

Emergency Communications For Amateur Radio Operators



Paul Nienaber
KN4BAR
May 2025

Who, What, When, How?



Who do I talk to?

What frequency(s) do I use?

What do I say?

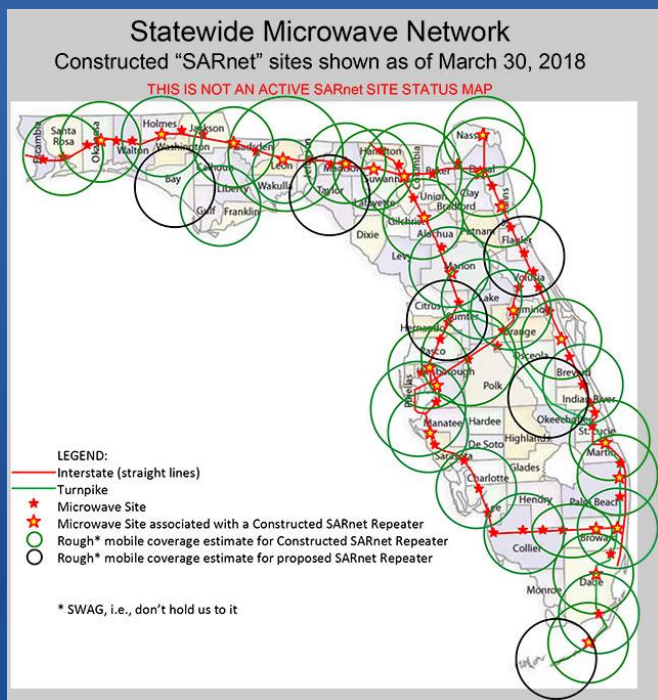
When do I call?

How do I fit in?

ANSWER:

GET INVOLVED NOW!

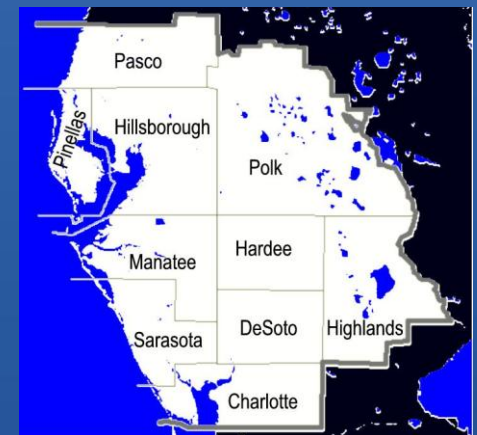
SAR NET



- State-Wide Amateur Radio Network
 - 30 + linked UHF repeaters covering state of Florida
 - Established and maintained by FDOT
 - Open to amateur use; used by state EOC in disaster as directed net
 - ~~444.800 (+) PL 100 hz [sarasota area]~~
- <https://www.sarnetfl.com/>

A R E S

- Amateur Radio Emergency Service
- ARRL field operating activity
- Organized by ARRL Section
- We are in West Central Florida section (WCF)
- <http://arrlwcf.org/wcf-section-programs/ares/>
- Each county in WCF has an Emergency Coordinator (EC)
- <http://srqares.org>
- Weekly NET, Thursdays at 7 PM on SAR-1 / 2 linked repeaters



SRQARES Frequencies

<https://tamiamiarc.org/tarc-repeaters/>

ID by “SAR” number

INITIAL CONTACT
(linked repeaters)

SAR-1, 146.730 (-) PL 100 HZ (north)

SAR-2, 145.130 (-) PL 100 HZ (south)

REPEATER OUT PROCEDURE:

SIMPLEX ON RECEIVE FREQ

Other EmComm Nets

- **WCF ARES .**
 - **145.430 MHz (-) PL 100 Hz**
 - **<https://ni4ce.org>**
 - **Mondays at 7:30 PM local**
- **Skywarn**
 - **Based out of Ruskin, FL**
 - **Online and in-person training**
 - **Uses NI4CE linked repeater system**
 - **<https://www.weather.gov/tbw/skywarn>**

HF Disaster Comms

- **For Florida nets will need 80-40m NVIS antenna**
 - **03940.0 LSB WCF and Southern Florida Emergency**
 - 03950.0 LSB Northern Florida

Emergency Regional/National Nets

- Salvation Army Team Emergency Radio (SATERN)
- **07268.0 LSB Hurricane Net (Amateur-to-National Hurricane Center)**
- 14265.0 USB Salvation Army Team Emergency Radio (SATERN)
- **14325.0 USB Hurricane Net (Amateur-to-National Hurricane Center)**
- **07265.0 LSB Salvation Army Team Emergency Radio (SATERN)**

Other Modes

.National Traffic System (NTS) : Eagle Net held daily at 8:30 PM

- <https://arrlwcfc.org/wcf-section-programs/nts/>

.WINLINK (send and receive email messages by radio)

- <https://winlink.org/>

- Very popular with American Red Cross

- Gaining favor with EOCs nation-wide (used by SRQARES)

- VARA and VARA-FM

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

- <https://downloads.winlink.org/VARA%20Products/>

- **Lifetime License \$69. Free version is throttled.**

.PACTOR (very fast and reliable, also \$900 or so!)

Getting Started with Winlink Express



- WINLINK GLOBAL RADIO EMAIL
-



**WIRELESS SOCIETY
OF SOUTHERN MAINE**

Est. 2010

MODIFIED FOR TARC USE

Paul Nienaber KN4BAR
May 2025

What is Winlink?

- Worldwide system for sending/receiving **e-mail via radio**
- Mature, well-tested and full featured system.
- Adopted for contingency communication by many **federal, state and county government agencies**
- Used by **American Red Cross**
- 100% accurate message transmissions.
- Radio connection bridge to **Internet e-mail**
- Geographical dispersion and redundancy for reliability
- Peer-to-peer connections between radio end-users

Primary Winlink Networks

- **Amateur Radio** - Over 10,000 amateur users are registered.
- Winlink is used by most **off-shore sailors**. Operates within the international amateur radio frequency space.
- **SHARES** - Federal system providing HF radio contingency communication for federal agencies. SHARES operates on NTIS, federal frequencies that are **not part of the amateur radio frequency space**.
- **MARS** - Military Auxiliary Radio Service. Provides contingency communication for U.S. military. Operates in NTIS MARS radio frequency space.

Winlink Definitions

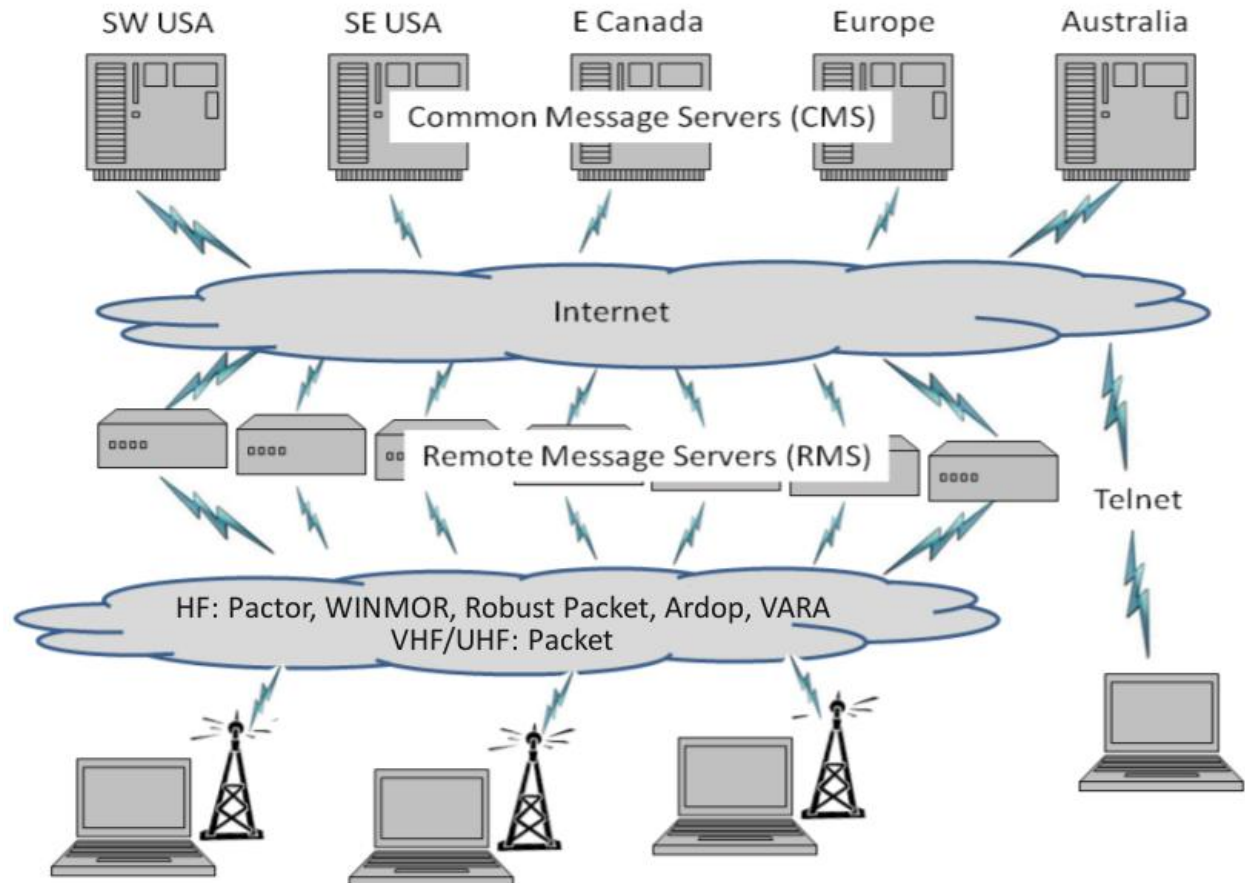
- **Client system** – Radio, computer with Winlink Express software, TNC (or sound card) and you, the end-user!
- **Radio Message Server (RMS)** – Radio **gateway** between the client (end-user) and the Winlink system backbone.
- **Common Message Servers (CMS)** – Winlink backbone.
 - Multiple CMS locations.
 - Redundant, fault-tolerant.
 - Located on 3 continents.
 - One CMS is sufficient for normal system operation.

Winlink Architecture

- CMS

- RMS
(Gateway)

- Client
(You)



Winlink Connection Modes

- HF Pactor – Fast but expensive - \$900.
- ~~HF WINMOR – Much slower, but reliable (Sound card mode)~~
- ARDOP (not popular or used in our area)
- **VARA-HF (Replaced WINMOR) very, very, slow without license**
- **VHF/UHF Packet – 2400 baud, 1200 baud**
- **VARA-FM** for V/UHF – 9600 baud (**with license**)
- Telnet – Non-radio connection through the Internet.
- **peer-to-peer** between two Winlink Express users.

VARA

VARA is a High Performance HF modem based on OFDM modulation. VARA Modem, brings state of the art Military grade technology to new and existing HF data.

Introduces a new standard of technology available for Amateur and Commercial use. Designed for operation within a SSB Bandwidth of 2400 Hz.



Get a Winlink Account

Steps

Download, install and configure Winlink Express as your client software. Enter a password to use with your account. Click **“Update”**.

Your radio email address is ***YOURCALL@winlink.org***.

A confirmation will be sent to your new address. Retrieve it using your client program. **TELNET**

Use your callsign as your username, and password to log in at the winlink.org website to manage your account.

Winlink accounts stay alive *only with radio use*. **Accounts off-air for 400 days are automatically purged. Use it or loose it!**

Download Winlink Express

- Go to Winlink.org, click on the link to [Winlink Express](https://winlink.org/WinlinkExpress), and follow the instructions to download.
- You will download a Zip file containing the installation package.
- LINK: <https://winlink.org/WinlinkExpress>

Winlink Setup

Winlink Express Properties

Call Signs

My Callsign: My Password: (Case sensitive) ☐ Show password

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

My Grid Square:

Winlink Express registration key:

Path to propagation forecast program:

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: 6 character Grid square

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

Winlink Express Email Client

Winlink Express 1.5.11.4 - KB1HNZ

KB1HNZ Settings Message Attachments Move To: Saved Items Delete Open Session: Ardop Winlink Logs Help

No active session...

System Folders

- Inbox (0 unread)
- Read Items (0)
- Outbox (0)
- Sent Items (12)
- Saved Items (0)
- Deleted Items (0)
- Drafts (0)

Personal Folders

Global Folders

Contacts

Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
2018/03/24 17:48	UMERBG50QYBP	208	WX1GYX	WX1GYX	KB1HNZ...	//WL2K Test message
2018/03/24 17:22	H6KPU1SSPCY	26939	SMTP	SMTP.query-repl...	KB1HNZ	GFS:39N,48N,74W,60W
2018/02/02 16:19	ESRPL003S7RF	528	SYSTEM	SERVICE	KB0FX...	//WL2K User Notice
2017/10/05 21:52	EWUX8M3DB7NE	186	WS1EC	WS1EC	KB1HNZ	//WL2K test message
2017/06/25 17:13	204NOBHJVW3G	381	System	SERVICE	KB1HNZ	Undelivered Message
2017/06/25 01:15	QV54N5ACUX9	547	KB1YTR	KB1YTR	WS1SM...	//WL2K Happy Field Day

Message ID: UMERBG50QYBP
Date: 2018/03/24 17:48
From: WX1GYX
To: KB1HNZ; WS1EC; WS1SM
Source: WX1GYX
Downloaded-from: Telnet:cms.Winlink.org
Subject: //WL2K Test message

Test message from NH ARES Academy

73'

Tim
KB1HNZ

Peer-2-Peer

- Agree on frequency
- One "listens"
- Other sends P2P formatted message(s)

Open Session: Packet Winlink Logs

- Telnet Winlink
- Packet Winlink
- Pactor Winlink
- Robust Packet Winlink
- Ardop Winlink
- Vara HF Winlink
- Vara FM Winlink
- Iridium GO Winlink
-
- Packet P2P
- Pactor P2P
- Robust Packet P2P
- Ardop P2P
- Vara HF P2P
- Vara FM P2P
- Telnet P2P
-
- Pactor Radio-only
- Vara HF Radio-only
- Vara FM Radio-only
- Telnet Radio-only
-
- Telnet Post Office

Recipient: KN4BAR

UZ7HO Sound Modem for Packet

The image shows two overlapping windows. The background window is 'SoundModem by UZ7HO - Ver 1.14 - [AFSK AX.25 1200bd]'. It has a menu bar with 'Settings', 'View', 'Clear monitor', 'Calibration', and 'About'. Below the menu bar, there are controls for 'A: AFSK AX.25 1200bd', a frequency of '1700', and a 'DCD threshold' slider. The main area is a large empty space with a single red dot in the center. At the bottom, there is a table with columns: 'MyCall', 'DestCall', 'Status', 'Sent pkts', 'Sent bytes', and 'Rcvd pkts'. Below the table is a frequency display with a scale from 1000 to 2000 and a diamond cursor. The foreground window is 'Packet Winlink Session'. It has a menu bar with 'Exit', 'Settings', 'Switch to Peer-to-Peer Session', 'Channel Selection', '1200 Baud', 'Start', and 'Stop'. Below the menu bar, there are fields for 'Connection type: Script', 'N4SER-10', 'Via WC4EM', and 'Connection script: SAR21-direct-W4IE'. There are also buttons for 'Edit script', 'Add script', and 'Remove script'. Below these fields, it says 'Time to next Autoconnect = Disabled'. The main area of this window contains a log of actions: '*** Starting WL2K packet session...', '*** Launching C:\Users\Paul\Desktop\KN4BAR\soundmodem.exe', '*** Soundcard modem is running.', '*** Initializing KISS over TCP Host 127.0.0.1 Port 8100', '*** Initialization complete', and '*** Ready'.

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

Settings View Clear monitor Calibration About

A: AFSK AX.25 1200bd 1700 DCD threshold

MyCall DestCall Status Sent pkts Sent bytes Rcvd pkts

1000 2000

13 items

Packet Winlink Session

Exit Settings Switch to Peer-to-Peer Session Channel Selection 1200 Baud Start Stop

Connection type: Script N4SER-10 Via WC4EM

Connection script: SAR21-direct-W4IE Edit script Add script Remove script

Time to next Autoconnect = Disabled

*** Starting WL2K packet session...
*** Launching C:\Users\Paul\Desktop\KN4BAR\soundmodem.exe
*** Soundcard modem is running.
*** Initializing KISS over TCP Host 127.0.0.1 Port 8100
*** Initialization complete
*** Ready

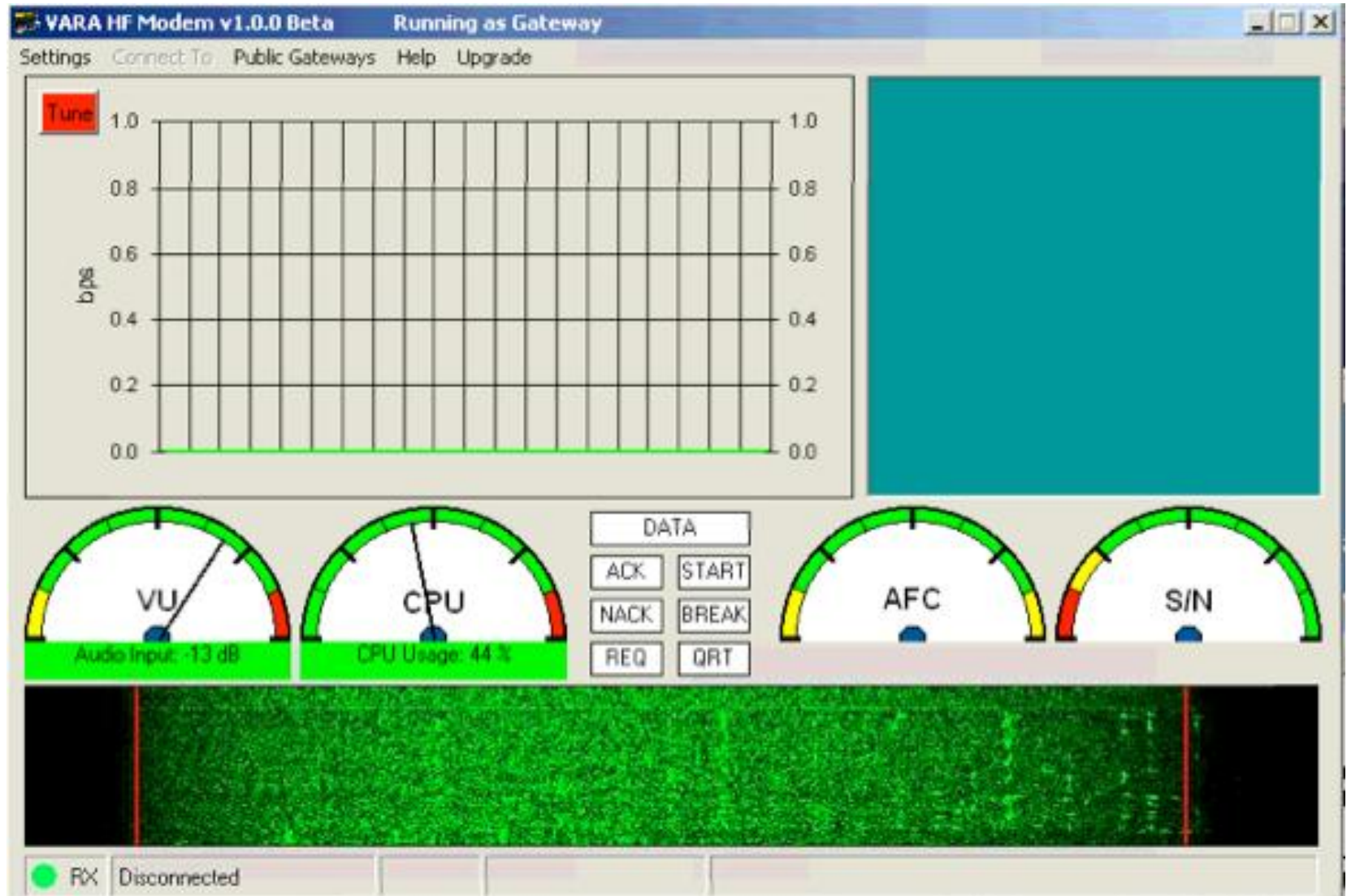
<http://uz7.ho.ua/packetradio.ht>

Soundmodem versions, manuals and utility:

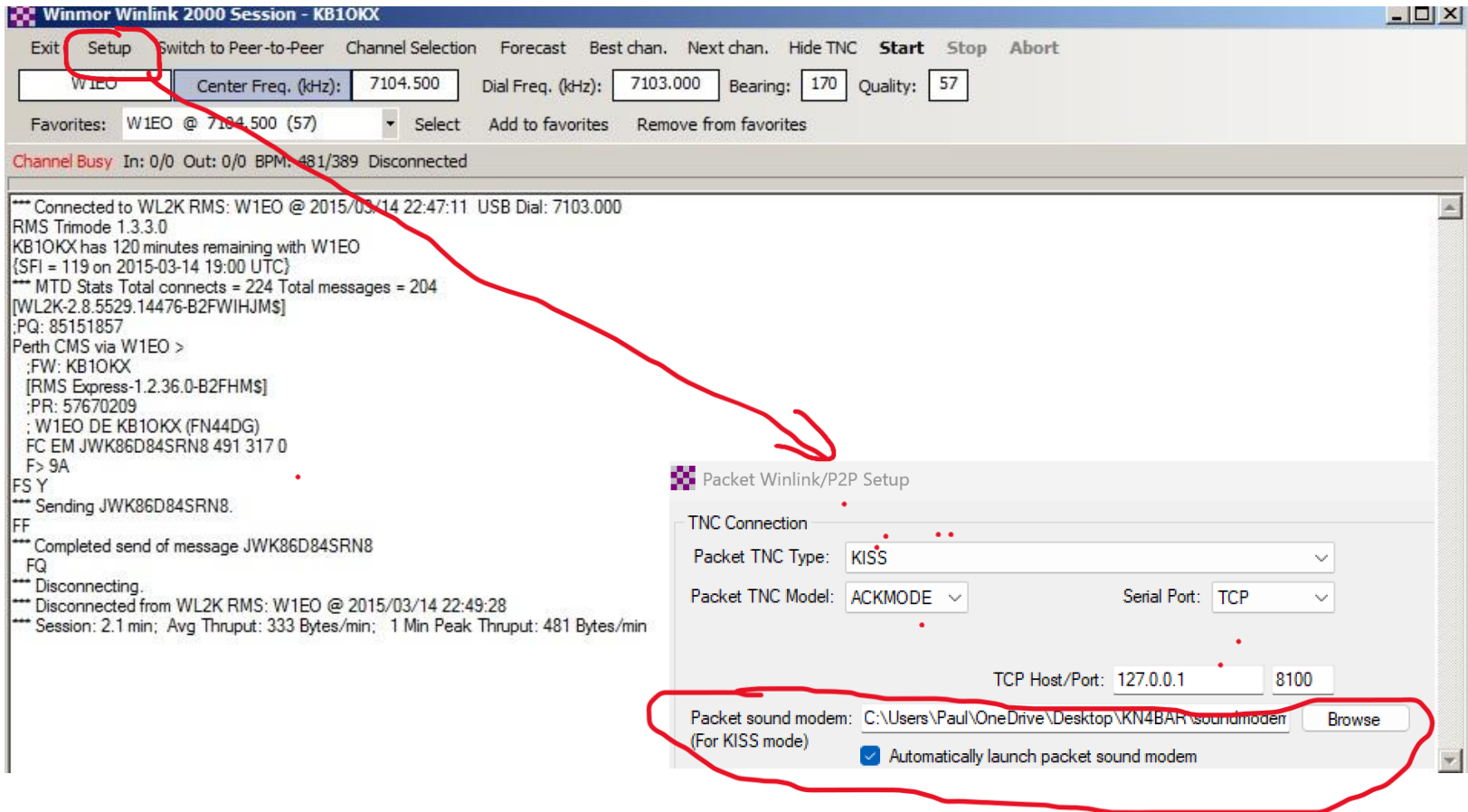
CHANGELOG.txt	09-Jun-22 06:22	10.02K
greentnc.zip	25-Dec-22 11:33	1.35M
hs_soundmodem27.zip	11-Feb-21 09:15	454.19K
other-versions.zip	05-Oct-22 00:03	6.99M
ptt.dll.zip	30-Oct-19 22:39	247.22K
soundmodem114.zip	09-Jun-22 06:18	465.62K
user_guide_v0450_FR.pdf	11-Oct-13 19:13	333.12K
user_guide_v114_EN.pdf	24-Oct-22 05:14	705.45K
utils.zip	28-Feb-15 04:59	68.21K

If you like the program and wish to make a donation, just send me an [E-Mail](#) to get more information how to do it.

VARA



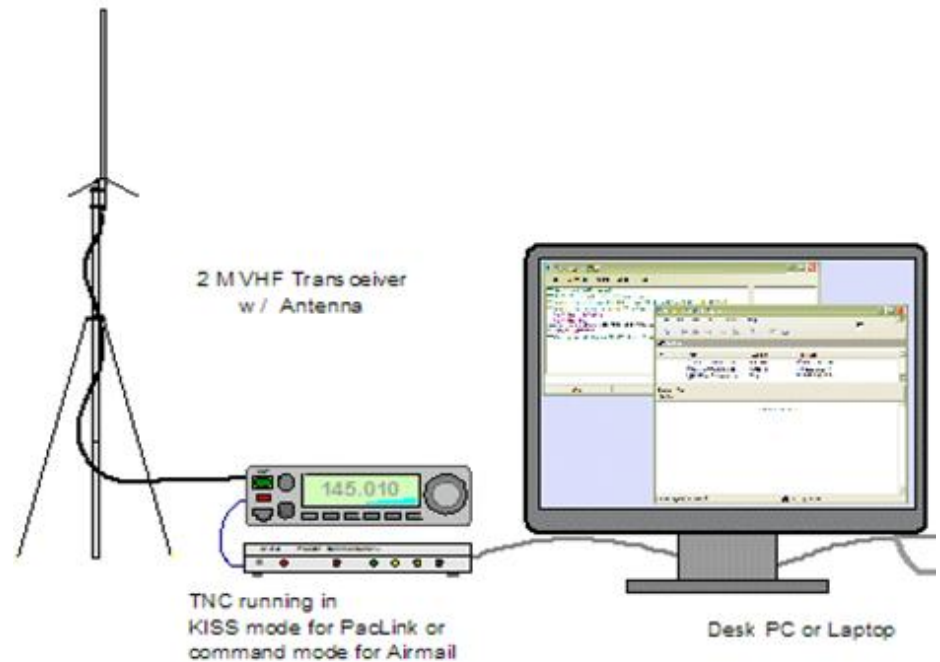
Observe Session



HF Channel Selector

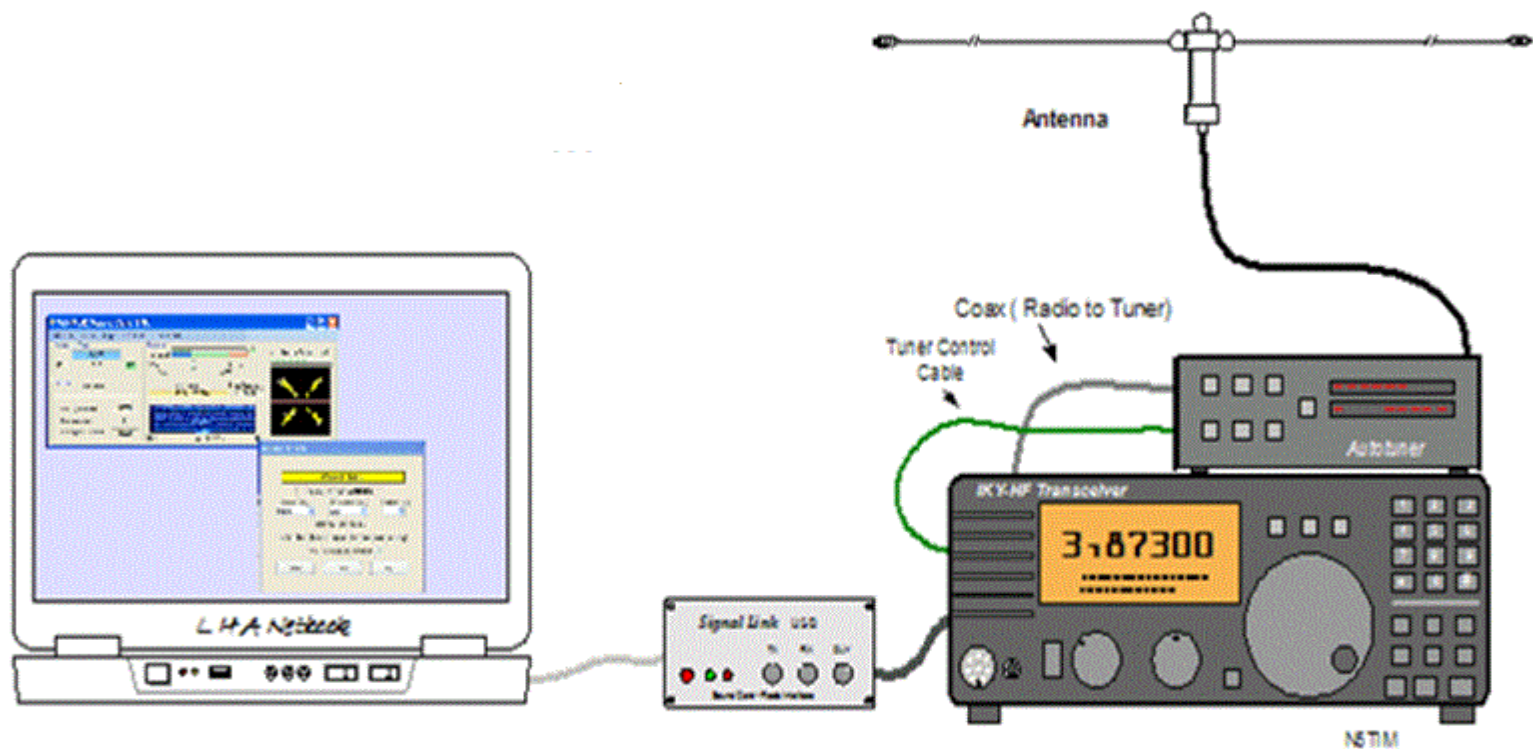
HF Channel Selector										×
Exit Select Update Table Via Internet Update Table Via Radio Forecast SFI All RMS										
Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate	^
WQ2H	3595.000	2000	FN32XV	00-23	PUBLIC	145	242	81	57	
WW4MSK	3592.500	2000	EM74UW	00-23	PUBLIC	1521	236	38	37	
WW4MSK	7105.500	500	EM74UW	00-23	PUBLIC	1521	236	53	41	
WW4MSK	10148.500	2000	EM74UW	00-23	PUBLIC	1521	236	36	36	
WW4MSK	28184.500	2000	EM74UW	00-23	PUBLIC	1521	236	0	0	
XE1CRG	10142.000	2000	DL90HQ	00-23	PUBLIC	3820	238	5	29	
XE1CRG	14085.000	2000	DL90HQ	00-23	PUBLIC	3820	238	6	12	
XE1CRG	18107.000	2000	DL90HQ	00-23	PUBLIC	3820	238	0	0	
XE1CRG	21102.500	2000	DL90HQ	00-23	PUBLIC	3820	238	0	0	
XE1VP	10143.000	2000	EK09JI	00-23	PUBLIC	3789	234	6	29	
XE1VP	14092.900	2000	EK09JI	00-23	PUBLIC	3789	234	6	12	
XE1VP	18098.500	2000	EK09JI	00-23	PUBLIC	3789	234	0	0	
XE2BNC	3591.700	2000	DM12MM	00-23	PUBLIC	4190	269	0	11	
XE2BNC	7068.000	2000	DM12MM	00-23	PUBLIC	4190	269	1	25	
XE2BNC	10144.000	2000	DM12MM	00-23	PUBLIC	4190	269	4	28	
XE2BNC	14095.500	2000	DM12MM	00-23	PUBLIC	4190	269	9	19	
XE2BNC	18098.500	2000	DM12MM	00-23	PUBLIC	4190	269	0	0	▼

Typical Home or EOC VHF/UHF Winlink Station using Packet/Pactor

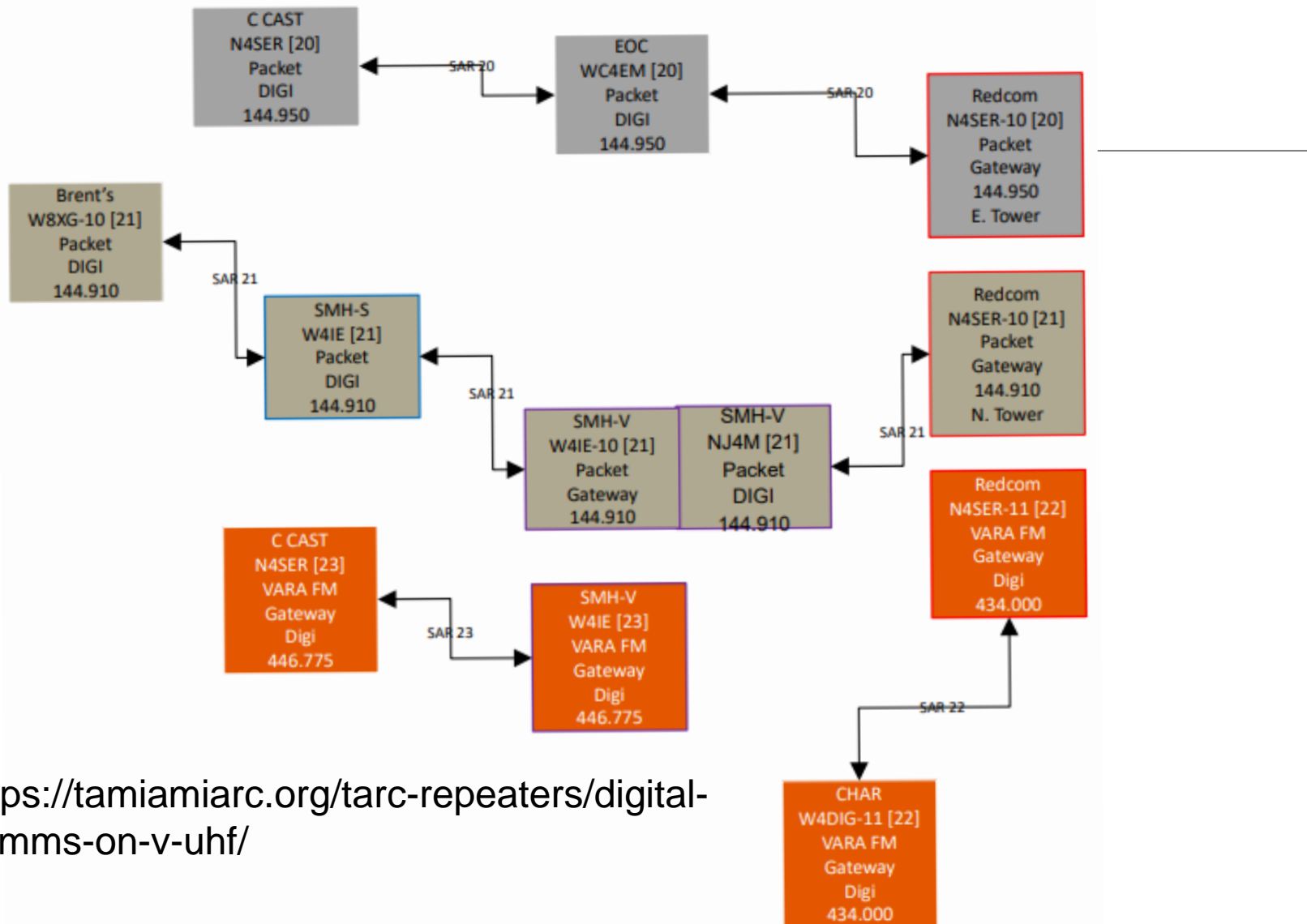


A Winlink Express Station

(using Winmor, Ardop, or VARA sound card modem)



SERC V/UHF Digital Assets



Local Winlink Gateways

(<https://tamiamiarc.org> and <https://n4ser.org>)

Sarasota County WinLink Packet Gateways

144.950	N4SER-10	Red Cross tower
144.910	N4SER-10	Red Cross tower
144.910	W4IE-10	SMH-Venice roof

Sarasota County VARA FM Gateways

446.775	W4IE	SMH-Venice roof
446.775	N4SER	Comcast tower
434.000	W4DIG-11 & N4SER-11	ARC

RMS EXPRESS MAIL BOX

Winlink Express 1.5.11.4 - KB1HNZ

KB1HNZ Settings Message Attachments Move To: Saved Items Delete Open Session: Ardop Winlink Logs Help


No active session...

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
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	2018/03/24 17:22	H6KPJU1SSPCY	26939	SMTP	SMTP:query-repl...	KB1HNZ	GFS:39N,48N,74W,60W
	2018/02/02 16:19	ESRPL003S7RF	528	SYSTEM	SERVICE	KB0FX...	//WL2K User Notice
	2017/10/05 21:52	EWUX8M3DB7NE	186	WS1EC	WS1EC	KB1HNZ	//WL2K test message
	2017/06/25 17:13	204NOBHJVW3G	381	System	SERVICE	KB1HNZ	Undelivered Message
	2017/06/25 01:15	QV545N5ACUX9	547	KB1YTR	KB1YTR	WS1SM...	//WL2K Happy Field Day
	2017/06/21 16:20	LYX1NA5CFMVB	152	WB1FBA	WB1FBA	KB1HNZ	//WL2K test message

Message ID: VIJCTW9I6019
Date: 2017/02/10 21:37
From: WX1GYX
To: KB1HNZ
Source: WEBMAIL
Downloaded-from: Telnet:Halifax.Winlink.org
Subject: test message

test message

Compose a message

 Enter a new message — □ ×

Close Select Template Attachments Post to Outbox Spell Check Save in Drafts

From: KB1HNZ ▼

Send as: Winlink Message ▼ ☐ Request read receipt Set Defaults

To:

WS1EC;

Cc:

Subject:

Test message

Attach:

Test message for Winlink presentation.

73'

Tim
KB1HNZ

Check Sent Items and Outbox

Winlink Express 1.5.11.4 - KB1HNZ

KB1HNZ Settings Message Attachments Move To: Saved Items Delete Open Session: Ardop Winlink Logs Help

In Ardop Winlink session.

System Folders

- Inbox (0 unread)
- Read Items (0)
- Outbox (0)
- Sent Items (12)
- Saved Items (0)
- Deleted Items (0)
- Drafts (0)

Personal Folders

Global Folders

Contacts

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2018/03/24 17:15	GC67W2ZQBZ7O	249	KB1HNZ	KB1HNZ	query@saildocs....	GRIB file request
	2017/11/13 15:01	CGSW2S2Z4R1B	248	KB1HNZ	KB1HNZ	query@saildocs....	GRIB file request
	2017/09/21 20:09	KS29E92XNW1H	636	KB1HNZ	KB1HNZ	WS1EC	//WL2K Exercise Traffic
	2017/06/25 17:13	9H82JC17W7OB	460	KB1HNZ	KB1HNZ	W2GE	//WL2K Radiogram
	2017/06/25 17:08	101FKG8B80TY	627	KB1HNZ	KB1HNZ	W5ADC	//WL2K Radiogram messages
	2017/06/25 17:00	P45LTSVX7O8	924	KB1HNZ	KB1HNZ	KB1YTR	//WL2K Field Day 2017
	2017/06/25 16:55	6CWX4K784KCT	310	KB1HNZ	KB1HNZ	KB1YTR	ACK: AML2K Ham Radio Field Day

Message ID: GC67W2ZQBZ7O
Date: 2018/03/24 17:15
From: KB1HNZ
To: query@saildocs.com
Source: KB1HNZ
Subject: GRIB file request

send GFS:39N,48N,74W,60W|0.5,0.5|0,6,12,18,24,30,36,42,48|WIND,WAVES,PRMSL Days=2
time=00:00

Now get on the air!

