



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. (ARSFI)
- 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 your 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, but 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 regular email address
- To email a *WINLINK* address from a public email system, use the format 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?

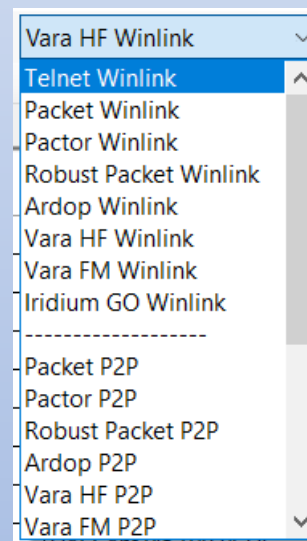


- Rapidly becoming the standard for emergency and disaster relief communications
- Helpful with interoperability between agencies, as email is very common
- Capable of operating completely without internet, using Hybrid RMS gateways
- Connect from almost anywhere, even far out at sea or deep in the bush
- Templates can be shared among users to create common email contents for emergency operations. Eg ICS-213 Incident general message and ARRL 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/UHF FM radios
- Pactor can use a Pactor modem for HF long range. Fast & good ability to handle 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 SFI All RMS									
Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing Degrees	Path Reliability Estimate	Path Quality Estimate
N7TRY-2	7102.500	V2300	CN85NI	00-23	PUBLIC	903	230	64	47
VE6JTM	5405.000	V2750	DO33FN	00-23	PUBLIC	297	005	61	46
KD7ZDO	10148.700	V2300	CN85QH	00-23	PUBLIC	893	229	59	45
N7TRY-2	10148.500	V2300	CN85NI	00-23	PUBLIC	903	230	59	45
KF7RSF	10146.500	V2750	CN73SC	00-23	PUBLIC	1174	227	58	44
KG7AV	7103.500	V2300	CN94IB	00-23	PUBLIC	937	219	58	44
KF7RFI	10146.700	V2300	CN95IC	00-23	PUBLIC	843	223	57	44

Hardware for an HF *WINLINK* Station



Antenna



Radio with built-in sound card

USB Cable



Computer running Winlink Express

OR...

Antenna



Rig Control – PTT, freq

Receive & Transmit Audio



USB Audio & Control Interface

Hardware for a VHF/UHF *WINLINK* Station

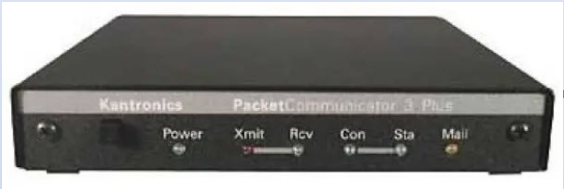


Antenna



VHF or UHF FM radio

Control &
Tx/Rx Audio



Packet Modem eg KPC3

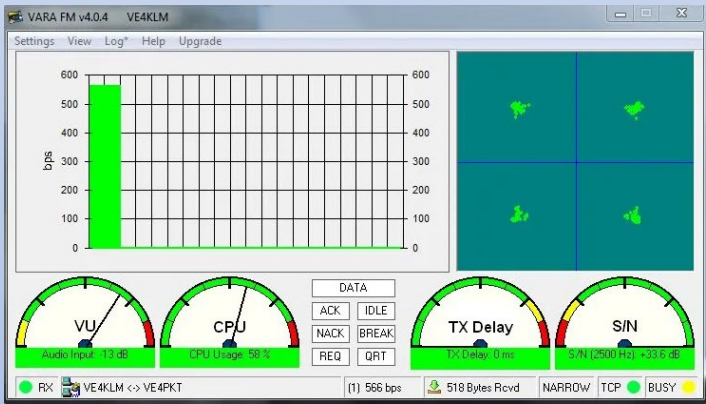
Serial Cable



Winlink Express

OR...

Rig Control – PTT, freq
Receive & Transmit Audio



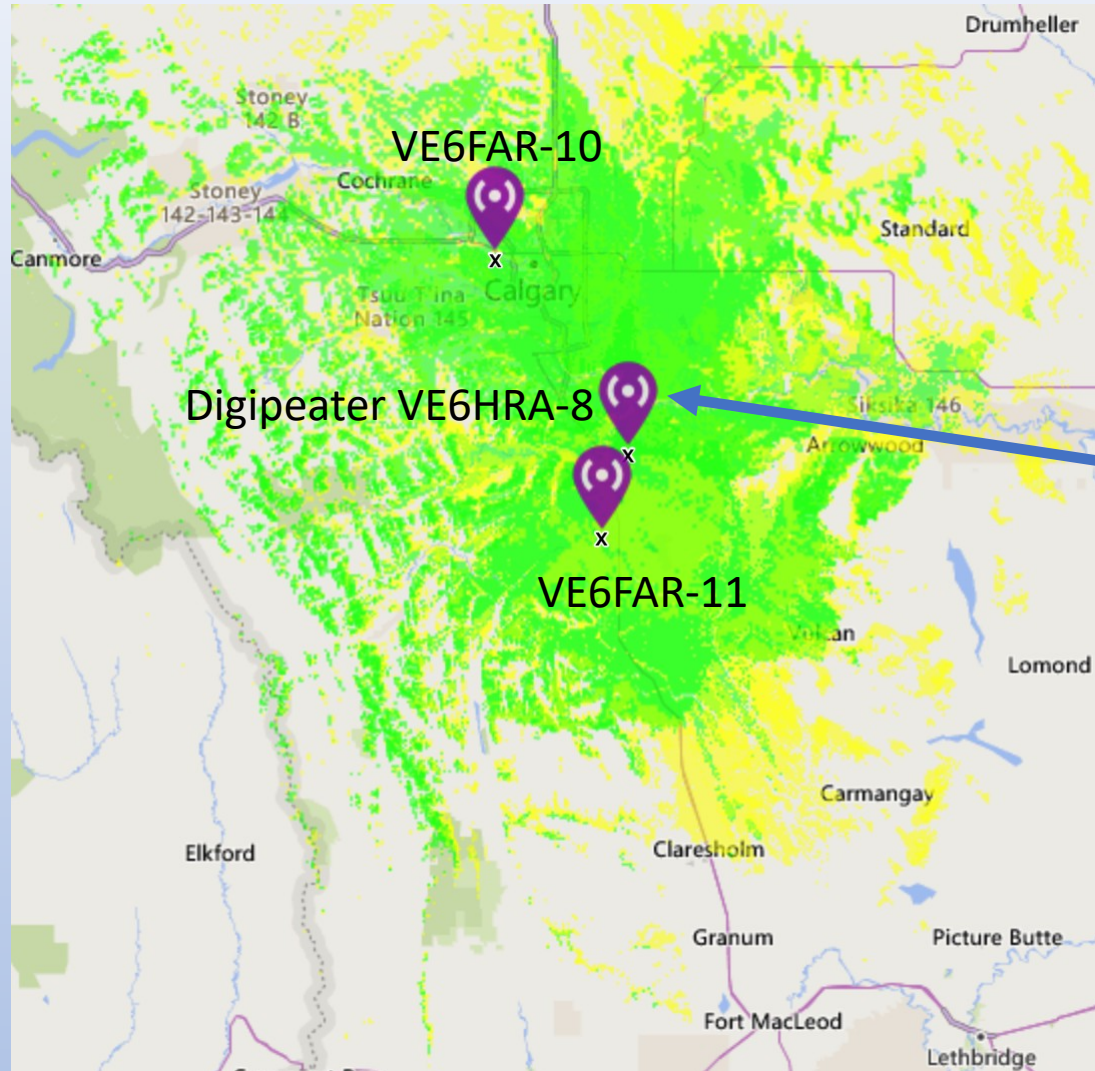
VARA FM Software Modem

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 these modes
- FT8 is hugely popular now. Allows for quick contest-style contacts. Main benefit is ability to copy signals in very poor conditions. Also very narrow bandwidth.
- JS8Call is a variant - allows conversational contacts along with FT8's benefits. Several other variants for various purposes eg MSK144 for meteor scatter.
- Many hams use APRS for position reporting and even text messaging. It's built into many VHF/UHF radios.
- WSPR (weak signal propagation reporter) allows testing of paths using typically very low transmit power.
- PSK31 was popular before FT8, still some using it. Some modern rigs include capability to send/receive PSK31 messages built in.
- RTTY (radio teletype) is still used, mainly during contests. Fairly reliable in poor conditions, allows conversational contacts.

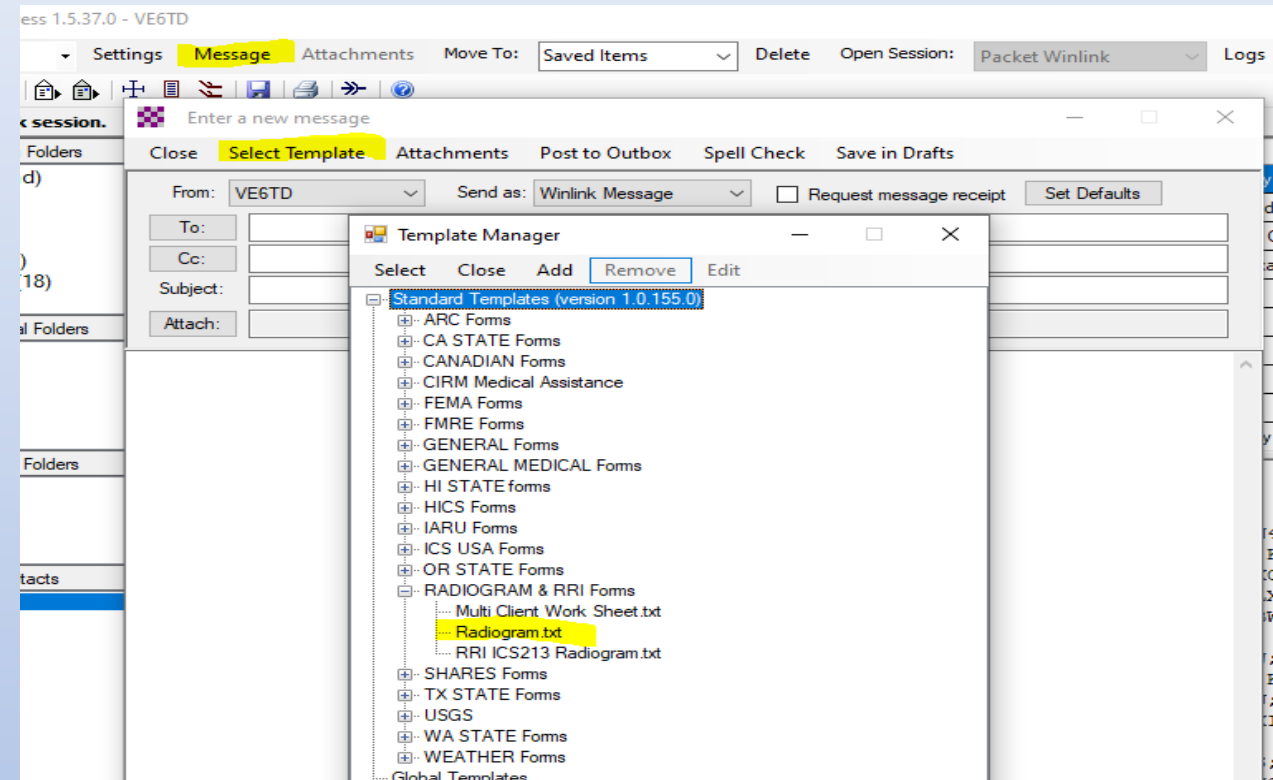
Calgary Area *WINLINK* Infrastructure



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 ☐ 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 ☐ Current UTC Time ☒ Current Local Time ☐ No Time
TO: Name: JOEL WEDER Call Sign: VE6EI Address: OPTIONAL City / Town: CALGARY State or Province: AB 2 Letter Codes Zip: CAN Country: OPTIONAL Phone: 555 555 5555 Extension: #s ONLY E-mail: NEED EMAIL, PHONE, OR BOTH TO ENSURE DELIVERY. Op Note about this Radiogram: OPTIONAL - KEEP IT SHORT!							
MESSAGE TEXT Check: 10 ARL Message Numbering Help SYSTEM UPDATE DASH THE VE6OKT NODES HAVE BEEN RENAMED VE6FAR Click here to preview for accuracy BEFORE you SUBMIT							
Signature (name) of person for whom message originated: DANN VE6TD Operator Note: OPTIONAL - KEEP IT SHORT!							
>>> NOW CLICK HERE and select a Liaison Station <<< ve6td Submit Reset Form Contact KB1TCE about this form: Ver 10.5							

- Your web browser will open and display 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

Message Attachments Move To: Saved Items Delete Open Session: Packet Winlink Logs Help							
	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2021/05/28 0...	NLLPSI1RGPE	272	VE6TD	VE6TD	VE6TD	QTC 1 R CALGARY AB CAN

- Open Session to start

Enter a new message

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

From: VE6TD Send as: Winlink Message ☐ Request message receipt Set Defaults

To: ve6td

Cc:

Subject: QTC 1 R CALGARY AB CAN

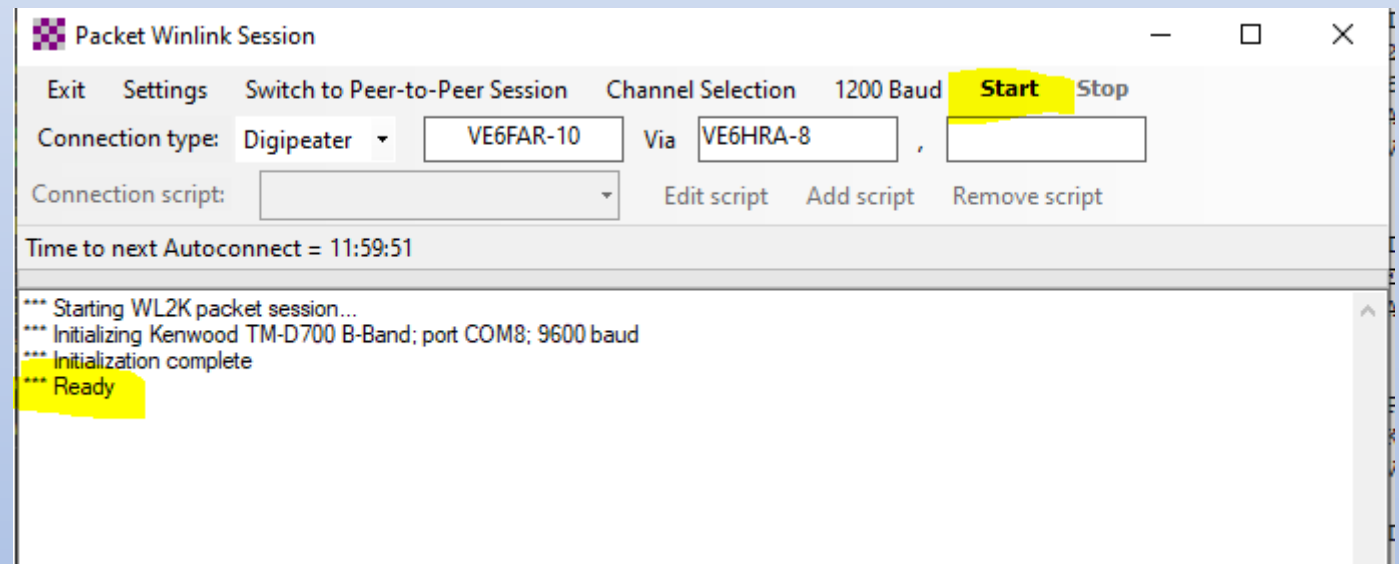
Attach:

12 R VE6TD 10 OKOTOKS AB 2143L MAY 28
JOEL WEDER VE6EI
CALGARY AB CAN
NO PHONE
BT
SYSTEM UPDATE DASH THE VE6OKT
NODES HAVE BEEN RENAMED VE6FAR
BT
DANN VE6TD
AR

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!)

