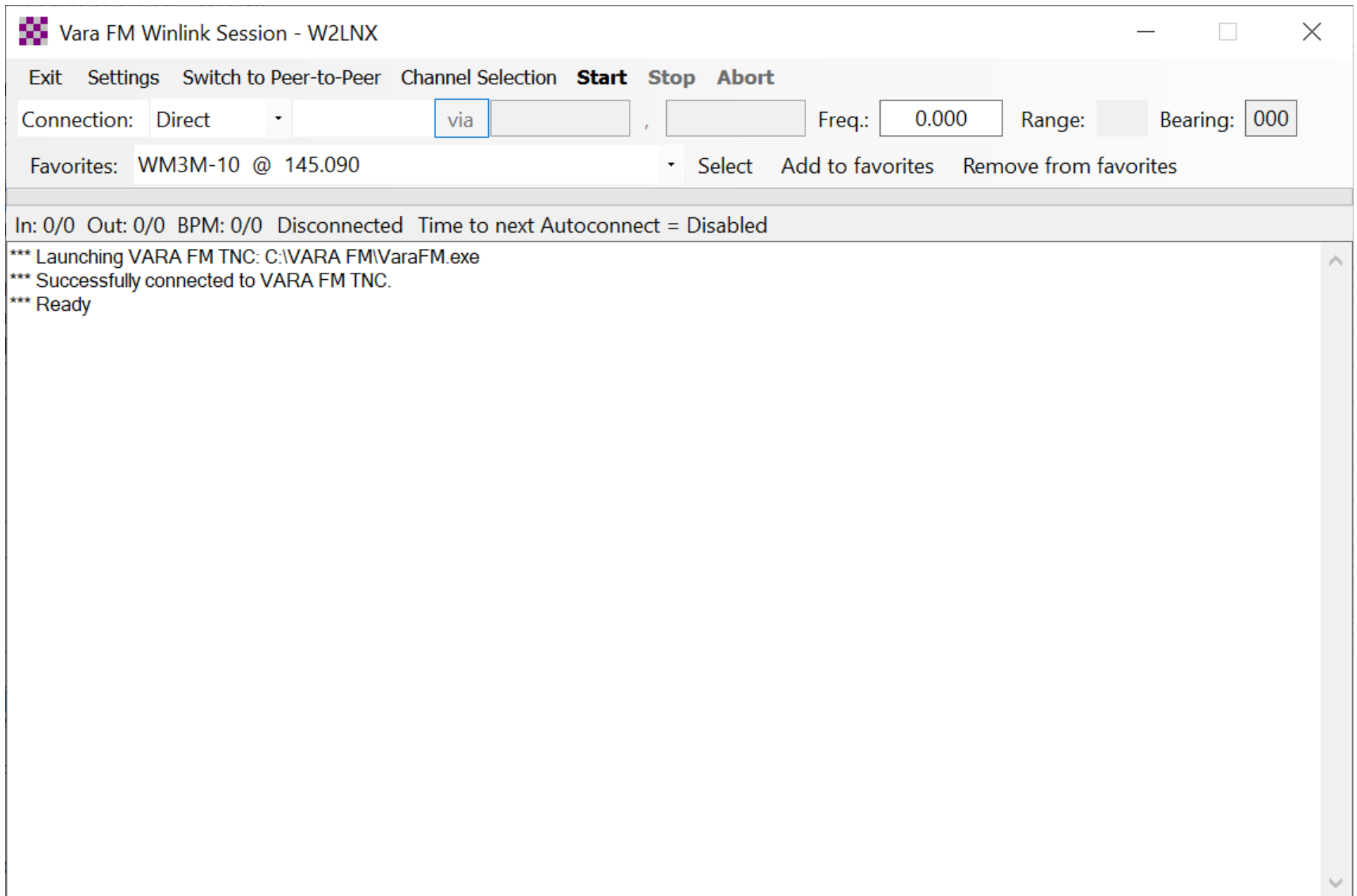
W2LNX

S/N: +16.9
VU: -10 dB

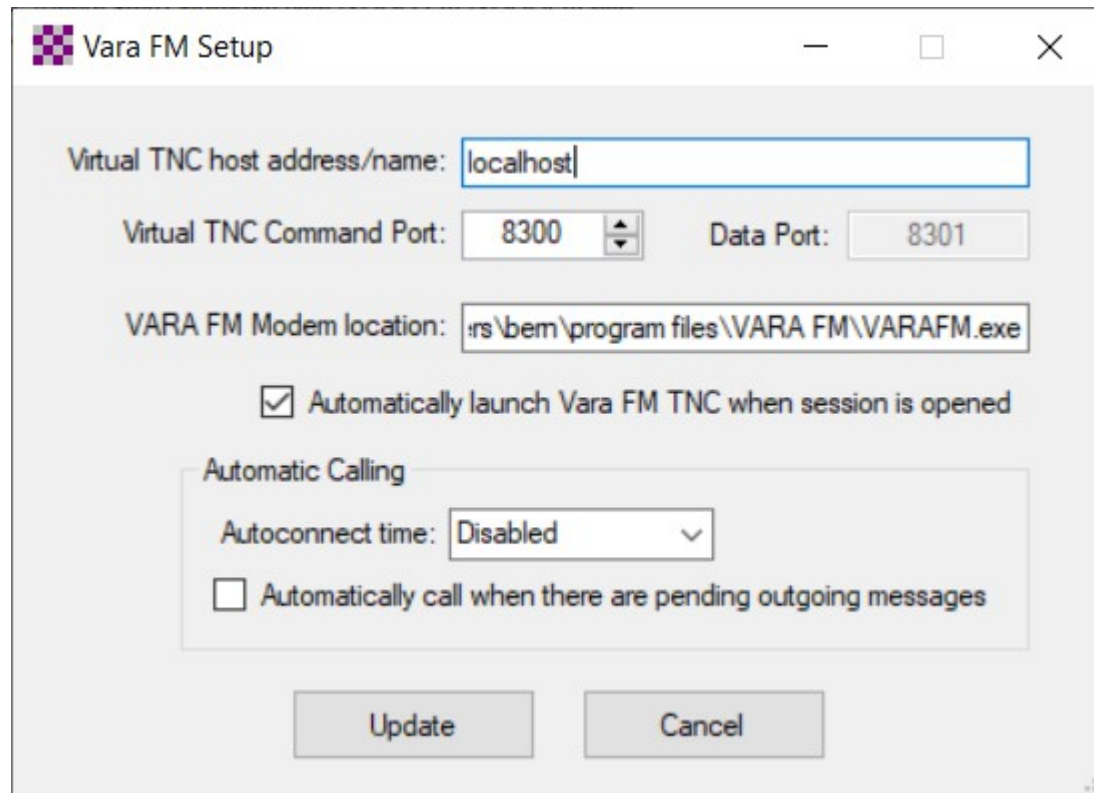
WM3M-10

Close

select Ping menu option



VARA FM Winlink session open



set path to VARA FM program

Vara FM Channel Selector						
Exit	Select Channel	Update Table Via Internet	Update Table Via Radio			
Stations found within 185 miles of your grid square.						
Callsign	Frequency (MHz)	Channel Width	Grid Square	Group	Distance (mi)	Bearing (Degrees)
WM3M-10	145.090	Narrow	FM19KB	PUBLIC	004	090
WB2U-10	145.090	Narrow	FM19JD	PUBLIC	006	000
KM4DC-10	145.065	Wide	FM18HX	PUBLIC	011	239
WR3G-10	145.090	Narrow	FM18OX	PUBLIC	023	104
W8IS-10	441.000	Wide	FM19LL	PUBLIC	030	017
W8IS-10	145.050	Wide	FM19LL	PUBLIC	030	017
KB3KOW-10	145.090	Narrow	FM18MP	PUBLIC	031	155
W3AAC-10	145.010	Wide	FM19QD	PUBLIC	032	079
NA1DX-10	145.010	Wide	FM18QT	PUBLIC	035	119
N3HU-15	145.010	Wide	FM18QT	PUBLIC	035	119
KF3AK-10	145.770	Wide	FM19FM	PUBLIC	036	331
KF3AK-10	441.000	Wide	FM19FM	PUBLIC	036	331
N3HU-10	145.010	Wide	FM19SA	PUBLIC	040	094
AB3YY-10	145.010	Narrow	FM19SA	PUBLIC	040	094

find nearby VARA FM Winlink gateway

Vara FM Winlink Session - W2LNX

Exit Settings Switch to Peer-to-Peer Channel Selection **Start** Stop Abort

Connection: Direct - WM3M-10 via , Freq.: 145.090 Range: Bearing:

Favorites: WM3M-10 @ 145.090 Select Add to favorites Remove from favorites

In: 0/0 Out: 0/0 BPM: 0/0 Disconnected Time to next Autoconnect = Disabled

```
*** Connected to Winlink RMS: WM3M-10 @ 2022/06/23 23:45:10 Freq: 145.090
MMARSI VARA RMS
[WL2K-5.0-B2FWIHJM$]
;PQ: 25709115
CMS via WM3M >
;FW: W2LNX
[RMS Express-1.6.5.0-B2FHM$]
;PR: 15368547
; WM3M-10 DE W2LNX (FM19JB)
FF
FQ
*** --- End of session with WM3M-10 at 2022/06/23 23:45:21 ---
*** Messages sent: 0. Total bytes sent: 0, Time: 00:11, bytes/minute: 0
*** Messages Received: 0. Total bytes received: 0, Total session time: 00:11, bytes/minute: 0
*** Disconnected from Winlink RMS: WM3M-10 @ 2022/06/23 23:45:22
*** Session: 0.2 min; Avg Throughput: 0 Bytes/min; 1 Min Peak Throughput: 0 Bytes/min
```

check if able to connect to gateway station

Winlink Express 1.6.5.0 - W2LNX

W2LNX Settings Message Attachments Move To: Saved Items Delete Open Session: Vara FM Winlink Logs Help

No active session.

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2022/06/23 23:56	JZEWLS7...	10...	W2L...	W2LNX	w2lnx@arll...	testing file transfer using VARA FM over WM3M-10

System Folders

- Inbox (0 unread)
- Read Items (0)
- Outbox (1)
- Sent Items (76)
- Saved Items (28)
- Deleted Items (5)

Personal Folders

Global Folders

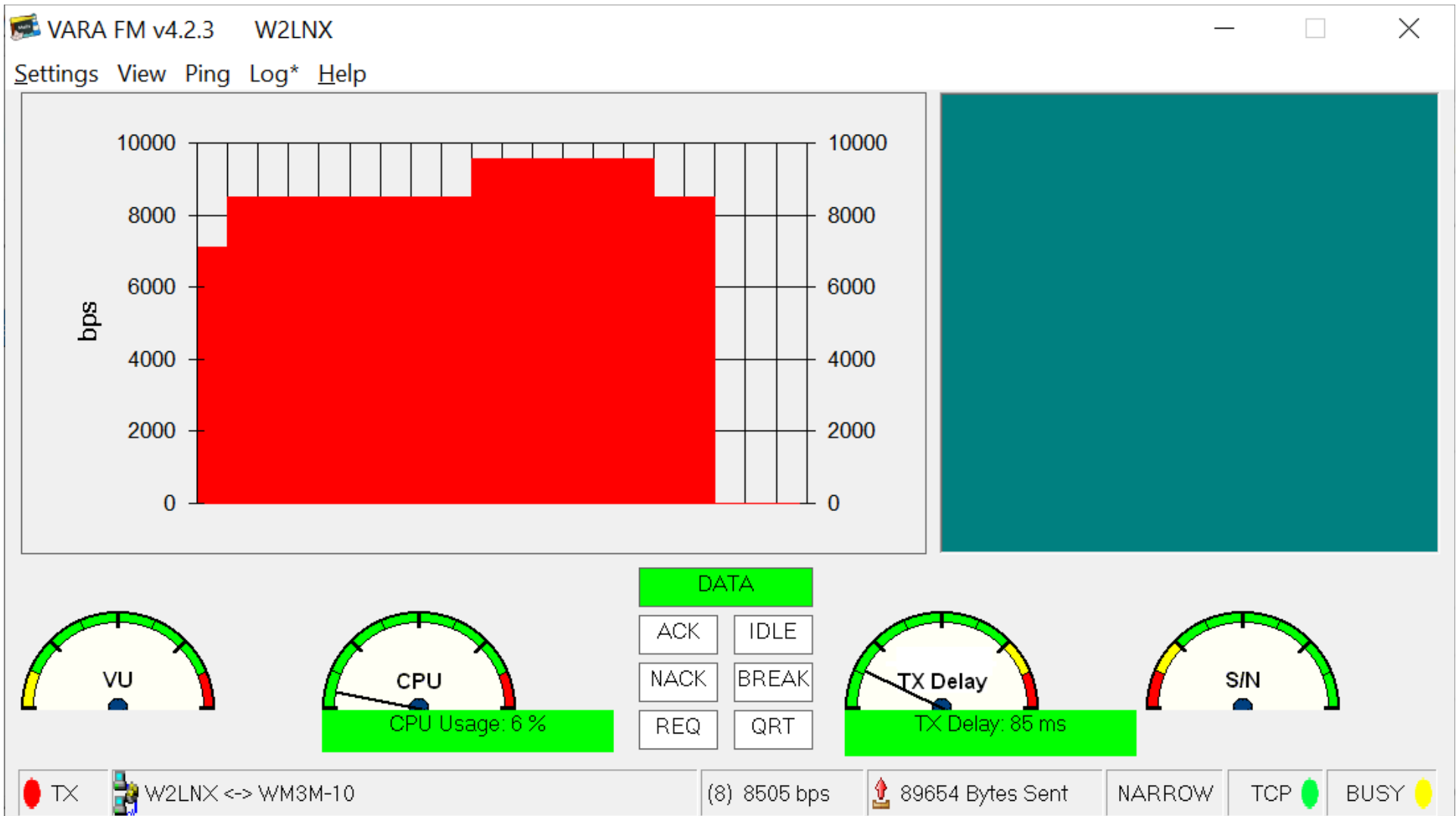
Contacts

- AC3JM
- AC3JM@ARRL.NET
- AC3N
- AC3N@ARRL.NET
- AC8ZU
- AD3F
- ETO-03
- JLTAFT@COMCAST.NET
- K1EHZ
- K1EHZ@ARRL.NET
- K3BAB
- K3XIT
- KA3AHI@AOL.COM
- KB3CS
- KB3CS@ARRL.NET
- KB3MXM@ARRL.NET
- KC3CNX@ARRL.NET

Message ID: JZEWLS7CHEVL
 Date: 2022/06/23 23:56
 From: W2LNX
 To: w2lnx@arll.net
 Source: W2LNX
 Subject: testing file transfer using VARA FM over WM3M-10

testing file transfer using VARA FM over WM3M-10

composed test message with file attachment



sending message with file attachment

Vara FM Winlink Session - W2LNX

Exit Settings Switch to Peer-to-Peer Channel Selection **Start** Stop Abort

Connection: Direct WM3M-10 via [] Freq.: 145.090 Range: Bearing:

Favorites: WM3M-10 @ 145.090 Select Add to favorites Remove from favorites

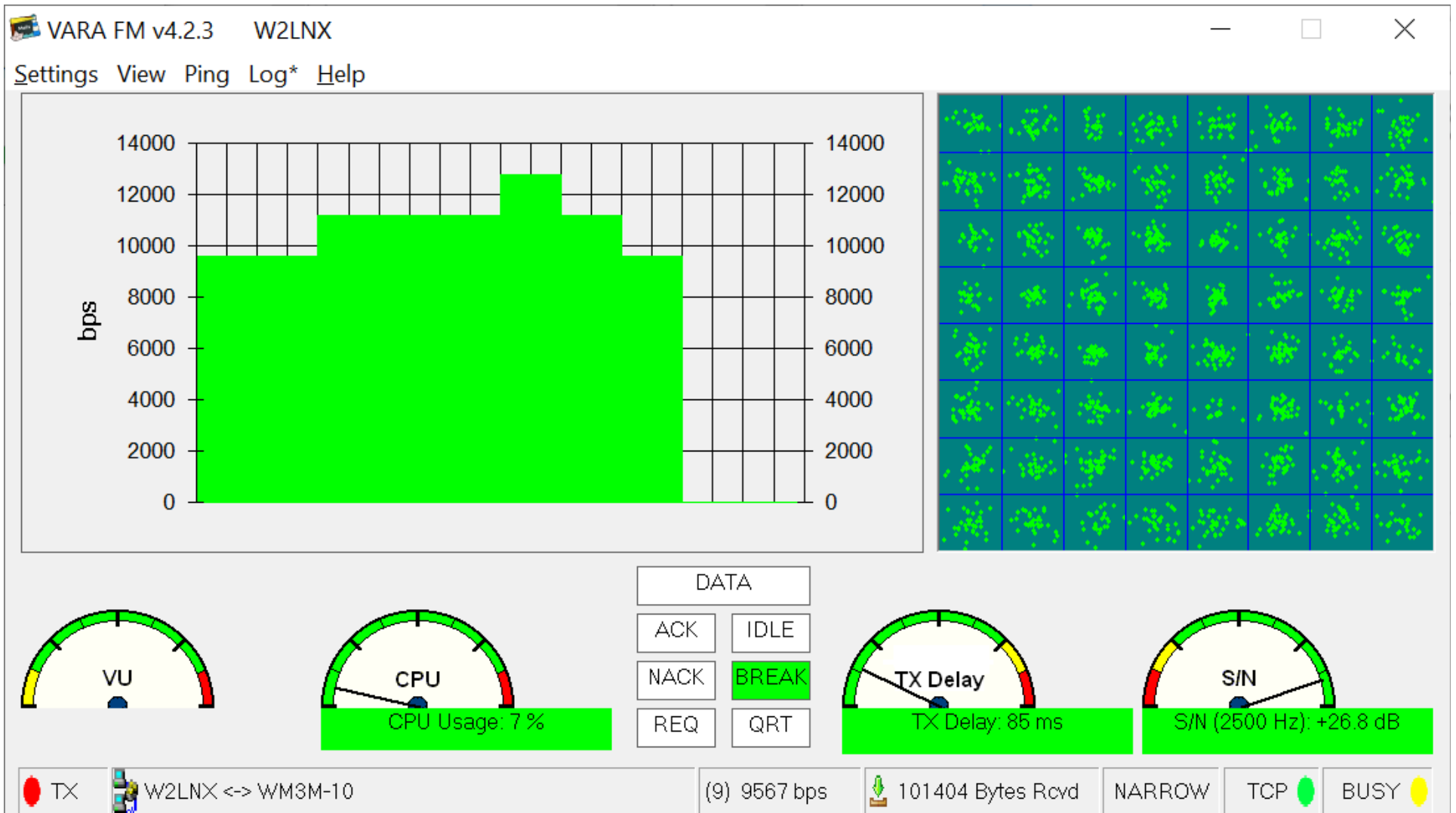
In: 0/0 Out: 99861/99861 BPM: 52347 Disconnected Time to next Autoconnect = Disabled

```

*** Connected to Winlink RMS: WM3M-10 @ 2022/06/23 23:59:49 Freq: 145.090
MMARSI VARA RMS
[WL2K-5.0-B2FWIHJM$]
;PQ: 67098611
CMS via WM3M >
;FW: W2LNX
[RMS Express-1.6.5.0-B2FHM$]
;PR: 21782936
; WM3M-10 DE W2LNX (FM19JB)
FC EM JZEWLS7CHEVL 101769 99861 0
F> 37
FS Y
*** Sending JZEWLS7CHEVL.
FF
*** Completed send of message JZEWLS7CHEVL
*** Sent 1 message. Bytes: 100716, Time: 01:56, bytes/minute: 51684
FQ
*** --- End of session with WM3M-10 at 2022/06/24 00:02:00 ---
*** Messages sent: 1. Total bytes sent: 100716, Time: 02:10, bytes/minute: 46174
*** Messages Received: 0. Total bytes received: 0, Total session time: 02:10, bytes/minute: 0
*** Disconnecting
*** Disconnected from Winlink RMS: WM3M-10 @ 2022/06/24 00:02:00
*** Session: 2.2 min; Avg Throughput: 46020 Bytes/min; 1 Min Peak Throughput: 46020 Bytes/min

```

sent with average speed of 6136 bps



receiving message with file attachment

Vara FM Winlink Session - W2LNX

Exit Settings Switch to Peer-to-Peer Channel Selection **Start** Stop Abort

Connection: Direct WM3M-10 via [] , [] Freq.: 145.090 Range: [] Bearing: []

Favorites: WM3M-10 @ 145.090 Select Add to favorites Remove from favorites

In: 95668/100538 Out: 0/0 BPM: 68203 Disconnected Time to next Autoconnect = Disabled

```

*** Connected to Winlink RMS: WM3M-10 @ 2022/06/24 00:13:29 Freq: 145.090
MMARSI VARA RMS
[WL2K-5.0-B2FWIHJM$]
;PQ: 90998186
CMS via WM3M >
;FW: W2LNX
[RMS Express-1.6.5.0-B2FHM$]
;PR: 47436350
; WM3M-10 DE W2LNX (FM19JB)
FF
;PM: W2LNX AKX9F593GHLV 100538 David.Bern@Engineer.com Fwd: testing file transfer using VARA FM over WM3M-10
FC EM AKX9F593GHLV 103829 100538 0
F> 6B
FS Y
*** Receiving AKX9F593GHLV
*** AKX9F593GHLV - 103844/100548 bytes received
*** Bytes: 101404, Time: 01:24, bytes/minute: 72173
FF
FQ
*** --- End of session with WM3M-10 at 2022/06/24 00:15:23 ---
*** Messages sent: 0. Total bytes sent: 0, Time: 01:53, bytes/minute: 0
*** Messages Received: 1. Total bytes received: 101404, Total session time: 01:53, bytes/minute: 53485
*** Disconnected from Winlink RMS: WM3M-10 @ 2022/06/24 00:15:24
*** Session: 1.9 min; Avg Throughput: 50076 Bytes/min; 1 Min Peak Throughput: 50076 Bytes/min

```

received with average speed of 6677 bps

setting up soundmodem

- download soundmodem

<http://uz7.ho.ua/packetradio.htm>

Winlink Express 1.7.0.0 - W2LNX

W2LNX Settings Message Attachments Move To: Saved Items Delete Open Session: Packet Winlink Logs Help

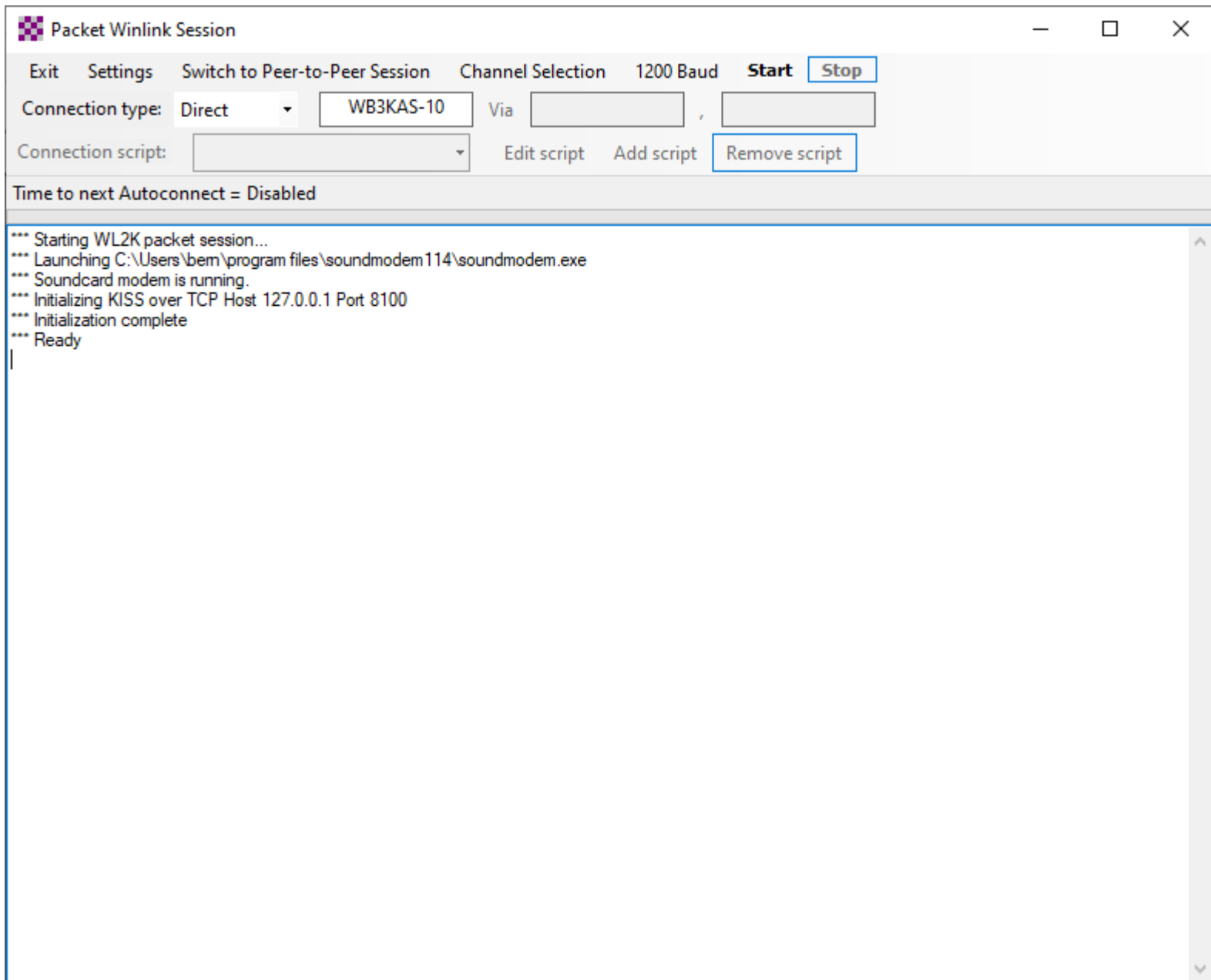
No active session...

System Folders	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
Inbox (37 unread)	2022/08/15 21:15	XVYX0B7XDPPS	100716	SMTP	SMTP:david.bem...	W2LNX	Fwd: Winlink VHF VARA FM demo
Read Items (329)	2022/08/15 1...	E3D007MP47...	100...	SMTP	SMTP:david.b...	W2LNX	Fwd: Winlink VHF VARA FM demo
Outbox (0)	2022/08/15 16:37	H4YQAARRT9XE	12183	SMTP	SMTP:david.bem...	W2LNX	Winlink VHF VARA FM demo
Sent Items (373)	2022/08/15 1...	GFFKD5M8Y...	12883	SMTP	SMTP:david.b...	W2LNX	Fwd: Winlink VHF VARA FM demo
Saved Items (2)	2022/08/13 2...	1C118GRE54...	100...	SMTP	SMTP:david.b...	W2LNX	Winlink VHF VARA FM demo
Deleted Items (1)	2022/08/13 1...	6E9ZWJRUV...	351	SMTP	SMTP:rschmi...	W2LNX	Fwd: bigger test of VARA FM over WM3M-10
Drafts (0)	2022/08/13 1...	I4S5B0T7TYMV	351	SMTP	SMTP:rschmi...	W2LNX	Fwd: bigger test of VARA FM over WM3M-10
Personal Folders	2022/08/13 19:25	J7DBQA3RQYBC	12270	SMTP	SMTP:rschmidt@...	W2LNX	Re: testing VARA FM using WM3M-10
Global Folders	2022/08/13 18:09	RTJWJV1VNIVI	652	SYSTEM	SERVICE	W2LNX	Approval Needed for Message [APRVLID:CY57NRS33H.
Contacts	2022/08/13 18:08	CY57NRS33HZN	2245	SMTP	SMTP:rschmidt@...	W2LNX	//WL2K testing FT-817 over W1AW
AC3JM	2022/08/13 12:06	2U2A5YETZH5C	12844	SMTP	SMTP:david.bem...	W2LNX	Fwd: Winlink VHF VARA FM demo
AC3N	2022/08/11 2...	SB8DH3L3LLDL	100...	SMTP	SMTP:david.b...	W2LNX	Winlink VHF VARA FM demo

Message ID: 2AR046W71YLG
 Date: 2020/11/05 12:02
 From: W2LNX
 To: W2LNX
 Source: W2LNX
 P2P: True
 Subject: 12, VARA FM, NARROW, Signalink, old, Signalink, old

12, VARA FM, NARROW, Signalink, old, Signalink, old

select Packet Winlink session



Packet Winlink session open

Packet Winlink/P2P Setup [X]

TNC Connection

Packet TNC Type:

Packet TNC Model: Serial Port:

TCP Host/Port:

Packet sound modem:

(For KISS mode) Automatically launch packet sound modem

TNC Parameters

1200 Baud 9600 Baud

TX Delay (Milliseconds):	<input type="text" value="400"/>	<input type="text" value="300"/>
Maximum Packet Length:	<input type="text" value="128"/>	<input type="text" value="255"/>
Maximum Frames:	<input type="text" value="4"/>	<input type="text" value="7"/>
Frack:	<input type="text" value="2"/>	<input type="text" value="2"/>
Persistence:	<input type="text" value="160"/>	<input type="text" value="224"/>
Slot time:	<input type="text" value="30"/>	<input type="text" value="20"/>
Maximum Retries:	<input type="text" value="5"/>	<input type="text" value="5"/>
Disable Xmit Level Adjust <input type="checkbox"/>	Transmit Level: <input type="text" value="100"/>	<input type="text" value="100"/>
	Enable IPoll: <input type="checkbox"/>	<input type="checkbox"/>

Automatic Calling

Autoconnect time:

Automatically call when there are pending outgoing messages

set path to soundmodem program

SoundModem by UZ7HO - Ver 1.14 - [AFSK AX.25 1200bd]

Settings View Clear monitor Calibration About

A: AFSK AX.25 1200bd 1700 DCD threshold Hold pointers

F> 8A

1:Fm WM3M-10 To W2LNx <I C R6 S4 Pid=F0 Len=5> [08:12:51R] [+++]
 FS Y

1:Fm W2LNx To WM3M-10 <I C R5 S6 Pid=F0 Len=128> [08:12:52T]
 \$FW: Fwd: Winlink VHF VARA FM demo00u 1i8zmg1)Nzç+0i.NEyl"á)cyf YIz{zE[Mi8Ööb_â /wpú Q%lePpÿ5*oäiv¼ Ås.9/ãö ìµl

1:Fm W2LNx To WM3M-10 <I C R5 S7 Pid=F0 Len=128> [08:12:52T]
 3uci>spwÜ|zj|ÇÆüP4)Y'»@ç+s(iÄopi"&aPJ b/|N%''æà)PÁPèx 2lz'q|lyÓäyF|(ØPâ\$ÿ)J8¼5E'äBçÖ9||)##~¼j'~è.ù

1:Fm W2LNx To WM3M-10 <I C R5 S0 Pid=F0 Len=128> [08:12:52T]
 YpEX|üä=IE?|Céú'ÖP|2|+çÖ.yÉ|jüNU|ÉTDÜ Önk|U' µ:c|*üTUNT%ÜJG|e4+T*±r8ÖüüO|éi
 @X2ä|FA|vBxnpöVèRÄ6èE||Ä|üU'

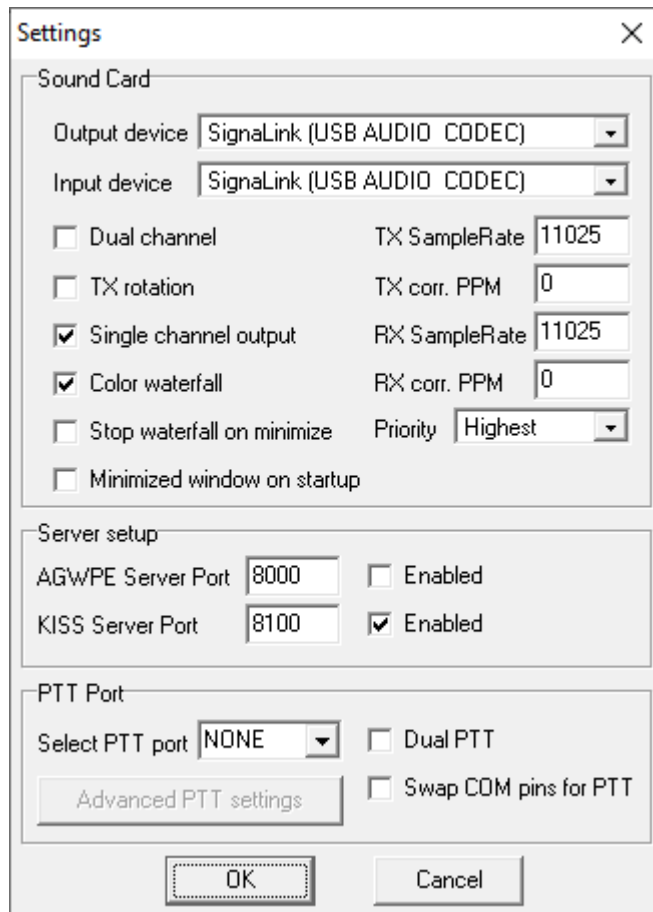
1:Fm W2LNx To WM3M-10 <I C R5 S1 Pid=F0 Len=128> [08:12:53T]
 èü+)Öml|ñ|eç'ÉüN|dvp|ç| ow'äüüýu(|CòÖÉ|E_ äÖÄ_ öpRæö<8Á<Mjyw5i«ãNÖ Ö|tk_|h|Ü|~Ö|V(|ZñüÉÆ-|A:*tt+*¼Dè
 ,Rn xR0b'

1:Fm WM3M-10 To W2LNx <RR R R7> [08:12:57R] [+++]
 1:Fm WM3M-10 To W2LNx <RR R R0> [08:12:57R] [+++]
 1:Fm WM3M-10 To W2LNx <RR R R1> [08:12:57R] [+++]
 1:Fm W2LNx To WM3M-10 <I C R5 S2 Pid=F0 Len=128> [08:12:57T]
 £¥ ózÖ'16+m8|Øç |ñ<|B|üü| ünA\$7'Áðæ=öpyö: (Ä;ql)¼|,ü|¼-> dhNGxR@Ä9oi|DjybiÉè4öäV³ÖÉWx[*öð|iUJK|ÉUk²|äel-xxVWäÖÉD#

1:Fm W2LNx To WM3M-10 <I C R5 S3 Pid=F0 Len=128> [08:12:57T]
 è!7|F7oz4à@P|¼Ö^v|«\$ççjÜ\$| | 5ZwUÄ|,j'">|üä |ä9ü)ü'ÖHç|çÉ.ü.ö |Ø~|j|e&ö|¥xuFiCw|fÆÖ|ñ|Ö|9PÜüM))ÆD=iz^¼PÉ

1:Fm W2LNx To WM3M-10 <I C R5 S4 Pid=F0 Len=128> [08:12:58T]
 Z3*«ö|Ü|¥E'ij6E äEó\$= VüÖjje?4'-o|üç|_@£|µÜ#|Ä./|1+.ª [|'«' èw(||oü¼?F+É èÖüf|'|äèSPfF¾ü,|«ªo>
 |ä«v#ÄéouC|/|ðè=cEr7öÉ

MyCall	DestCall	Status	Sent pkts	Sent bytes	Rcvd pkts	Rcvd bytes	Rcvd FC	CPS TX	CPS RX	Direction



select correct audio device

Modem settings

Modem filters ch: A	Modem filters ch: B
BPF Width <input type="text" value="1400"/> <input type="button" value="Show"/>	BPF Width <input type="text" value="1400"/> <input type="button" value="Show"/>
TXBPF Width <input type="text" value="1600"/> <input type="button" value="Show"/>	TXBPF Width <input type="text" value="1600"/> <input type="button" value="Show"/>
LPF Width <input type="text" value="650"/> <input type="button" value="Show"/>	LPF Width <input type="text" value="650"/> <input type="button" value="Show"/>
BPF Taps <input type="text" value="256"/>	BPF Taps <input type="text" value="256"/>
LPF Taps <input type="text" value="128"/>	LPF Taps <input type="text" value="128"/>
<input checked="" type="checkbox"/> Default settings	<input checked="" type="checkbox"/> Default settings
PreEmphasis filter <input type="text" value="None"/> <input checked="" type="checkbox"/> All	PreEmphasis filter <input type="text" value="None"/> <input checked="" type="checkbox"/> All
<input type="checkbox"/> KISS Optimization	<input type="checkbox"/> KISS Optimization
<input checked="" type="checkbox"/> non-AX25 filter	<input checked="" type="checkbox"/> non-AX25 filter
Modem type ch: A	Modem type ch: B
Mode <input type="text" value="AFSK AX.25 1200bd"/>	Mode <input type="text" value="AFSK AX.25 1200bd"/>
TXDelay <input type="text" value="250"/> msec	TXDelay <input type="text" value="250"/> msec
TXTail <input type="text" value="50"/> msec	TXTail <input type="text" value="50"/> msec
Add. RX <input type="text" value="0"/> pairs	Add. RX <input type="text" value="0"/> pairs
Add. RX shift <input type="text" value="30"/> Hz	Add. RX shift <input type="text" value="30"/> Hz
Bits Recovery <input type="text" value="NONE"/>	Bits Recovery <input type="text" value="NONE"/>
FX.25 Mode <input type="text" value="RX-ONLY"/>	FX.25 Mode <input type="text" value="RX-ONLY"/>
<input type="button" value="Ok"/>	<input type="button" value="Cancel"/>

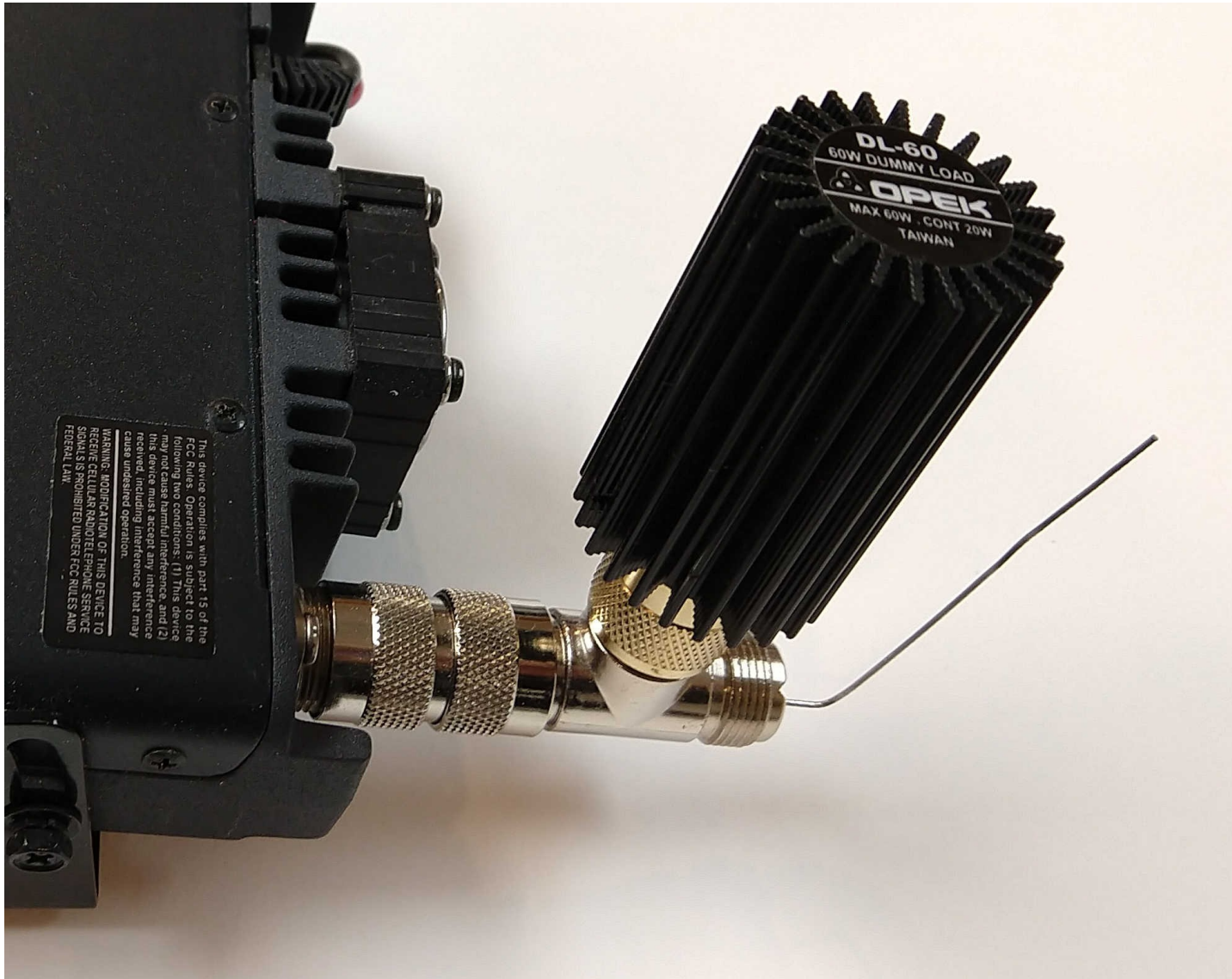
VARA FM and packet speed tests

using IC-880H and Signalink USB via WM3M-10

- VARA FM NARROW is about 6000 bps
- VARA FM unlicensed is about 880 bps
- AFSK AX-25 packet is about 400 bps

table-top tests using two FT-7800Rs and Signalink USBs

- VARA FM NARROW is about 10,000 bps
- VARA FM WIDE is about 16,000 bps



FT-7800R with dummy antenna

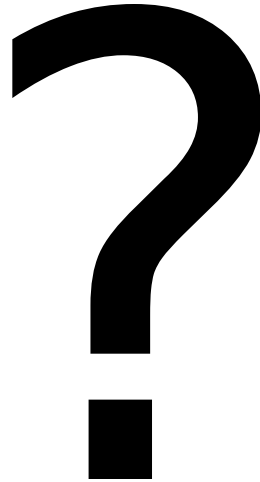
summary

- easiest way to set up Winlink is to use
 - Signalink USB audio interface with built-in VOX PTT
 - radios with 6-pin mini-DIN audio input/output port
- Windows settings for any USB audio device are essentially the same
 - always check the settings
 - select the right default audio device!
 - naming the radio USB audio device reduces confusion
- use VARA FM Auto Tune helps set Windows audio levels
- ask for assistance!

Winlink demonstration

👉 send and receive prepared messages via WM3M-10 gateway

questions



W2LNX@ARRL.NET

thank you

- Al, KN3U – my EmComm Elmer
- Jim, WB3KAS – my other EmComm Elmer
- Vic, WB2U – for inspiring us to do Winlink testing