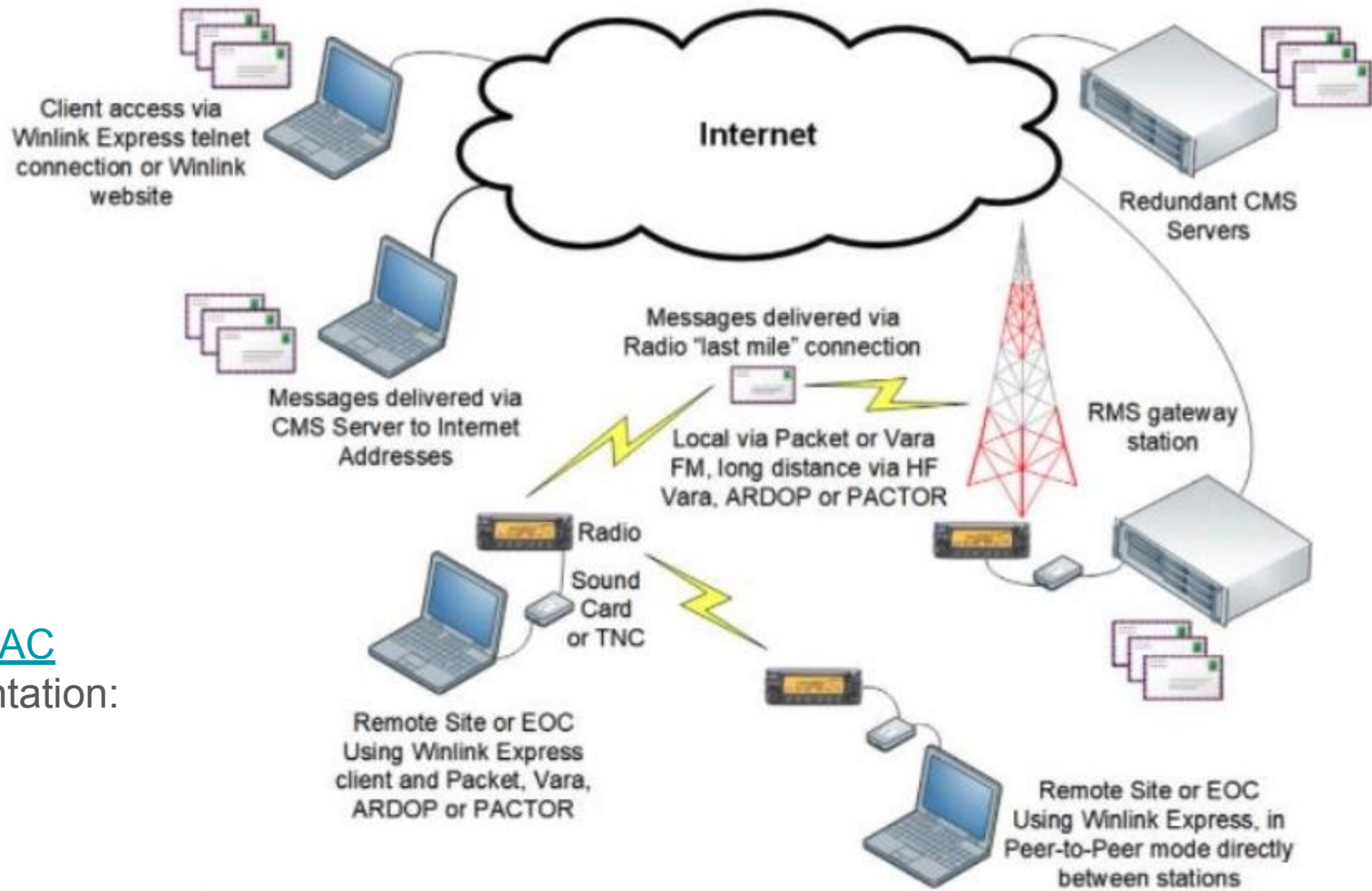


Brief Introduction to Winlink

Email over Ham Radio

Randy LeVeque KJ7LWT
Matt Reynolds KD0PYK

[Indian Peaks Radio Club](#), 2025-09-23



Winlink System Diagram

Slide from [SEA-PAC](#)
Workshop Presentation:

[Winlink Express](#)
[Overview and](#)
[Installation](#)



Winlink Overview

- Message, perhaps with attachments (e.g. photo, spreadsheet) is digitized by a modem (typically on a laptop) and turned into an audio signal.
- Audio signal is sent by radio, then demodulated by a computer on the other end.
- Can be sent "peer-to-peer" to another ham (if direct connection is coordinated).
- Winlink gateways are radios always listening for traffic, that are connected to the internet and pass the email to a central server.
- Any other gateway can be used by the recipient to download the email.
- Requests can be sent to saildocs.com to get weather report, headlines, etc.

"I Am Safe" Welfare Messages

With the help of ham radio, members of the public can find comfort during emergencies by sending well-being messages to loved ones.

QST Magazine, Feb 2024 page 66

David Wilma, KG7LEA

Seattle, Washington, has a network of more than 135 neighborhood hubs (read the January 2020 "Public Service" column by John T. Young, K7JY, for more information) where neighbors can gather during emergencies to share information and resources after the disruption of normal services. Hams are beneficial at each hub, exchanging messages with the city, other hubs, and other response groups; distributing public service information, and providing situational awareness.

Welfare messages via radio are of a lower priority than response and recovery traffic but are of the greatest importance to residents. Members of the Seattle Emergency Communication Hubs and hams developed the "I Am Safe" welfare messaging process that utilizes Winlink Global Radio Email®, the National Traffic System (NTS), and Radio Relay International (RRI).

"I Am Safe" message

Date:	10 JULY 2023	Time:	0905
YOUR Name:	LUCAS FRANCISCO		
Whom would you like to contact?	LOUISE PHENIMEISTER		
Email address?	PREPYU@GMAIL.COM		
Phone number?			
Circle one:		If cell phone, do you know their carrier?	
Cell phone	Landline		
Street address:			
City, State, Zip			
Number(s): _____ (see back side) 25 total word limit for entire message			
Additional text <u>ALL ARE SAFE AND STAYING WITH FRIENDS.</u> <u>WILL CALL WHEN I CAN. I LOVE YOU</u>			
Jun 2023		Entered <input type="checkbox"/>	

Sample intake message completed by a sender at a neighborhood emergency communications hub.

name, the known address of their out-of-area contact, and a message. The volunteer reviews it for completeness and legibility (an important step identified in beta testing) before the sender leaves.



See also:
[I Am Safe Program](#)

Some Winlink Resources

- Winlink homepage: <https://winlink.org>
 - See “Winlink Was There” section of homepage for many real-world uses
- Book of Knowledge: https://winlink.org/content/winlink_book_knowledge
- Maps: <https://winlink.org/RMSChannels>
- Winlink Express client: <https://winlink.org/WinlinkExpress> (on Windows)

First steps to start using Winlink:

- Create an account: <https://winlink.org/user>
- Install Winlink Express (or other client, e.g. [Pat](#) for Mac, Linux)
- Compose message to yourself (e.g. to your gmail account)
- Send by “telnet session” **(No radio required!)**

Basic steps:

- Compose message
- Post to Outbox
- Open Session, which could be:
 - Peer-to-peer,
 - Using a Gateway, via e.g. Telnet, Packet FM, VARA FM, VARA HF, etc.
- Hit Connect

If sending to a Gateway:

- Message is sent to a radio/computer that's connected to the internet
- Which sends it up to the Winlink server in the Cloud, where it stays until recipient connects.

And each time you connect to a gateway:

- The server is queried for any waiting messages
- If so, message is sent down to that gateway, passed on by radio (auto or manual)
- Message is removed from server

What email addresses work?

Sending:

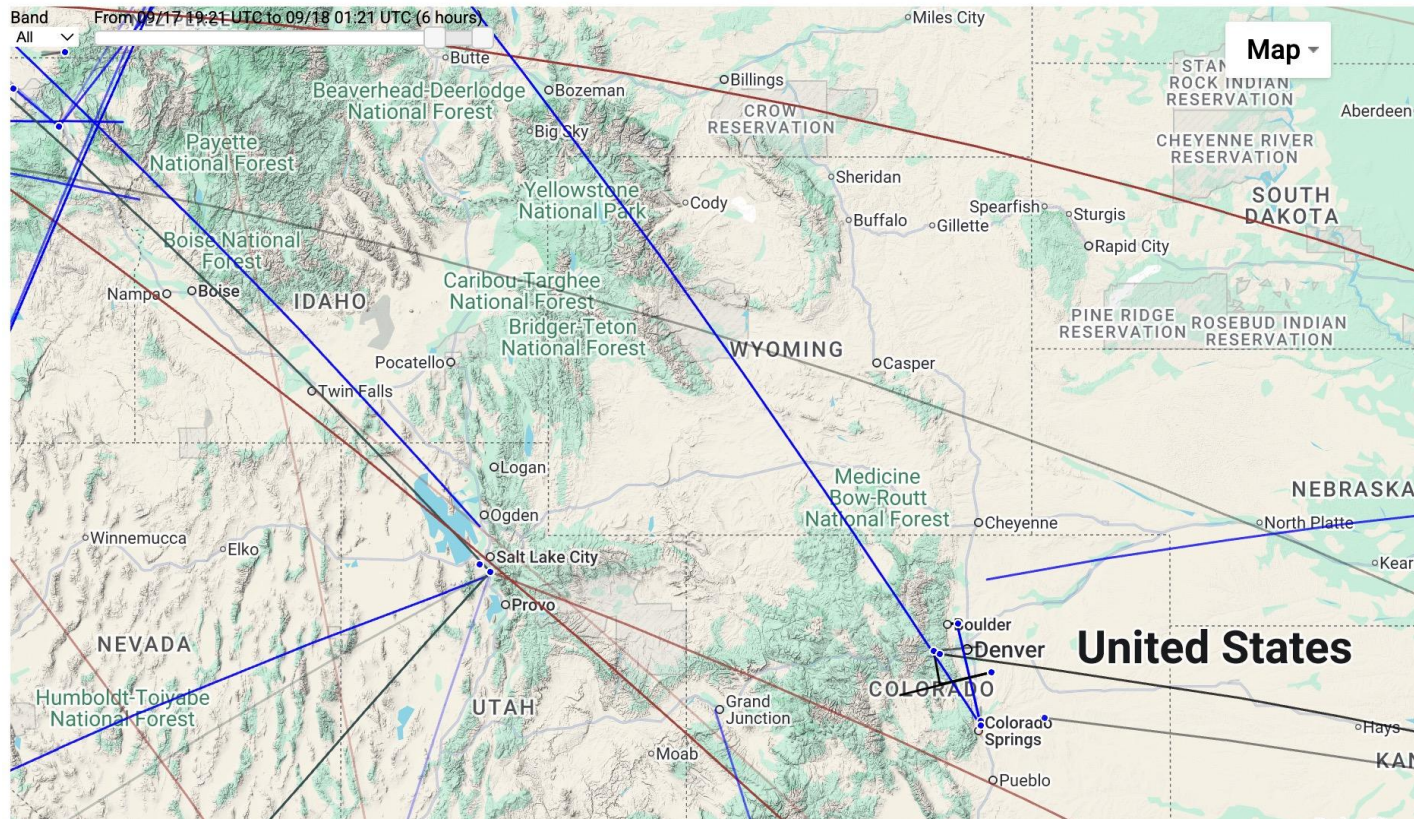
- Your mail will be sent from YOURCALL@winlink.org
- You can send mail to any ordinary email address.
- To send to CALLSIGN@winlink.org, the person with that callsign must have a Winlink account.
- If you just put [CALLSIGN](#) in the To: field, it assumes [@winlink.org](#)

Receiving:

- You will receive email sent by CALLSIGN@winlink.org
- To receive email sent by from other accounts, e.g. someone@gmail.com, one of the following must be true:
 - You have previously sent Winlink mail to that address,
 - You have added that address to your **ACCEPTLIST** on winlink.org
 - The sender includes **//WL2K R/** in the Subject line

Maps at <https://winlink.org/RMSChannels>

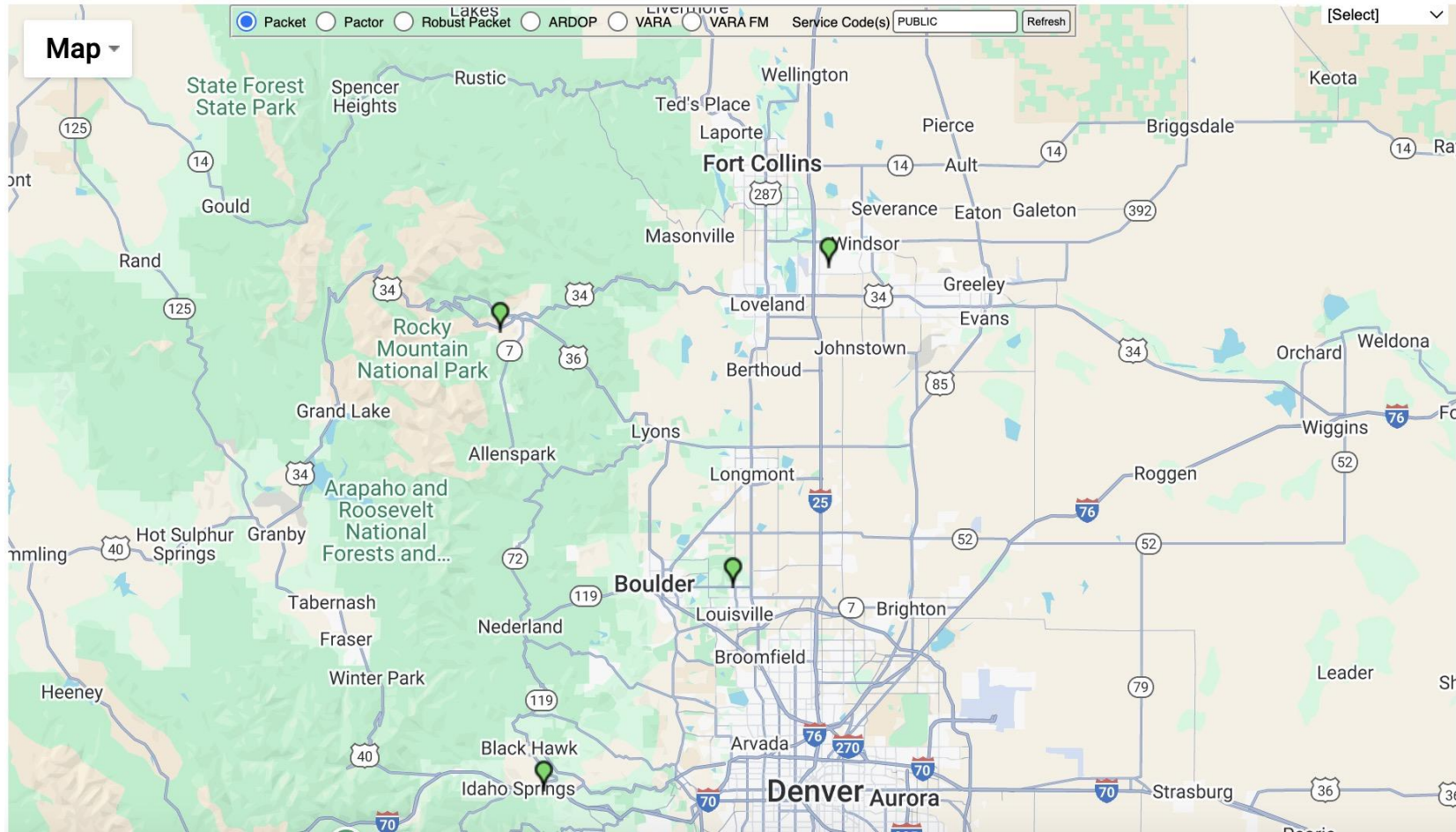
Propagation Map - Recent QSOs



[RMS Map](#)[RMS List](#)[Cnx Map](#)[Prop Map](#)[CMS Status](#)[Traffic](#)[RMS Ver.](#)[User Ver.](#)[Local](#)**Map**

☒ Packet ☐ Pactor ☐ Robust Packet ☐ ARDOP ☐ VARA ☐ VARA FM Service Code(s) PUBLIC Refresh

[Select] ▼



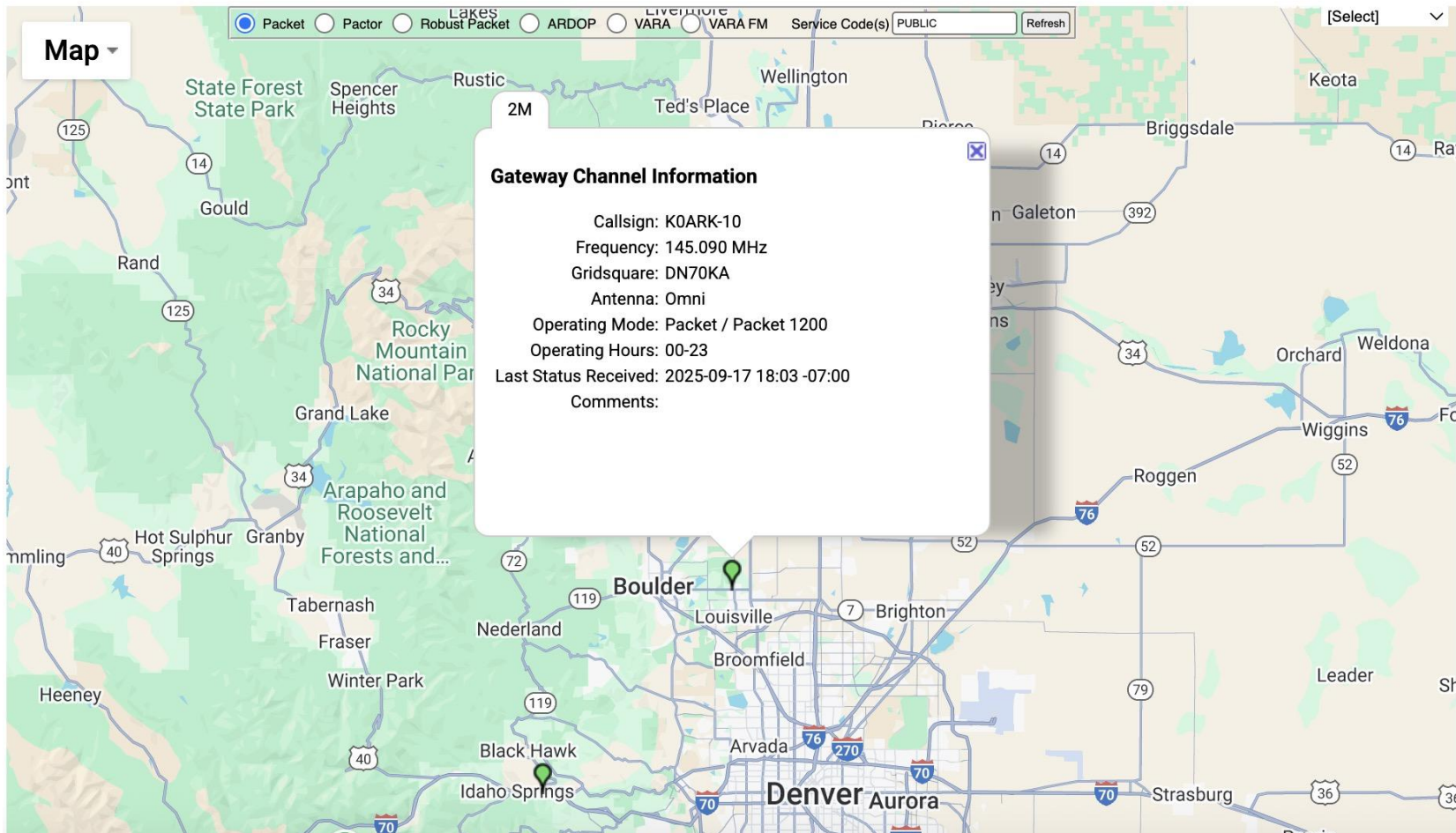
Map

☒ Packet ☐ Pactor ☐ Robust Packet ☐ ARDOP ☐ VARA ☐ VARA FM Service Code(s) PUBLIC Refresh

[Select] ▼

Gateway Channel Information

Callsign: K0ARK-10
Frequency: 145.090 MHz
Gridsquare: DN70KA
Antenna: Omni
Operating Mode: Packet / Packet 1200
Operating Hours: 00-23
Last Status Received: 2025-09-17 18:03 -07:00
Comments:



Do a live demo...

But the next few slides have some screen shots as a backup.

And for future reference if folks work through these slides on their own.



KJ7WLT

Settings

Message

Attachments

Move To:

Saved Items

Delete

Open Session:

Vara FM Winlink

Logs

Help



No active session...

System Folders

Inbox (0 unread)

Read Items (0)

Outbox (0)

Sent Items (30)

Saved Items (1)

Deleted Items (4)

Drafts (0)

Personal Folders

Global Folders

Contacts

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2024/06/25 17:05	LN9O79H9RGLC	468	N6NBN	N6NBN	KJ7WLT	ACK: Re: Field D
	2024/06/23 02:06	XTXQZJOOR8XL	1923	N6NBN	N6NBN	KJ7WLT...	Field Day 2024 at
	2024/06/14 04:12	837MYOXDW41A	402	K7XTN	K7XTN	KJ7WLT	Re:another test o

Message ID: 837MYOXDW41A

Date: 2024/06/14 04:12 (UTC)

From: K7XTN

To: KJ7WLT

Source: K7XTN

Downloaded-from: RMS:W7ACS-9

Location: 47.687500N, 122.291667W (GRID SQUARE)

Subject: Re:another test on low power

Cool--that's good to know that we can connect on 5w.

----- Message from KJ7WLT sent 2024/06/13 20:40 -----

Message ID: WGJZDUNIAAP4

Date: 2024/06/13 20:40 (UTC)

From: KJ7WLT

To: K7XTN

Source: KJ7WLT

Subject: another test on low power

KJ7WLT Add Callsign Settings Message Attachments Move To: Saved Items Delete Open Session: Vara FM Winlink Logs Help

No active session

Enter a new message

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

From: KJ7WLT Send as: Winlink Message ☐ Request message receipt Set Defaults

To: KD0PYK;

Cc: rjleveque@gmail.com;

Subject: test message

Attach:

Hi Matt!

73,
Randy

Subject

Klickitat Confirms Message 13

Re: ICS-213: checkin - 2025-07-21 19:16

Re:testing from Maple Leaf

Re: testing from Maple Leaf

Approval Needed for Message [APRVLMID:79CA83STNPAJ]

//w12k r/ from Bill N6NBN

Re: ICS-213: checkin - 2025-07-07 19:11

Create a new message and then Post to Outbox

KJ7WLT ▾ Add Callsign 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) Read Items (0) Outbox (1) Sent Items (7) Saved Items (0) Deleted Items (1) Drafts (0)		2025/09/13 23:12	EL9WR9ZUWO...	235	KJ7WLT	KJ7WLT	KD0PYK...	test message

Personal Folders

Global Folders

Contacts

Message ID: EL9WR9ZUWOTW
Date: 2025/09/13 23:12 (UTC)
From: KJ7WLT
To: KD0PYK
Cc: rjleveque@gmail.com
Source: KJ7WLT
Location: 46.187500N, 121.875000W (Grid square)
Subject: test message

Hi Matt!

73,
Randy

KJ7WLT

Add Callsign

Settings

Message

Attachments

Move To:

Saved Items

Delete

Open Session:

Vara FM Winlink

Logs

Help



No active session...

System Folders
Inbox (0 unread)
Read Items (0)
Outbox (1)
Sent Items (7)
Saved Items (0)
Deleted Items (1)
Drafts (0)
Personal Folders
Global Folders
Contacts

Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
2025/09/13 23:12	EL9WR9ZUWO...	235	KJ7WLT	KJ7WLT	KD0PYK...	test message

To send/receive, Open Session
of desired type

Message ID: EL9WR9ZUWOIW
Date: 2025/09/13 23:12 (UTC)
From: KJ7WLT
To: KD0PYK
Cc: rjleveque@gmail.com
Source: KJ7WLT
Location: 46.187500N, 121.875000W (Grid square)
Subject: test message

Hi Matt!

73,
Randy

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

Winlink Express 1.7.26.0 - KJ7WLT

KJ7WLT Add Callsign Settings Message Attachments Move To: Saved Items Delete Open Session: Telnet Winlink Logs Help

In Telnet Winlink session.

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
<p>System Folders</p> <p>Inbox (0 unread) Read Items (0) Outbox (0) Sent Items (7) Saved Items (0) Deleted Items (2) Drafts (0)</p> <p>Personal Folders</p> <p>Global Folders</p> <p>Contacts</p>							

Telnet Winlink Session

Exit Settings **Start** Stop Time to next Autoconnect = Disabled

*** Ready

If you have internet, you can start a
Telnet Winlink
Session and then hit **Start**.

KJ7WLT

Add Callsign

Settings

Message

Attachments

Move To:

Saved Items

Delete

Open Session:

Vara FM Winlink

Logs

Help



In Vara FM Winlink session.

System Folders	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
----------------	-----------	------------	------	--------	--------	-----------	---------

Inbox (0 unread)

Read Items (0)

Outbox (0)

Sent Items (7)

Saved Items (0)

Deleted Items (2)

Drafts (0)

Personal Folders

Global Folders

Contacts

Vara FM Winlink Session - KJ7WLT

Exit Settings Channel Selection **Start** Stop Abort

Connection: Direct via Freq.: 0.000 Range: 0 Bearing: 000

Favorites: W7ACS-12 @ 430.850

Select Add to favorites Remove from favorites

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

*** Launching VARA FM TNC: C:\VARA FM\VaraFM.exe

*** Successfully connected to VARA FM TNC at 127.0.0.1 port 8300

*** Ready

*** This is a registered version of Vara TNC that can operate at full speed.

For packet or VARA FM,
You will need to set the Frequency and
Call sign of gateway, (or use Channel
Selection to select nearby gateways)
Adjust frequency on radio



Winlink Express 1.7.26.0 - KJ7WLT

KJ7WLT

Add Callsign

Settings

Message

Attachments

Move To:

Saved Items

Delete

Open Session:

Vara FM Winlink

Logs

Help



In Vara FM Winlink session.

System Folders

- Inbox (0 unread)
- Read Items (0)
- Outbox (0)**
- Sent Items (7)
- Saved Items (0)
- Deleted Items (2)
- Drafts (0)

Personal Folders

Global Folders

Contacts

Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
-----------	------------	------	--------	--------	-----------	---------

Vara FM Winlink Session - KJ7WLT

Exit Settings Channel Selection **Start** Stop Abort

Connection: Direct via , Freq.: 0.000 Range: 0 Bearing: 000

Favorites: W7ACS-12 @ 430.850 Select Add to favorites Remove from favorites

In: 0/0 Out: 0/0 BPM: 0/0 Disconnected

*** Launching VARA FM TNC: C:\VARA FM TNC\VARA FM TNC.exe ***
*** Successfully connected to VARA FM TNC ***
*** Ready ***
*** This is a registered version of Vara TNC ***

VARA FM v4.3.7 KJ7WLT

Settings View Ping Log* Help

VU Audio Input: -14 dB

CPU Usage: 54 %

TX Delay

S/N

DATA

ACK IDLE

NACK BREAK

REQ QRT

RX Disconnected

WIDE TCP DCD

KJ7WLT

Add Callsign

Settings

Message

Attachments

Move To:

Saved Items

Delete

Open Session:

Vara FM Winlink

Logs

Help

In Vara FM Winlink session.

Ping

Ping to:

W7ACS-12

Via1:

Via2:



S/N: +8.5

VU: -14 dB



KJ7WLT



W7ACS-12

S/N: +4.6

VU: -17 dB

Close

Recipient

Subject

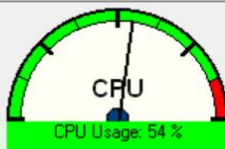
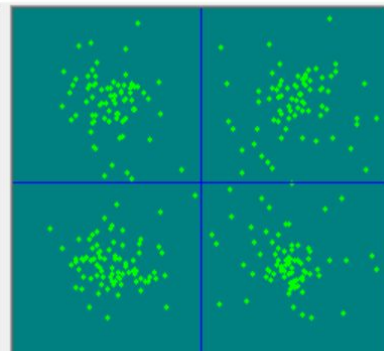
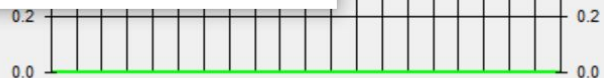
Freq.: 0.000

Range: 0

Bearing: 000

to favorites

Remove from favorites



DATA

ACK

IDLE

NACK

BREAK

REQ

QRT



RX

Disconnected

WIDE

TCP

DCD

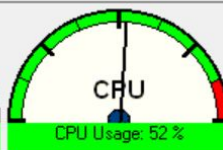
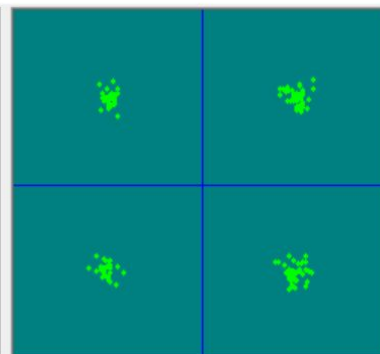
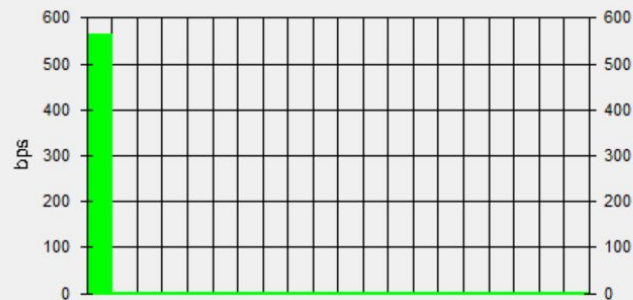
Exit Settings Channel Selection **Start** **Stop** **Abort**

Connection:	Direct	▼	W7ACS-13	via		,		Freq.:	440.850	Range:	0	Bearing:	
-------------	--------	---	----------	-----	--	---	--	--------	---------	--------	---	----------	--

Favorites: W7ACS-13 @ 440.850 ▼ [Select](#) [Add to favorites](#) [Remove from favorites](#)

VARA FM v4.3.7 KJ7WLT

Settings View Ping Log* Help



DATA

ΔΕΚ

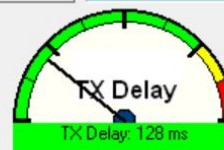
☐ NACK

REQ

IDLE

BREAK

QRT

 RX KJ7W/LT <-> W7ACS-13

(1) 566 bps

 19 Bytes Rcvd

WIDE

TCP

☐

DCD

Winlink Templates

Rather than typing text into composition box, selecting a template opens a browser window with fillable fields.

Many standard forms included in Winlink Express, e.g.

- ICS 213, 214, 309, etc
- FEMA forms
- Radiograms
- Welfare messages
- USGS Did-You-Feel-It form (earthquakes)

Then “submit” button turns it into a message with wrapper.
For recipient, it can open as a form in their browser.



No active session...

Message has 1 attached files.

Enter a new message

Post to Outbox

From: KJ7WLT

To:

Cc:

Subject:

Attach:

Template Manager

Select Close Add Remove Edit

Standard Forms (version 1.1.15.0)

- ARC Forms
- CA State Forms
- Canadian Forms
- FEMA Forms
- FMRE Forms
- General Forms
- General Medical Forms
- HI State forms
- HICS Forms
- IARU Forms
- ICS USA Forms
- LA State forms
- Mapping-GIS forms
- NY & NJ State Forms
- OR State Forms
- Philippines
- Radiogram & RRI Forms
- SC State Forms
- SHARES Forms
- Specialized forms
- TX State Forms
- USGS
- WA State Forms
- Weather Forms
- Changelog.txt
- Global Templates
- KJ7WLT Templates

Select New Message and then
Select Template to bring up
Template manager

Recipient	Subject
KJ7WLT	Klickitat Confirms Message 13
KJ7WLT	Re: ICS-213: checkin - 2025-07-21 19:16
KJ7WLT...	Re:testing from Maple Leaf
KJ7WLT	Re: testing from Maple Leaf
KJ7WLT	Approval Needed for Message [APRVLMID:79CA83STNPAJ]
KJ7WLT	//wI2k r/ from Bill N6NBN
KJ7WLT	Re: ICS-213: checkin - 2025-07-07 19:11

Winlink Express 1.7.26.0 - KJ7WLT

KJ7WLT Add Callsign Settings Message Attachments Move To: Saved Items Delete Open Session: Vara FM Winlink Logs Help

No active session... Message has 1 attached files.

Enter a new message

Post to Outbox Select Template... Recipient Subject

From: KJ7WLT

To:

Cc:

Subject:

Attach:

Template Manager

Select Close Add Remove Edit

- FMRE Forms
- General Forms
- General Medical Forms
- HI State forms
- HICS Forms
- IARU Forms
- ICS USA Forms
 - Customizable Form.txt
 - ICS201 Incident Briefing.txt
 - ICS202 Incident Objectives.txt
 - ICS203 Organizational Assignment.txt
 - ICS204 Assignment List.txt
 - ICS205 Radio Plan.txt
 - ICS205A Communications List.txt
 - ICS205b Incident Information Technology Plan.txt
 - ICS206 Medical Plan.txt
 - ICS208 Safety Message Plan.txt
 - ICS210 Resource Status Change.txt
 - ICS213 General Message.txt
 - ICS213RR Resource Request Message.txt
 - ICS214 Activity Log.txt
 - ICS214A Individual Activity Log.txt
 - ICS215A Incident Safety Analysis.txt
 - ICS217A Communications Worksheet.txt
 - ICS309 Communications Log.txt
- LA State forms
- Mapping-GIS forms
- NY & NJ State Forms

KJ7WLT	Klickitat Confirms Message 13
KJ7WLT	Re: ICS-213: checkin - 2025-07-21 19:16
KJ7WLT...	Re:testing from Maple Leaf
KJ7WLT	Re: testing from Maple Leaf
KJ7WLT	Approval Needed for Message [APRVLMD:79CA83STNPAJ]
KJ7WLT	//w12k r/ from Bill NGNBN
KJ7WLT	Re: ICS-213: checkin - 2025-07-07 19:11

ICS forms plus many others



General Message (ICS 213)

☐ THIS IS AN EXERCISE

[Load ICS213 INITIAL Data](#)

[Form Instructions](#)

1. Incident Name:

2. To (Name/Position):

3. From (Name/Position):

4. Subject:

5. Date:

6. Time:

7. Message:

Be Brief and Concise

8. Approved by:

8b. Position / Title:

Optional Location Coordinates

Latitude

Longitude

MGRS

Grid

LAT/LON and MGRS default to the center of the grid square listed in Express Settings, unless a GPS is used or Lat/LON or MGRS are entered manually.
For Winlink mapping and CSV export you must enter a latitude and longitude.

[Submit](#)

[Save ICS213 INITIAL Data](#)

[Reset Form](#)

Ver 43.48

Clicking on
ICS 213
Brings up form in
Browser.

Fill and and then
Submit and it will fill
In message text

This form is used to send information or a status report to family members or friends.

>> NO REPLY is expected, nor can one be processed. The requester needs to be informed this is a ONE WAY outbound message. <<

[Operator Info - Read Please](#)

[Load Quick Welfare Data](#)

From First Name Last Name: Date

To Email:

Add a Cell phone number: When you enter a phone number, your message will be limited in characters.

Message Character count: of [Click here to insert short prepared messages](#)

Max length is 500 characters

[Submit](#)

[Save Quick Welfare Data](#)

[Reset Form](#)

*The message is formatted as plain text in the body of the sent email, and easy to read by the recipient (s).
For questions, comments or suggestions about this form contact KB1TCE via Winlink.*

General Radiogram and
Welfare Message forms
are also available

Custom Winlink templates can be created

Example: Form to record runners passing through each of 13 aid stations on the **Bigfoot 200** mile endurance run

(Over 4 days in the Cascades, from Mount St Helens past Mt Adams to Randall, WA)

- [Test version of runner spreadsheet form](#)
- [Github repository with lots of info](#)

Developed by Jon Rumsey K7RMZ →

Videos on the Bigfoot Ham experience:

<https://youtu.be/Bpubd5E95sk>

<https://www.youtube.com/watch?v=ZjTNbToM17E>



Using Winlink with your radio

Can be harder to get working, and not covered here.

Requires software such as:

- Soundmodem – software Terminal Node Connector (TNC)
- Or hardware TNC, e.g. Kantronics 3+
- VARA FM, VARA HF

May require a high-quality sound card between PC and radio

- Built in to some radios (particularly for HF)
- External options: e.g.:
 - MC: <https://www.masterscommunications.com/>
 - Signalink: <https://tigertronics.com/slusbmain.htm>
 - Digirig: <https://digirig.net>

Packet vs VARA

Packet uses Terminal Node Controller (TNC) or software that emulates a TNC.

- Usually limited to 1200 baud.

VARA uses a computer's (or external) sound card to modulate and demodulate signals, acting as a digital TNC.

- Typically 9600 baud (on FM) but higher speeds are possible.
(Usually much slower on HF!)
- VARA FM and VARA HF are separate software packages.
- Developed by Jose Alberto Nieto Ros EA5HVK,
 - See his [website](#) for downloads and info

Some other slide decks and resources:

- [SEA-PAC](#) – Select “workshop presentations” from menu
- Winlink Basics for EmComm: [Wave Talkers workshop](#) (lots of videos)
- Winlink without Radio Introduction: [Slides by N6NBN](#)
- Adding shortcuts to message templates: [Slides by K7XTN](#)
- Winlink VARA peer-to-peer: [Slides by K7XTN](#)
- Using ping to check connection: [Slides by K7XTN](#)
- Mapping-Enabled Winlink (GPS): [Slides by W4PHF](#)

Winlink FAQs:

- Book of Knowledge: https://winlink.org/content/winlink_book_knowledge
- Sending to Winlink addresses: <https://winlink.org/HELP>