



An Introduction to the
WINLINK
Global Radio Email System

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Introduction to the *WINLINK* System

- A volunteer project of the Amateur Radio Safety Foundation, Inc. (ARSF)
- Email “client” software has some similarities to traditional email programs you already know, eg Microsoft Outlook
- Files may be sent as attachments, though remember channel speed is limited
- Typically connects to the email server system over a radio link, though alternately can be via an internet-based Telnet connection
- Allows sending/receiving email from almost anywhere on Earth
- Connections are initially to RMS (Radio Message Server) gateways, typically operated by hams at their homes
- RMS gateways connect via Internet or over RF to one of several Common Message Servers (CMS) around the world, hosted by Amazon.
- Messages are redundantly sent to all of the CMS locations. You can retrieve messages by connecting to any gateway, which links to closest CMS.

Introduction to the *WINLINK* System

- Winlink Express is a very popular program to access the *WINLINK* system. Others include AirMail, Outpost, WoAD, Pat, Paclink.
- Although initially developed for Windows, several client options exist for MacOS and Linux users.
- Send emails to other *WINLINK* system users with their callsign as address.
- To email a non-*WINLINK* address from a *WINLINK* client, use the full email address.
- To email a *WINLINK* address from a public email system, use the form callsign@winlink.org
- Registering on the system is easy. After installing the software, just fill out the form that appears when you start Winlink Express.
- Best source for information & software is <https://winlink.org>

Why use a *WINLINK* Email Client?

- Rapidly becoming the standard for emergency and disaster relief communications
- Helpful with interoperability between agencies, as email is very common
- Capable of operating completely without internet, using Hybrid RMS
- Connect from almost anywhere, even far out at sea or deep in the bush
- Templates can be shared among users to create common email content for emergency operations. Eg ICS-213 Incident general message and ARS Radiogram templates
- Winlink is used by ARES, Auxiliary Comm Service, Red Cross etc
- Winlink also used by CFARS, the Canadian Forces Affiliate Radio System
- Can be used for private non-emergency use as well

***WINLINK* Express Session Options**

- Several communication channel options available in the software
- Telnet is a connection directly to a CMS over the internet
- Packet will use a connected AX.25 packet modem (eg Kantronics) for VHF or FM radios
- Pactor can use a Pactor modem for HF long range. Fast & good ability to work in noisy conditions, but this hardware is expensive.
- VARA HF will use the VARA HF software modem, just about as good as Pactor and far less expensive. (Free for lower data rates)
- VARA FM is a software modem used by some VHF or UHF systems, instead of packet
- “P2P” or Peer to Peer sessions allow two stations running Winlink to communicate directly, instead of through a gateway

WINLINK HF Connection Aids

- If selecting an HF modem option, user can download information to help choose the best RMS gateway – many exist, but which will be reliable?
- Based on current ionospheric conditions and location of the gateways
- Provides Path Reliability and Quality estimates, but NOT always perfect
- Sometimes must try connecting to several gateways before a good connection is established
- Software will perform repeated attempts (typically 10x) as most gateways are scanning multiple frequencies on different bands

HF Channel Selector						
Exit	Select	Update Via Internet	Update Via Radio	Map	Forecast	
Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)
N7TRY-2	7102.500	V2300	CN85NI	00-23	PUBLIC	903
VE6JTM	5405.000	V2750	DO33FN	00-23	PUBLIC	297
KD7ZDO	10148.700	V2300	CN85QH	00-23	PUBLIC	893
N7TRY-2	10148.500	V2300	CN85NI	00-23	PUBLIC	903
KF7RSF	10146.500	V2750	CN73SC	00-23	PUBLIC	1174
KG7AV	7103.500	V2300	CN94IB	00-23	PUBLIC	937
KF7RFI	10146.700	V2300	CN95IC	00-23	PUBLIC	843

Hardware for an HF *WINLINK* Station

Antenna



Radio with built-in sound card

USB Cable

Computer

OR...

Antenna



Rig Control – PTT, freq

Receive & Transmit Audio



USB Audio & Control Interface

Hardware for a VHF/UHF *WINLINK* Station

Antenna



VHF or UHF FM radio

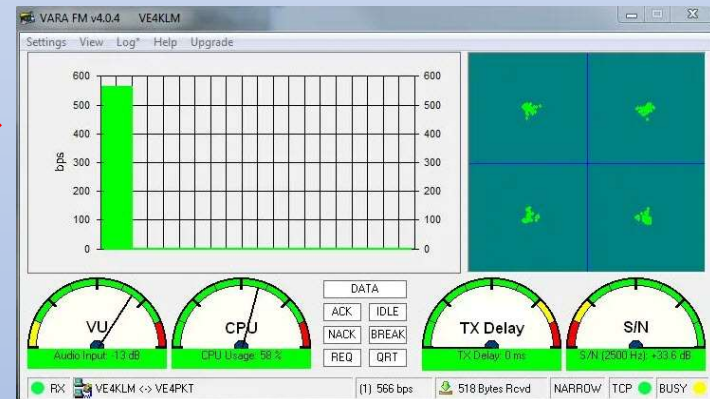
Control &
Tx/Rx Audio



Packet Modem eg KPC3

Serial Cable

Rig Control – PTT, freq
Receive & Transmit Audio



VARA FM Software Modem

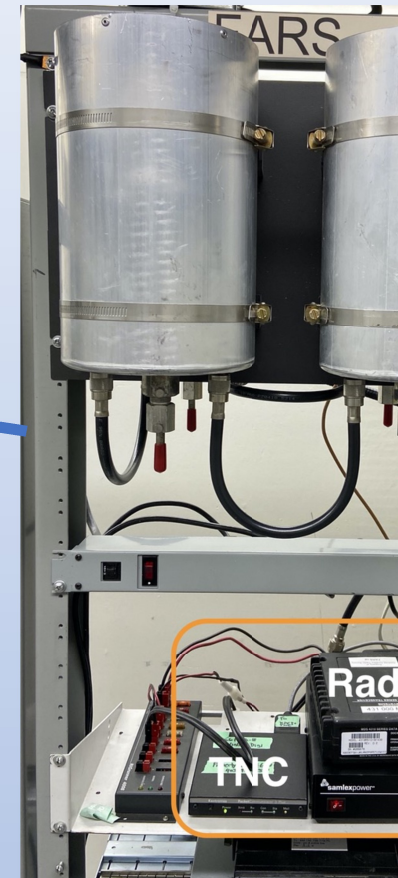
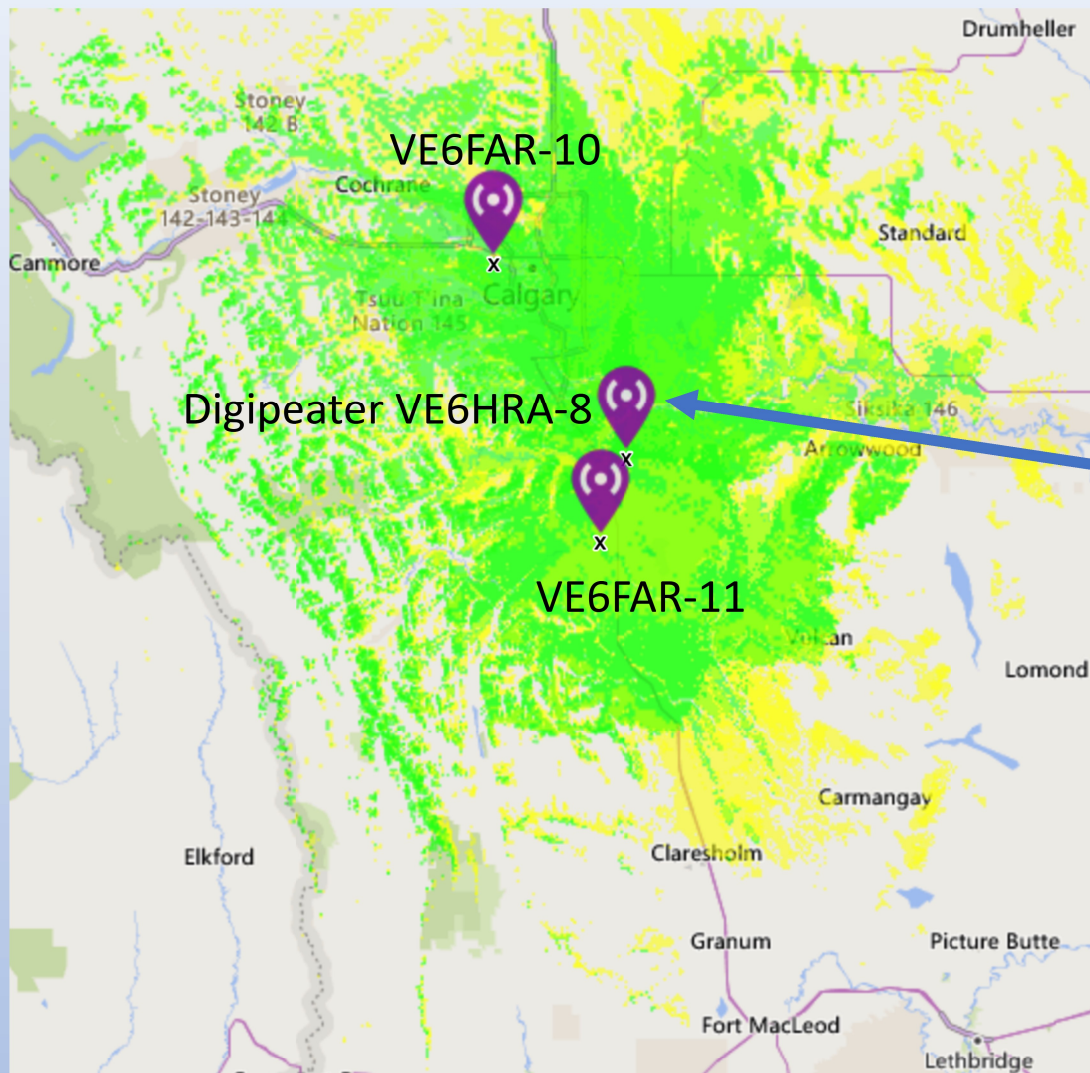
OR...

Internal

Other Digital Mode Software

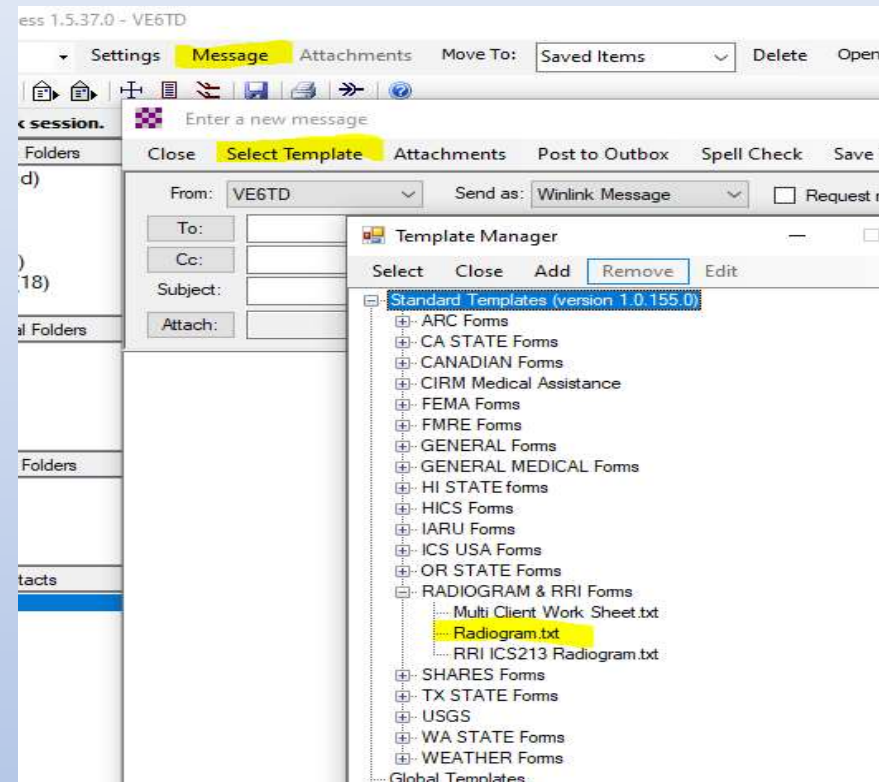
- Don't forget you can get good benefit from other modes as well as *WINLINK*
- Same hardware setup as used by Winlink may provide access to many of the
- FT8 is hugely popular now. Allows for quick contest-style contacts. Main benefit is copying signals in very poor conditions. Also very narrow bandwidth.
- JS8Call is a variant - allows conversational contacts along with FT8's benefits. Has variants for various purposes eg MSK144 for meteor scatter.
- Many hams use APRS for position reporting and even text messaging. It's based on VHF/UHF radios.
- WSPR (weak signal propagation reporter) allows testing of paths using typically low transmit power.
- PSK31 was popular before FT8, still some using it. Some modern rigs include send/receive PSK31 messages built in.
- RTTY (radio teletype) is still used, mainly during contests. Fairly reliable in poor conditions. Allows conversational contacts.

Calgary Area *WINLINK* Infrastructure



WINLINK How-To and Walkthrough

- Sending a new email message:
 - Click 'Message' -> 'New Message'
 - Compose your email similar to your usual email client
 - Optionally, you may 'Select Template' and choose from the available templates
 - In this example, select 'Radiogram'



WINLINK How-To

Amateur Radio RADIOGRAM Text Creator Read Help and Instructions!							
Number 12 <input type="checkbox"/> SVC (Handler use)	Precedence R EMERGENCY P W Emergency not in use at this time.	Handling Instructions NONE HXA HXB HX Help ADD MORE HX INFO	Station Of Origin VE6TD Change if not you.	Check 10	Place of Origin OKOTOKS AB	Time 2143L	Date MAY 28 <input type="radio"/> Current UTC Time <input checked="" type="radio"/> Current Local Time <input type="radio"/> No Time
TO: Name: <input type="text" value="JOEL WEDER"/> Call Sign: <input type="text" value="VE6EI"/> Address: <input type="text" value="OPTIONAL"/> City / Town: <input type="text" value="CALGARY"/> State or Province: <input type="text" value="AB"/> 2 Letter Codes Zip: <input type="text" value="CAN"/> Country: <input type="text" value="OPTIONAL"/> Phone: <input type="text" value="555 555 5555"/> Extension: <input type="text" value="#s ONLY"/> E-mail: <input type="text" value="NEED EMAIL, PHONE, OR BOTH TO ENSURE DELIVERY."/> Op Note about this Radiogram: <input type="text" value="OPTIONAL - KEEP IT SHORT!"/>							
MESSAGE TEXT Check: <input type="text" value="10"/> ARL Message Numbering Help <div style="border: 1px solid black; padding: 5px; min-height: 80px;">SYSTEM UPDATE DASH THE VE6OKT NODES HAVE BEEN RENAMED VE6FAR</div> Click here to preview for accuracy BEFORE you SUBMIT							
Signature (name) of person for whom message originated: <input type="text" value="DANN VE6TD"/> Operator Note: <input type="text" value="OPTIONAL - KEEP IT SHORT!"/>							
>>> NOW CLICK HERE and select a Liaison Station <<< <input type="text" value="ve6td"/> <input type="button" value="Submit"/> <input type="button" value="Reset Form"/> <small>Contact KB1TCE about this form: Ver 10.5</small>							

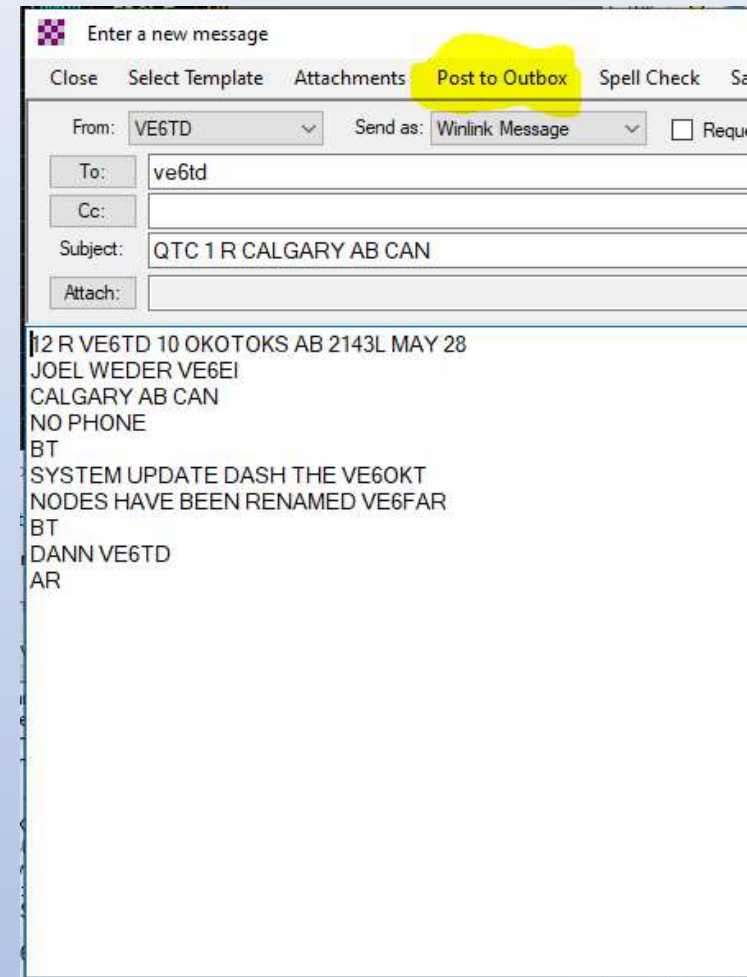
- Your web browser will open the radiogram creator form
- Enter data in the required fields
- When done, click 'Submit'

WINLINK How-To

- Your message text will appear in the message window
 - If not using a template, type your message text here
- Post to Outbox
- When you are ready to send, select a session type, in this case Packet Winlink

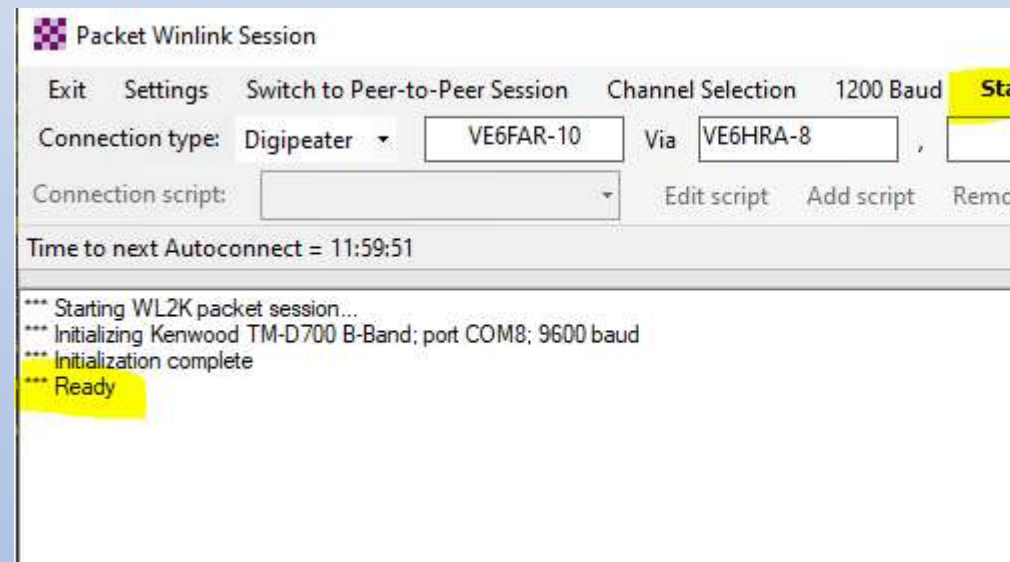


- Open Session to start



WINLINK How-To

- Wait for your radio and TNC to initialize
- Select your Connection type - can be Direct or Digipeater
Enter the Winlink node name to use
Use a Digipeater (or two) if you can not reach the Winlink node directly
Enter the Digipeater name
- Click Start to initiate the RF connection to upload and download your messages



Questions? (Maybe some answers!)



Internal