WINLINK GLOBAL RADIO EMAIL®...

...is a network of amateur radio and authorized government stations that provide worldwide radio email using radio pathways where the internet is not present.

· Built, Operated, and Administrated Entirely by licensed "HAM" volunteers.

· Supports Email with attachments, position reporting, weather and information bulletins.

· Well known for its role in interoperable emergency and disaster relief communications.

· Capable of operating completely without the internet.

Who is using Winlink to Support Emergency Communications?

- Amateur Radio Emergency Services (ARRL ARES)

- Military Auxiliary Radio System (DOD/MARS)

- Radio Amateur Civil Emergency Services (RACES)

- National American Red Cross (ARC)

- Southern Baptist Disaster Relief

- Salvation Army

- US Coast Guard

- Many Federal, state, and local government agencies, world-wide

Why use Winlink?

- **Reliability**

  - Over a 15 year period, it demonstrated 99.99% availability and 100% accuracy in message transmissions.

- **Radio Connection Bridge to Internet e-mail.**

  - Messages sent via radio from a user without internet to a Winlink radio node that has internet connectivity to inject the message into the normal internet email system and conversely from internet back to radio.

- **Standard email formats and Features**

  - ICS forms embedded within program; i.e., ICS 213 General Message Form, ICS 309 Communications Log, etc.
  - Binary file attachments such as pictures, PDF's, spreadsheets
  - Automatic message compression/decompression to minimize message size
  - Whitelist used to control SPAM.

Why use Winlink?

- **Modes of Operation**

  - Normal Mode – stores in an internet connected E-mail server (Common Message Server)
  - Peer-to-peer connections between radio end-users. Two operators using same frequency & same protocol to exchange traffic.
  - Radio only store and forward without internet

- **Interoperability**

  - Winlink does not restrict users to a single communications protocol, RF frequency, or band. The system supports a constellation of RF gateway nodes that operate on a wide range of HF, VHF, and UHF frequencies. The system also supports wide range of communication protocols such as PACKET, VARA, ARDOP, and PACTOR.

- **Geographical Dispersion & Redundancy for Reliability**

  - Wide range of RF gateway nodes located in a variety of locations.
  - If one gateway fails, other gateways are available (especially via HF).

How does Winlink work?

SW USA   SE USA   E Canada   Europe   Australia

Common Message Servers (CMS)

Internet

Remote Message Servers (RMS)

Telnet

HF: Pactor, WINMOR, Robust Packet
VHF/UHF: Packet

Email over RF

- **VHF/UHF** – local line of sight
  - Packet (core use – locally)
    - Ability to Digipeat from RMS to RMS
  - VARA FM (growing popularity)

- **HF** – long distance, or regional using NVIS
  - Several dozens of RMS gateways
  - Various modes
  - VARA HF ("fast" speeds)
    - Free – limited speed
    - $80 – Registered, "fast" speeds for HF
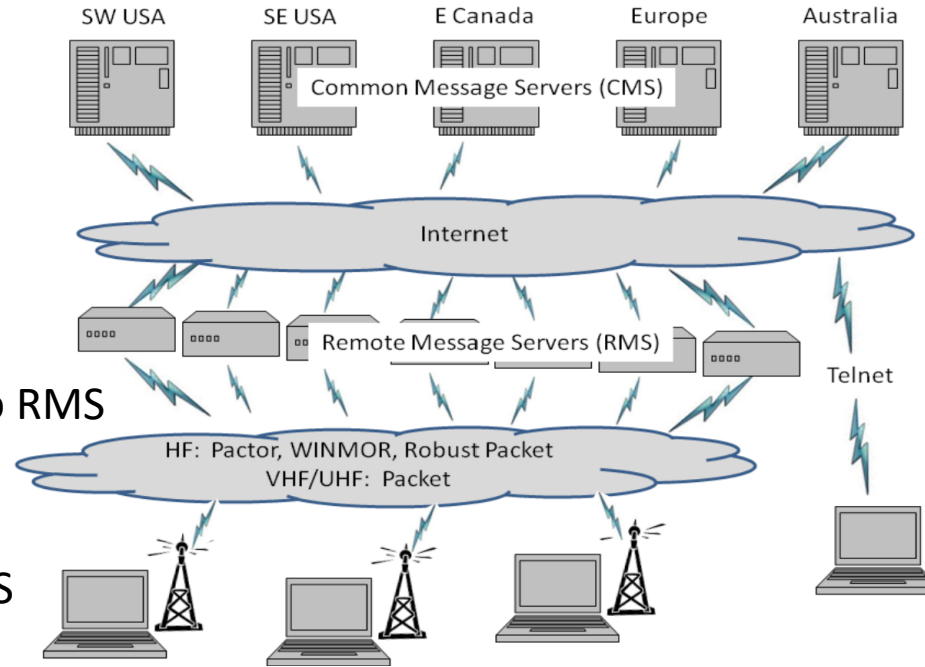
Telnet – Internet only

No transceiver required

Uses Winlink Common Message Servers

Internet Connection Required

Requirements

Soundcard

or

TNC   Radio   Antenna

Typical Winlink Station

- Basic Requirements
    - Amateur Radio License
    - Winlink.org registration + issue of ID AB5MC@winlink.org
    - Winlink Express software (FREE)
- Telnet Station = computer + internet connection

- VHF/UHF station = Radio + TNC + computer + antenna
    - Or Radio + good computer with TNC software + antenna

- HF station = Radio + soundcard + computer + antenna

Winlink Global Radio Mail – What it isn't and things to remember.

- ## It is not designed for:

  - Daily personal email - Same as all amateur radio digital modes, messages are non-encrypted, in open.
  - Large volume - keep traffic light / minimal for gateway sharing.
  - Large attachments; photos, file sharing, etc. Larger file size, longer to send/receive over RF.

- ## Things to remember:

  - Replies and email string history needs to be removed / minimalized to reduce file size.
  - Don't expect super high speeds
    - Remember this over RF, speeds are similar to 90's era slow dial up. Some modes are faster than others, but it's still sending data over RF.
  - Expect to encounter multiple attempts on some days with operation over RF
    - Propagation varies and affects gateway communication. A certain station that worked yesterday may be difficult today.
  - Stay in practice
    - Winlink Wednesday Nets over RF is a very good way to stay familiar and in practice sending mail over RF.
      - Winlink Wednesday Virginia – every Wednesday, large traffic, the original Winlink Wednesday; winlinkwednesday.net, KN4LQN@winlink.org
      - North Texas Winlink Wednesday – local, good for capturing Grayson Co. traffic. 1st & 3rd Wednesdays; groups.io KF5VO@winlink.org
  - **Don't get discouraged with initial set up. Station configuration can be a challenge at first.**

Winlink Global Radio Mail – How to operate

Winlink Express Software

Similar to basic email programs you may have used in past.

Post messages to outbox while offline, then sync with RF or Telnet connection.

Winlink Global Radio Mail – How to operate

Open Session for mode: Packet, Vara FM, Vara HF, etc.

Channel Selection – update propagation estimates via internet or over RF.

- Another reason for regular practice, keeps propagation estimates updated.

Listen to make sure channel not busy, then start session.

Receiving gateway station will acknowledge and session will automatically start until complete or signal loss.

Confirmation will be given if successful or unsuccessful.

Call sign CW will be transmitted at end to identify your station.

DEMONSTRATE Winlink Session

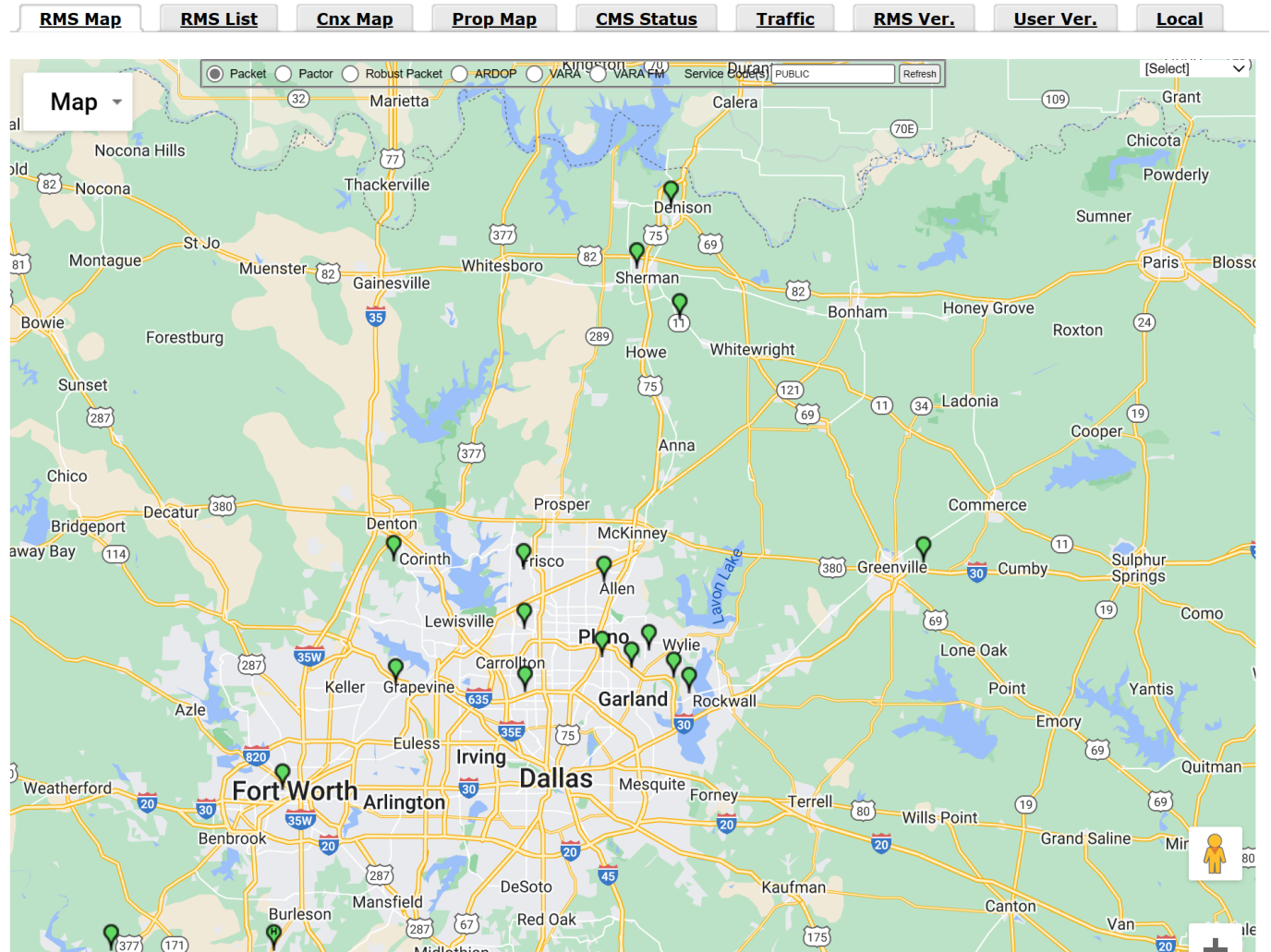# Winlink Global Radio Mail – Recap & More Information

Winlink
North Texas Packet Gateways

Available to all licensed amateur operators on 2M.

- Technician
- General
- Advanced
- Extra

VHF/UHF

- Equipment you probably already have except audio interface and software.
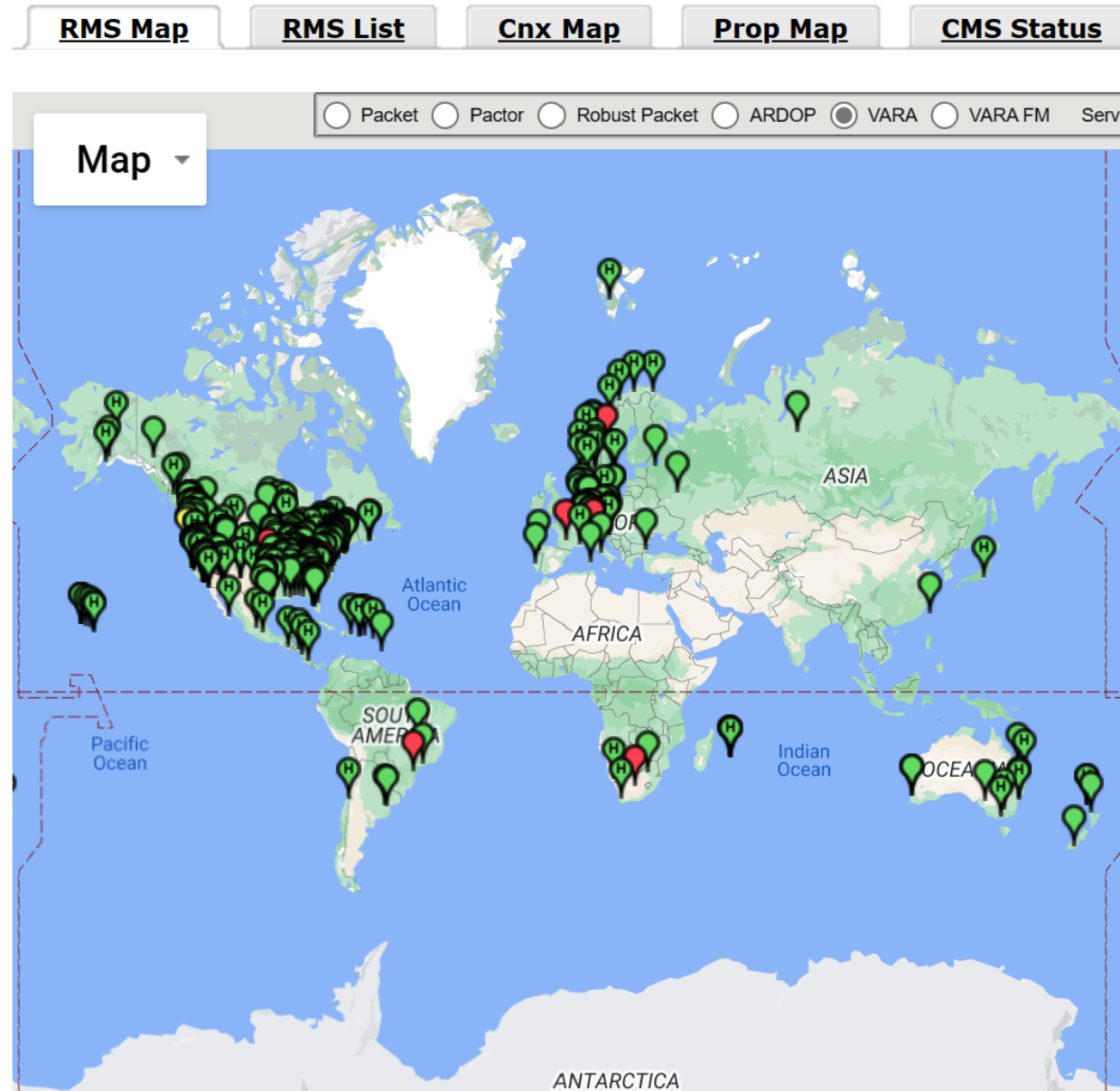- Great for local use.

Winlink Global Radio Mail – Recap & More Information

Winlink
North America HF Gateways

- NVIS Options for Regional area.

- Use Antenna's in you currently use for HF phone and data operations.

- Weak Signal mode can be low wattage.
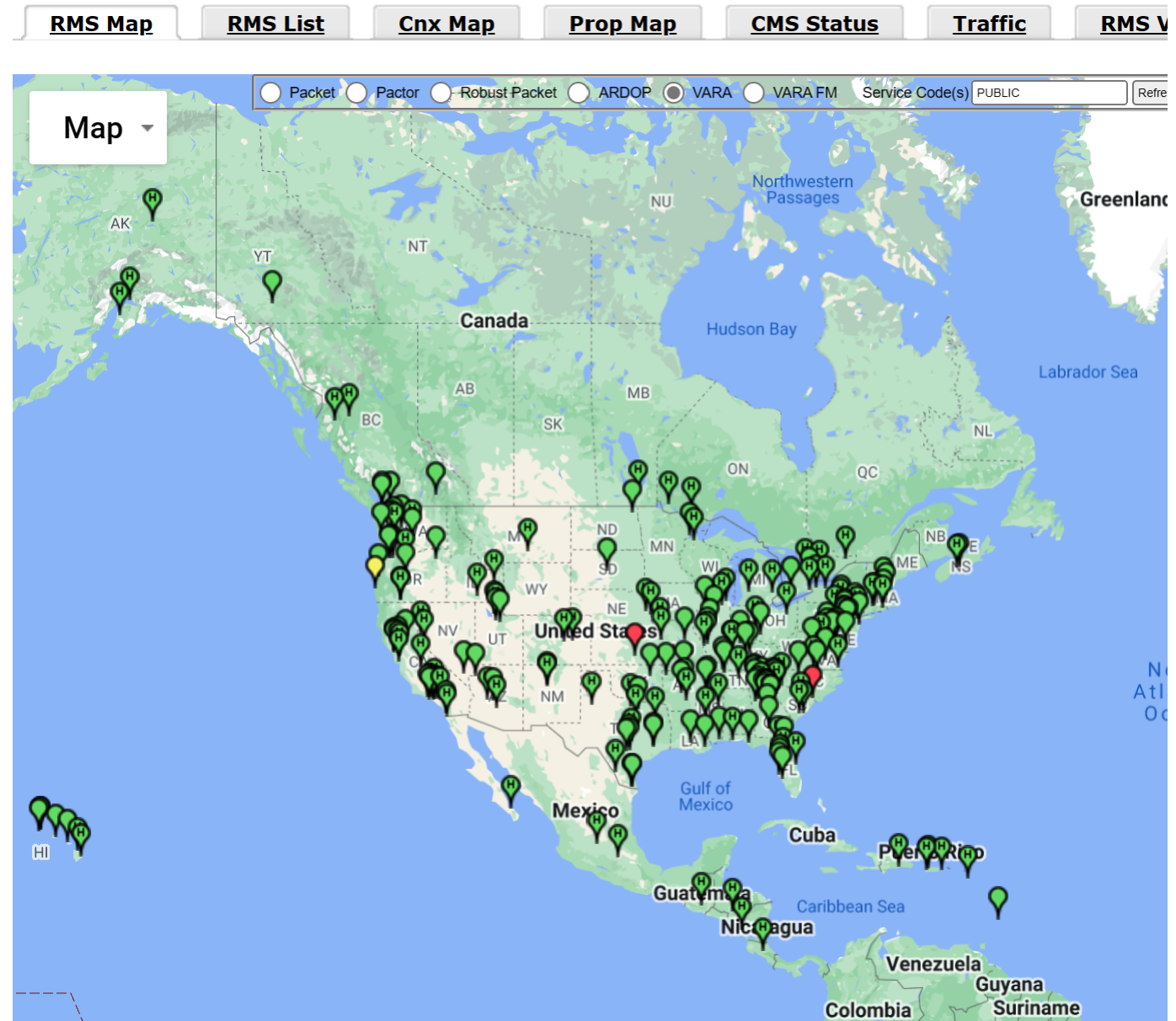
Winlink Global Radio Mail – Recap & More Information

**Winlink
Worldwide HF Gateways - Vara**

Winlink Global Radio Mail – Recap & More Information

Links for more information https://winlink.org/

Useful YouTube videos

Basic Intro to Winlink: https://www.youtube.com/watch?v=vD_G9YCoDNM&list=PLcBrg-5drc84N1GU9zhWwCF9HisFc8L_a&index=2

Getting Started with Winlink - https://www.youtube.com/watch?v=onEoKbEpGfc&list=PLcBrg-5drc86usyVmDlL8jFHc8MYep_nv&index=31

EMCOMM basics https://wavetalkers.com/resources/digital/winlink.php

Links for Software
Link for software downloads on Winlink site. https://downloads.winlink.org-/

Link for soundmodem software. [UZ7HO Personal page - Packet-Radio - English version](#)

Link for Vara software. https://rosmodem.wordpress.com/

More Information on ALC - https://www.hamradioandvision.com/how-to-use-an-alc-meter/