



RMS Trimode

RMHAM UNIVERSITY MARCH 12, 2022

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What is Trimode?

Trimode is the Windows tool that allows HF contacts on multiple modes

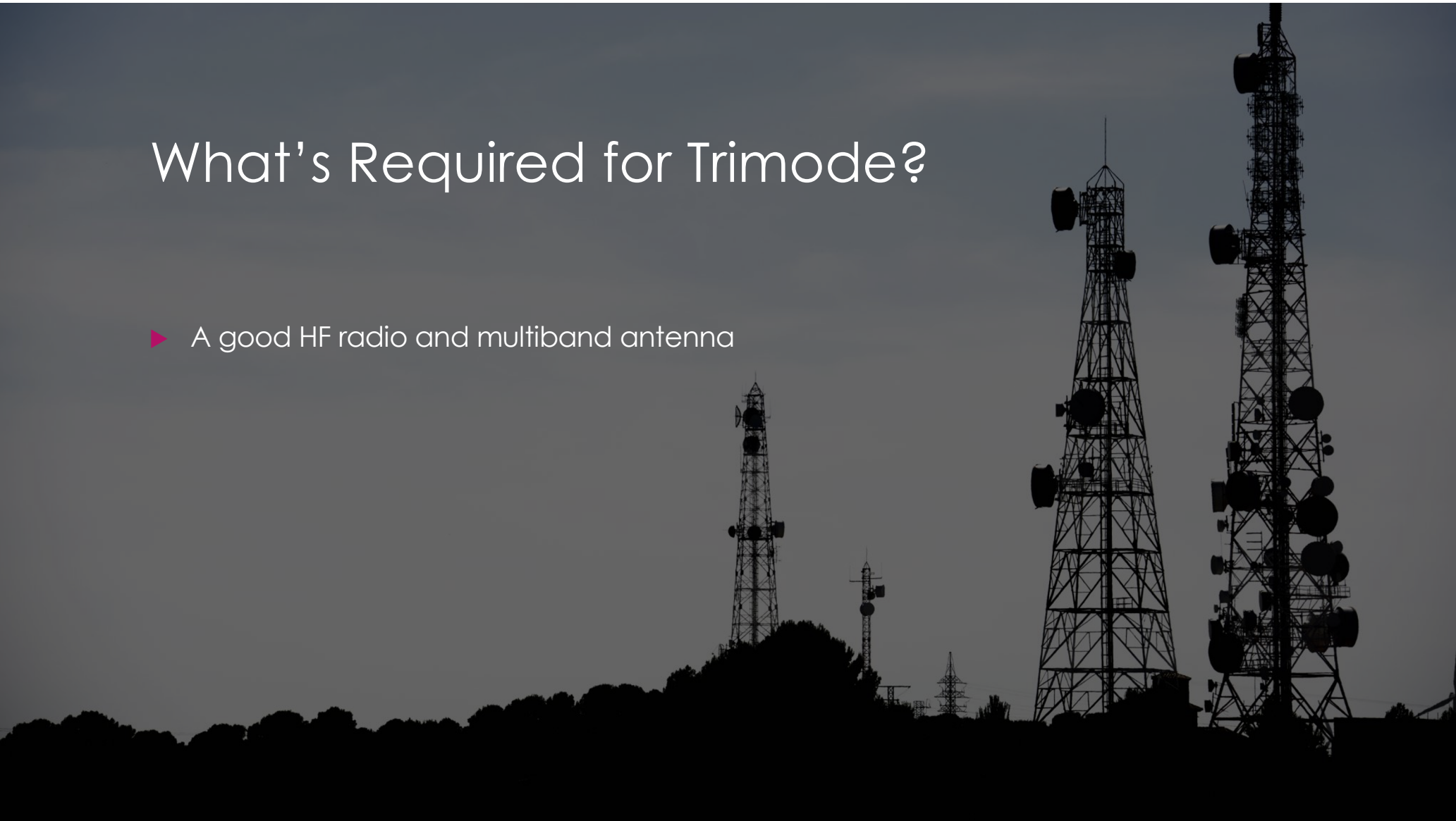
- ARDOP
- VARA
- Pactor 3

They do not offer tri-mode on any other platform

Offers backup if the internet fails

What's Required for Trimode?

- ▶ A good HF radio and multiband antenna



Sound card interface

- ▶ A sound card interface (Signalink USB or Masters Communications DRA-65)



A Good Computer

- ▶ A reliable Windows PC
 - ▶ Windows 7,8,10,11 works fine
 - ▶ It should be on it's own computer so that it is not interrupted
 - ▶ At least 4GB ram
 - ▶ I suggest a UPS as Trimode gets wonky on unclean restarts.



Trimode

A copy of
RMS Trimode

Under sysop
software on
winlink.org

Modem

- ▶ Pactor 3 or 4 Modem (Optional but suggested)
- ▶ Most connects to my RMS are on Pactor 3.



Authorization

- ▶ Contact the system operator at Winlink
 - ▶ Indicate that you wish to run a Winlink system full time
 - ▶ That you'd like to have your node's callsign allowed to be an RMS Gateway
 - ▶ Steve Waterman, K4CJX is the contact. k4cjsx@comcast.net

Once
Authorized...Start
Setting it up!

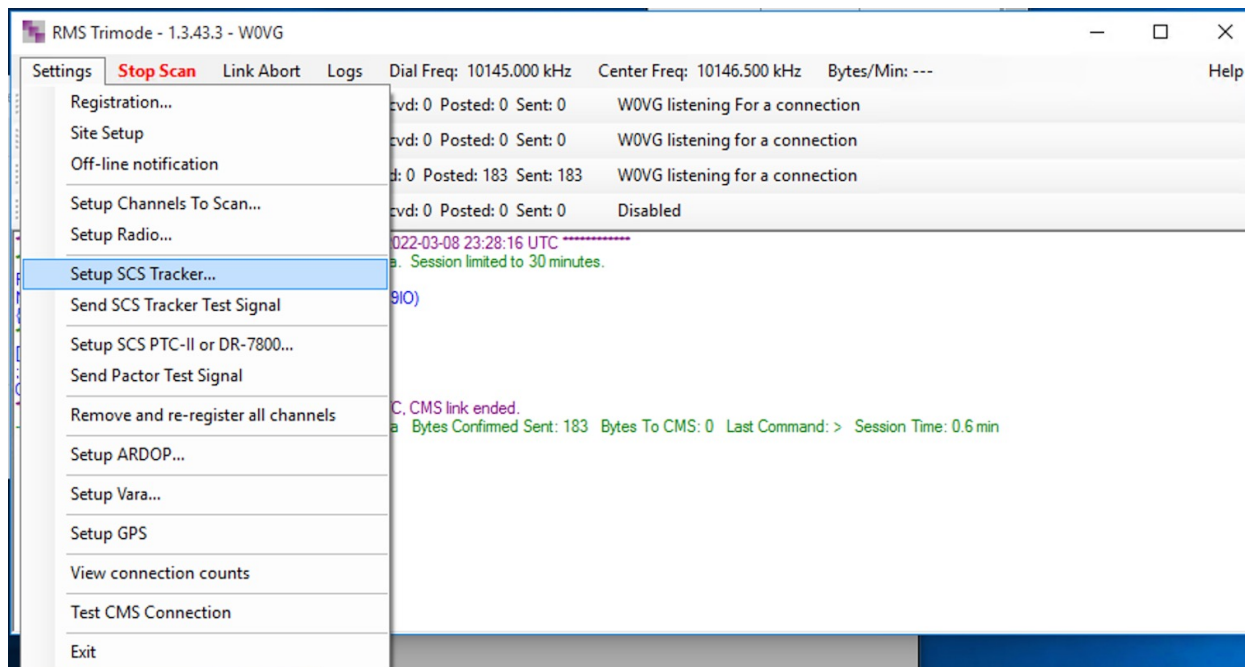


Download Vara HF and I recommend licensing it. Even though it doesn't need to be licensed to run on Trimode, it's a great piece of software.

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



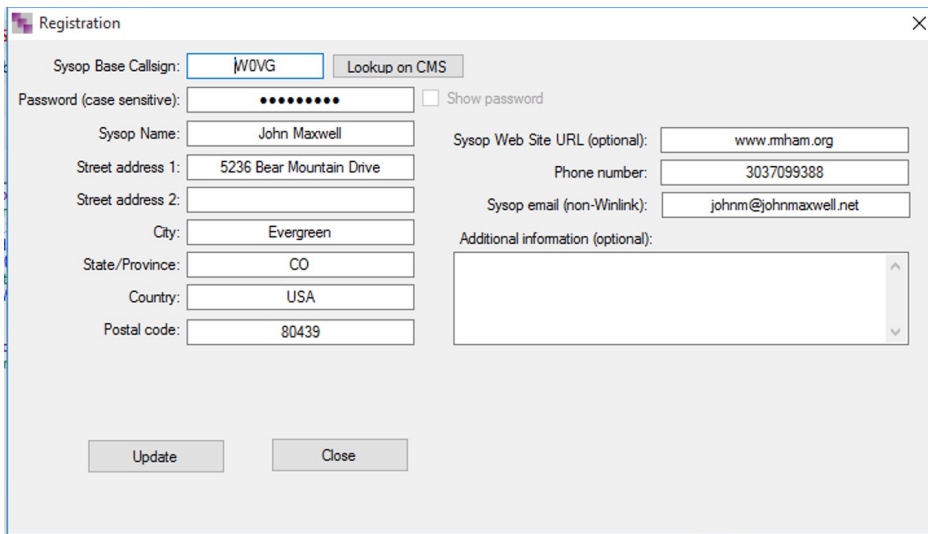
Install Vara



Set up
Trimode to
operate
properly

START WORKING DOWN
THE SETTINGS LIST.
CONFIGURE EACH, ONE AT
A TIME.

Registration

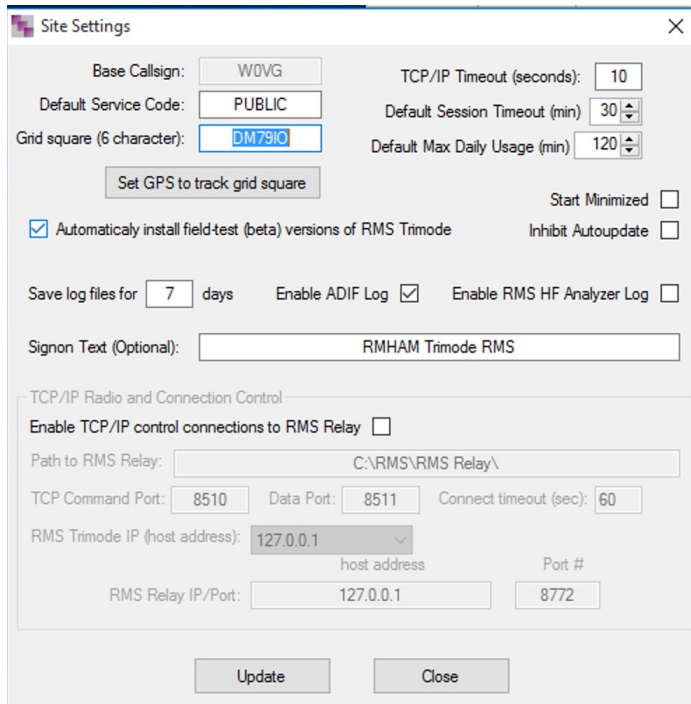


A screenshot of a 'Registration' window with a title bar and a close button. The form contains the following fields and controls:

- Sysop Base Callsign:** A text box containing 'W0VVG' and a 'Lookup on CMS' button.
- Password (case sensitive):** A text box with masked characters (dots) and a 'Show password' checkbox.
- Sysop Name:** A text box containing 'John Maxwell'.
- Sysop Web Site URL (optional):** A text box containing 'www.rmham.org'.
- Street address 1:** A text box containing '5236 Bear Mountain Drive'.
- Phone number:** A text box containing '3037099388'.
- Street address 2:** An empty text box.
- Sysop email (non-Winlink):** A text box containing 'johnm@johnmaxwell.net'.
- City:** A text box containing 'Evergreen'.
- Additional information (optional):** A large text area.
- State/Province:** A text box containing 'CO'.
- Country:** A text box containing 'USA'.
- Postal code:** A text box containing '80439'.
- Buttons:** 'Update' and 'Close' buttons at the bottom.

The registration section is only basic information. It will be the sysop callsign and password used to access Winlink.

Site Settings



The screenshot shows the 'Site Settings' dialog box with the following fields and options:

- Base Callsign: W0VG
- Default Service Code: PUBLIC
- Grid square (6 character): DM79IO
- TCP/IP Timeout (seconds): 10
- Default Session Timeout (min): 30
- Default Max Daily Usage (min): 120
- Buttons: Set GPS to track grid square, Start Minimized ☐, Inhibit Autoupdate ☐
- Checkboxes: ☒ Automatically install field-test (beta) versions of RMS Trimode
- Log settings: Save log files for 7 days, Enable ADIF Log ☒, Enable RMS HF Analyzer Log ☐
- Signon Text (Optional): RMHAM Trimode RMS
- TCP/IP Radio and Connection Control section:
 - Enable TCP/IP control connections to RMS Relay ☐
 - Path to RMS Relay: C:\RMS\RMS Relay\
 - TCP Command Port: 8510, Data Port: 8511, Connect timeout (sec): 60
 - RMS Trimode IP (host address): 127.0.0.1 (dropdown menu)
 - host address: 127.0.0.1, Port #: 8772
- Buttons: Update, Close

- Default Service code should be PUBLIC
- Your grid square can be calculated on the web at:
https://www.levinecentral.com/ham/grid_square.php
- Signon Text is shown to anyone that connects.
- If you use RMS Relay, your mileage may vary.

Channel Settings

When scanning the program dwells on each frequency for a time and then is 'dead' for 500 ms while changing frequency. A shorter dwell time of 3 seconds is used if ONLY Factor is enable on a frequency. Individual modes may be enabled on each frequency using its check box. A maximum of five frequencies will be scanned during any given hour.

The start time is the BEGINNING of the indicated hour and the stop stop is the END of the indicated hour for each frequency (all times in UTC). Time intervals may span midnight. A start time of 18 and a stop time of 6 represents a period from 1800 UTC time to 0659 UTC time.

A frequency setting of 0.000 represents an unused channel. A start hour of 0 and stop hour of 23 represents a continuous 24 hour period.

Frequency changes will not take place as long as there is a connection if progress. Center frequency is 1500 Hz higher than the upper sideband dial frequency for all modes.

Bandwidth should be set for "N" for Robust Packet, and Factor 1 and 2 Channels and "W" for Factor 3 or 4 Channels. Narrow modes can be used on Wide channels but this may be poor utilization of spectrum Do not use narrow channels in the automatic subbands in the US. Coordinate the use of automatic subband frequencies with the WL2K network manager.

If desired each frequency may use a different call sign/-ssid, Service code, Drive level adjustment, Tuner option and Antenna switch option. (Tuner and antenna switch options not yet enabled in Alpha version)

Note: All Active frequencies and Service codes will be reported to the WL2K Data base. Users are required to know service codes other than PUBLIC to view status information on the RMS Channels Status page.

<http://www.winlink.org/RMSChannels>

Center Frequency (KHz)	BW	Start Hour	Stop Hour	P3/4	P1/2	A	Vara	Rp	Dwell (sec)	Callsign	Service Code	Drive Adj	Tuner	Ant
1 10146.500	W	0	23	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3	W0VG	PUBLIC	0	None	None
2 14105.000	W	0	23	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3	W0VG	PUBLIC	0	None	None
3 18108.200	W	0	23	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3	W0VG	PUBLIC	0	None	None
4 7064.000	N	0	23	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6	W0VG	PUBLIC	0	None	None
5 7103.000	W	0	23	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6	W0VG	PUBLIC	0	None	None
6 28148.000	W	0	23	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6	W0VG	PUBLIC	0	None	None
7 0.000	N	0	23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	W0VG	PUBLIC	0	None	None
8 0.000	N	0	23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	W0VG	PUBLIC	0	None	None

Send Max Frequency Tuning Signal on Scan Resume: (Disabled)

Update Cancel

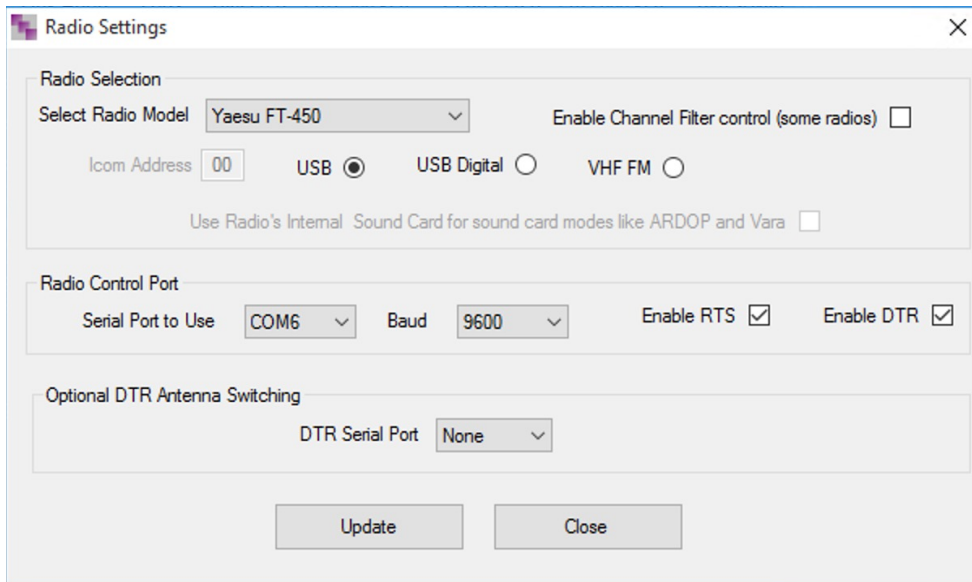
Set up your channels to scan

– Pay attention to the channel allocations!

Winlink Suggested Frequencies

- ▶ 3590-3600 500 CW, DM ACDS
3600-3625 2700 (*) All modes ACDS
- ▶ 7047-7050 500 CW, DM ACDS
7050-7053 2700 All modes ACDS
- ▶ 10130 - 10140 500 CW, DM ACDS
- ▶ 14089-14099 500 CW, DM ACDS
14101-14112 2700 All Modes ACDS
- ▶ 18105-18109 500 CW, DM ACDS
18111-18120 2700 All modes ACDS
- ▶ 21090-21110 500 CW, DM ACDS
21110-21120 2700 CW, DM ACDS
- ▶ 24925-24929 500 CW, DM ACDS
24931-24940 2700 All modes ACDS
- ▶ 28120-28150 500 CW, DM ACDS
28300-28320 2700 All modes ACDS
29200-29300 6000 All modes ACDS

Set up your radio and control port



The screenshot shows a 'Radio Settings' dialog box with the following configuration:

- Radio Selection:**
 - Select Radio Model: Yaesu FT-450
 - Enable Channel Filter control (some radios): ☐
 - Icom Address: 00
 - USB: ☒ (selected)
 - USB Digital: ☐
 - VHF FM: ☐
 - Use Radio's Internal Sound Card for sound card modes like ARDOP and Vara: ☐
- Radio Control Port:**
 - Serial Port to Use: COM6
 - Baud: 9600
 - Enable RTS: ☒
 - Enable DTR: ☒
- Optional DTR Antenna Switching:**
 - DTR Serial Port: None

Buttons at the bottom: Update, Close

You need a CI-V or CAT control for your rig.

Most new rigs have it built in.

The Yaesu FT-450 has a built in serial port.

Set Up Your Pactor 3 or 4 Modem

Pactor Modem Setup

Type of Pactor Modem

☒ SCS PTC-II, PTC-III Series Controller

☐ SCS DR-7800,7400 Controller

☐ Enable Pactor 4

☐ Send FEC ID on non PUBLIC channels

☐ Increase accuracy of callsign recognition

☒ Enable Busy Channel Block

☐ Longpath mode allowing extra signal latency

Pactor TNC Interface

☒ Use RS-232 Serial ☐ Use TCP/IP

Serial Port

TNC Serial Port: COM5

TNC Serial Port Baud Rate: 115200

TCP/IP Addr : Port

IP address and Port e.g. 127.0.0.1:8000

TX Delay (Milliseconds): 30

CS Delay (milliseconds): 50

PSK Transmit Level: 200

FSK Transmit Level: 200

Display Brightness Connected: 4

Display Brightness Idle: 1

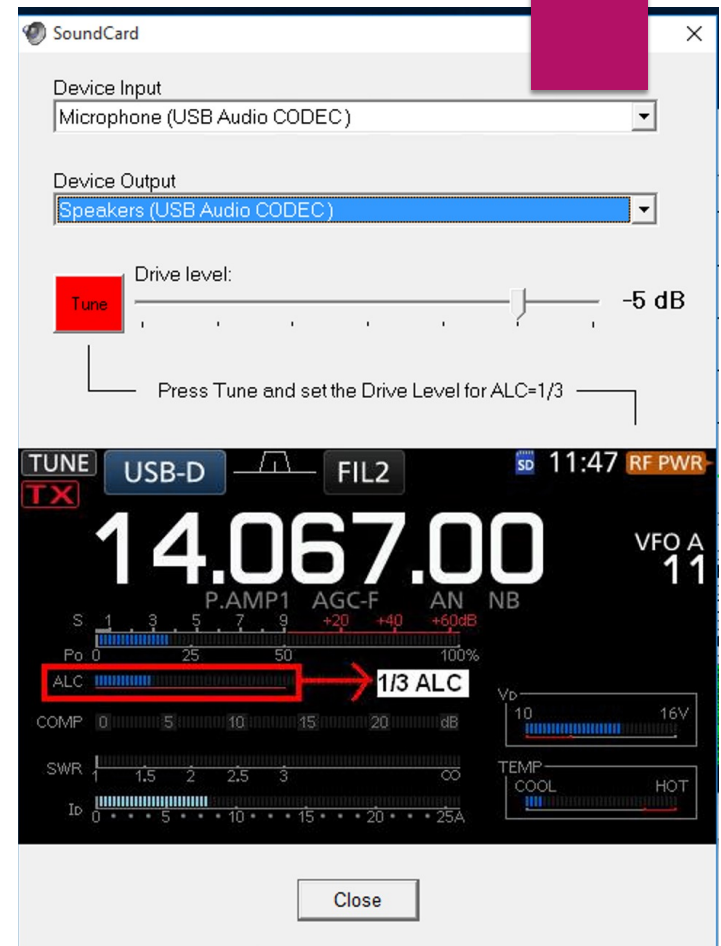
Update Cancel

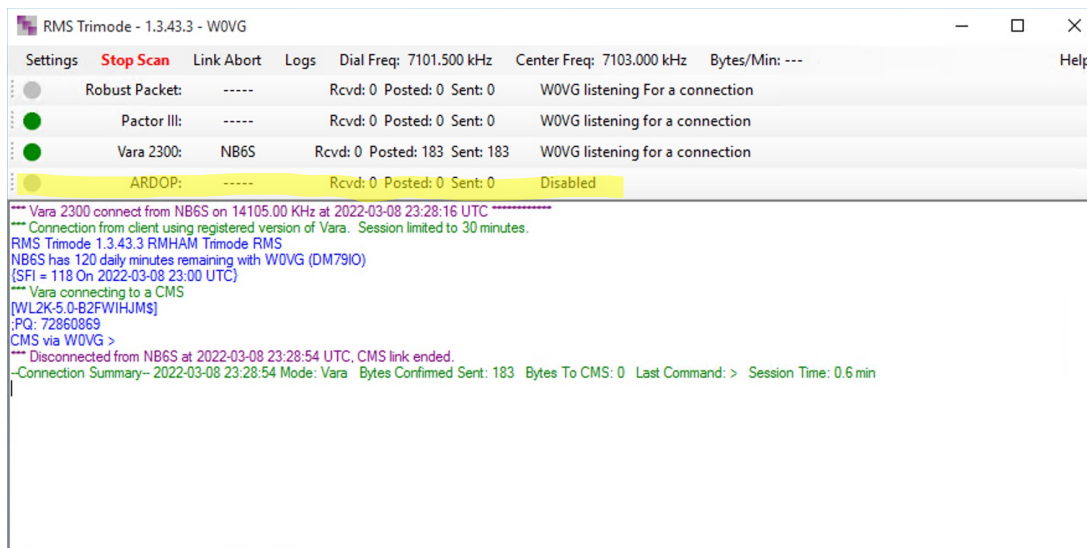
PTC is older but works fine on Pactor 3 with the appropriate license

DR-7400 and 7800 are new, support Pactor 4 which is NOT legal in the US at this time.

Setup VARA and ARDOP soundcards

- ▶ The Vara and Ardop soundcard setting is actually on the driver when it loads. You'll find an icon for each mode on the taskbar.
- ▶ Choose the USB Audio Codec for both input and output if you're using the signalink. You'll have to choose the proper unit name for the sound card you're using.

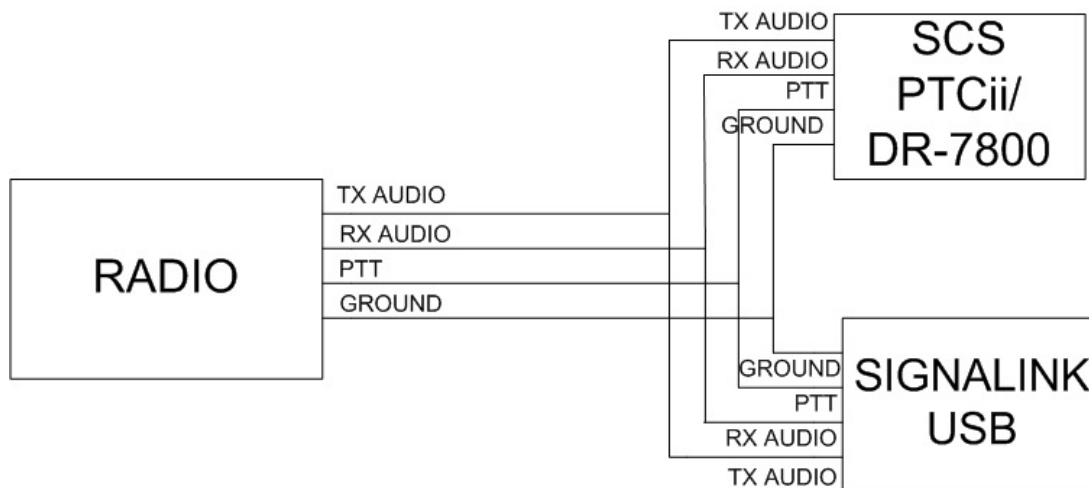




Once
Configured,
It should run.

THIS IS WHAT IT SHOULD
LOOK LIKE WHEN IT'S
OPERATIONAL. ALL
CONFIGURED MODES
SHOULD SHOW LISTENING.

PROPER WAY TO INTERCONNECT RADIO AND TNC/SOUND CARD



Proper
interconnect
of sound
cards and
modems

Internet Failure Backup

- ▶ RMS Relay allows for internet failure backup.
 - ▶ It's challenging to configure properly
 - ▶ I do failover with multiple internet providers as RMS RELAY does strange things. I have not been able to get actual full functionality failover to work correctly.
 - ▶ RMS Relay can be hard on your radio. High duty cycle for forwarding operations.
 - ▶ RMS Relay also allows for local message storage if the internet is down!



Questions?

- ▶ John Maxwell, W0VG
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