RMS Express – Winlink 2000 Global Radio E-mail System

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What is Winlink 2000

- Worldwide system for sending e-mail via radio

- Provides e-mail from almost anywhere in the world.

- Provides vital support for 10,000+ sailors

- Adopted for contingency communication by many government agencies

- Used by infrastructure-critical NGOs such as International & American Red Cross, Southern Baptist Disaster Relief, DHS Tiered AT&T Disaster Response & Recovery, FedEx, Bridgestone Emergency Response Team, etc.

Winlink 2000 System Architecture

Hierarchal levels of the Winlink 2000 system:

1. ***Client system*** – Radio, computer with Winlink software, TNC (or sound card) and you, the end-user!

2. ***Radio Message Server (RMS)*** – Radio gateway between the client (end-user) and the Winlink system backbone.

3. ***Common Message Servers (CMS)*** – Winlink backbone.
   - 5 CMS locations,
   - redundant, fault-tolerant,
   - located on 3 continents.
   - One CMS sufficient for operation.

Winlink 2000 Normal Network Operation

- CMS

- RMS (gateway)

- Client (you)
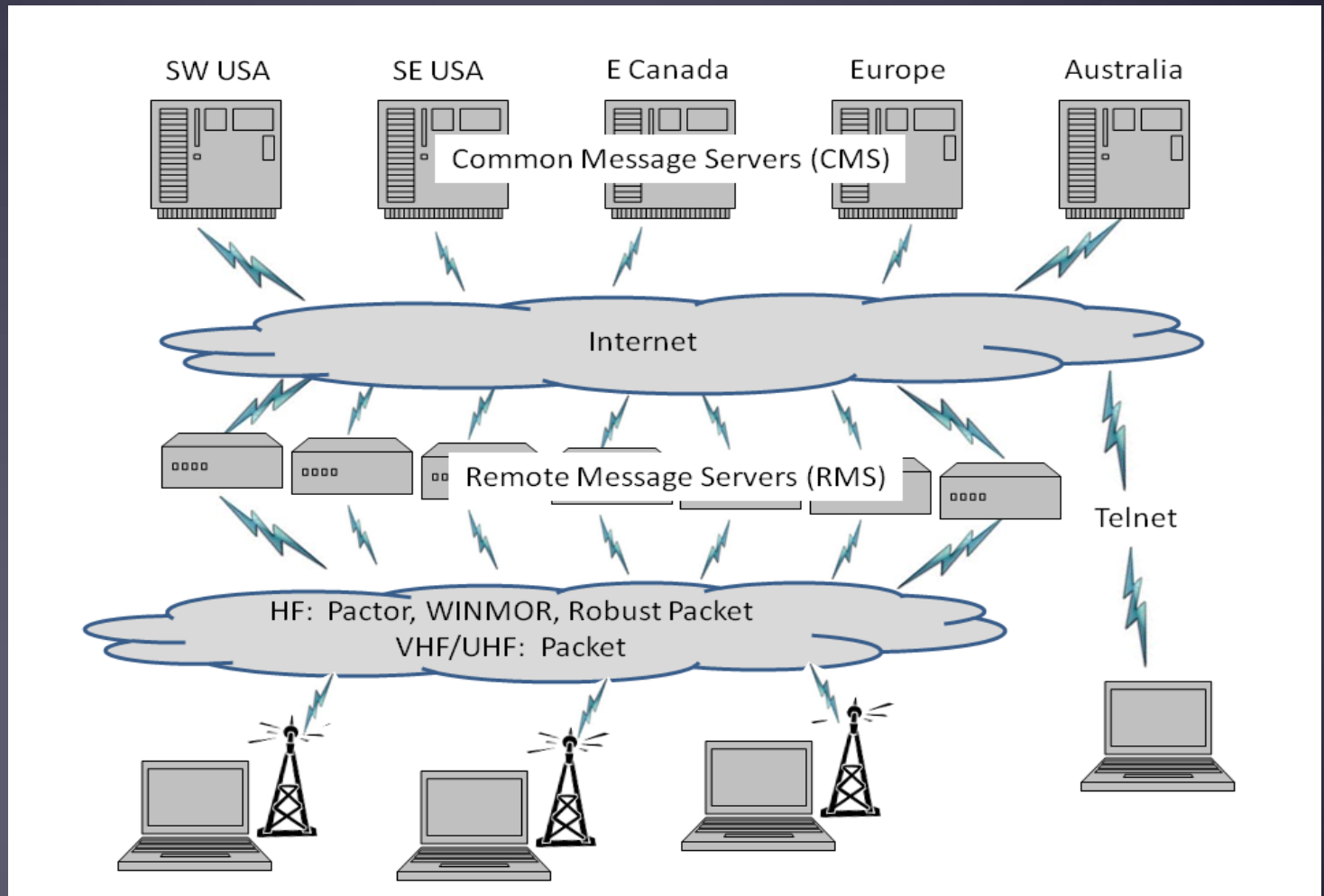
Winlink Radio-Only Network
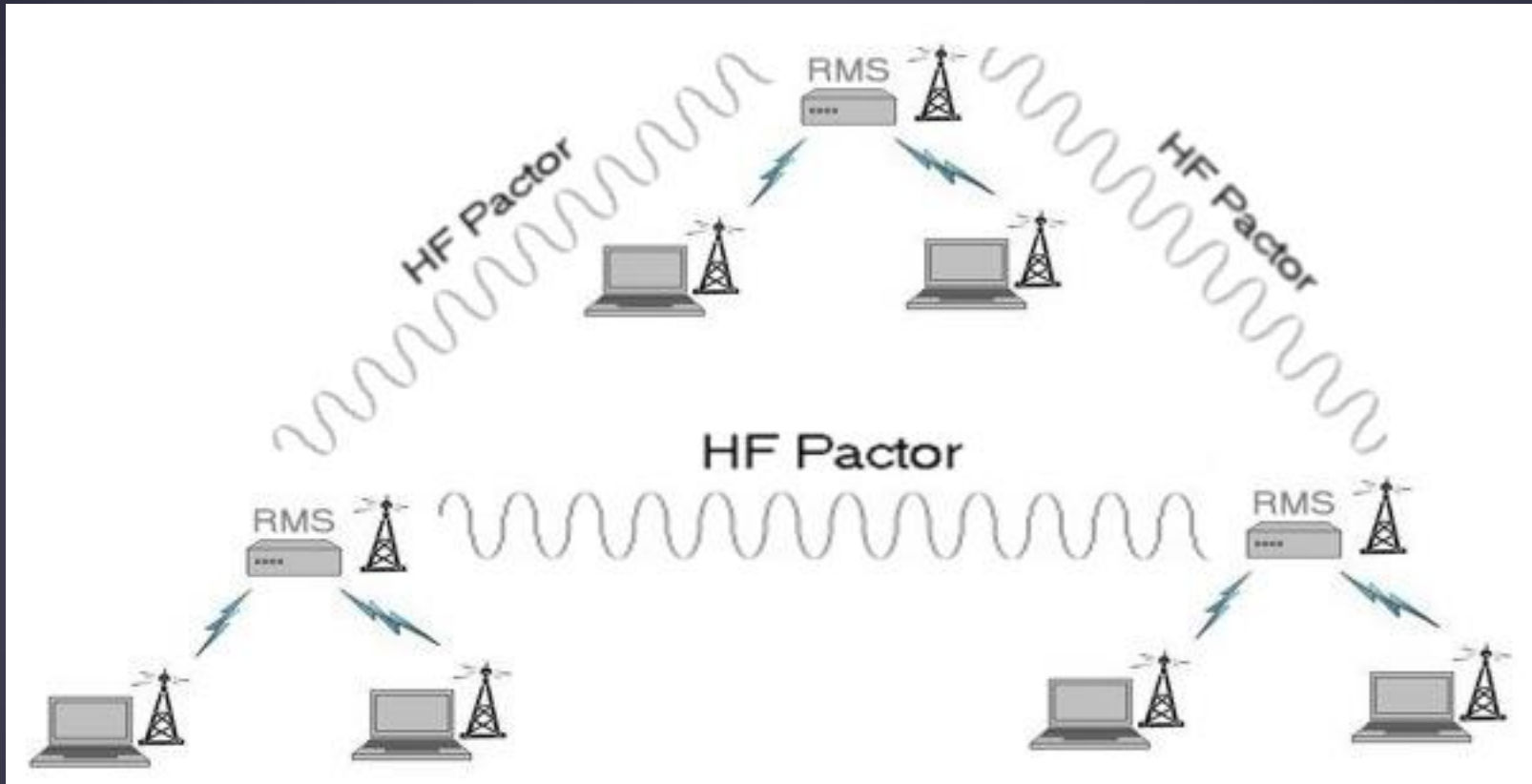
Winlink Peer-To-Peer Radio-Only Operation

- Peer-to-peer: direct radio connection between end-users

- The Internet is not used, all communication by radio.

- Only the two client stations are involved.

- 100% error-free transmission and file attachments.
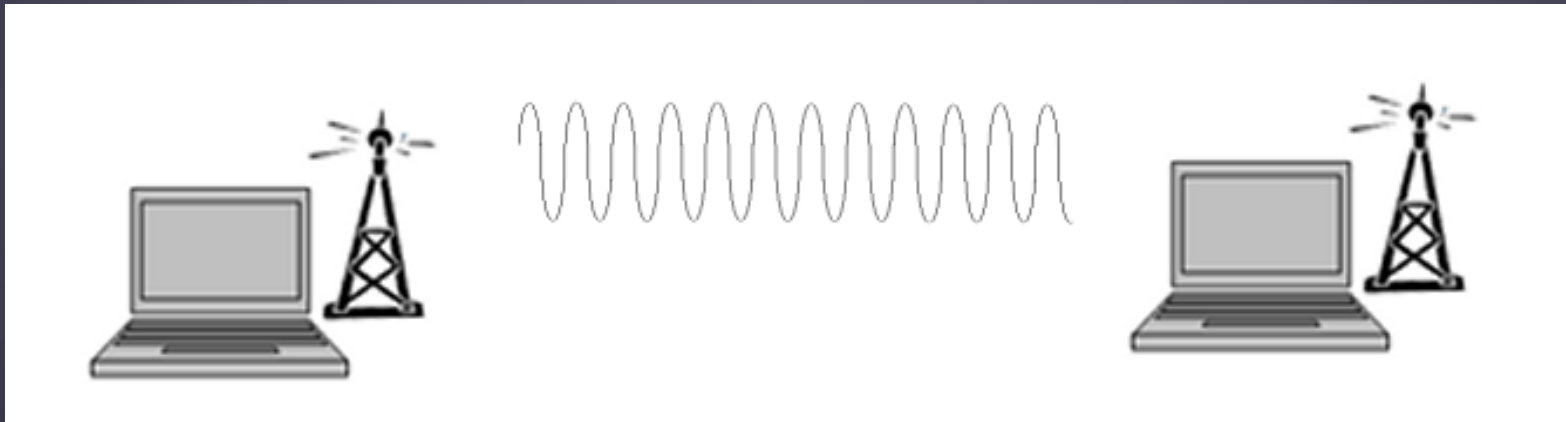
Winlink Connection Modes

- **HF Pactor 1, 2, 3 and 4** – Fast and reliable but requires an expensive modem ($1500+).

- **HF WINMOR** – "Poor man's Pactor". Not as good as Pactor, but operates with inexpensive sound card device ($100). Speed between Pactor 2 and 3.

- **VHF/UHF Packet**
  - **9600 baud** – Fast, reliable, range limited and requires $400 modem (Kantronics or SCS Tracker).
  - **1200 baud** – Slower, but can use inexpensive Byonics TinyTrak-4 modem.

- **Telnet** – Non-radio connection through the Internet. Good for training and use if radio is down or network is busy.

Levels of Message Validation & Correction

- **No validation or correction** – RTTY, BPSK-31.

- **Forward Error Correction (FEC)** – Redundant information transmitted so minor errors can be corrected: MT63, Olivia, QPSK-31.

- **Automatic Repeat Request (ARQ)** – Positive or negative packet acknowledgements from receiving station: Pactor, Winmor, Packet, TCP/IP.

- Pactor and Winmor use both FEC and ARQ.

- Only ARQ provides 100% accurate message delivery.

- Accuracy is essential for EmComm.

Resources Needed for RMS Express

- Computer running Windows XP through Windows 8
- .NET 3.5 framework
- RMS Express program
- ITSHF propagation prediction program
- HF radio with data (sound) port and computer control
- SignaLink USB soundcard interface ($100): http://www.tigertronics.com/
- Note: Some new radios have built-in soundcards
- Software downloads: ftp://autoupdate.winlink.org/User%20Programs/
- All software is free

SignaLink Soundcard Interface

- Simple device powered by USB connection
- Cost is about $100 including radio-specific cable
- Radio needs to have a data (sound) port
- Radio frequency needs to be computer controlled

Configuring Sound Levels
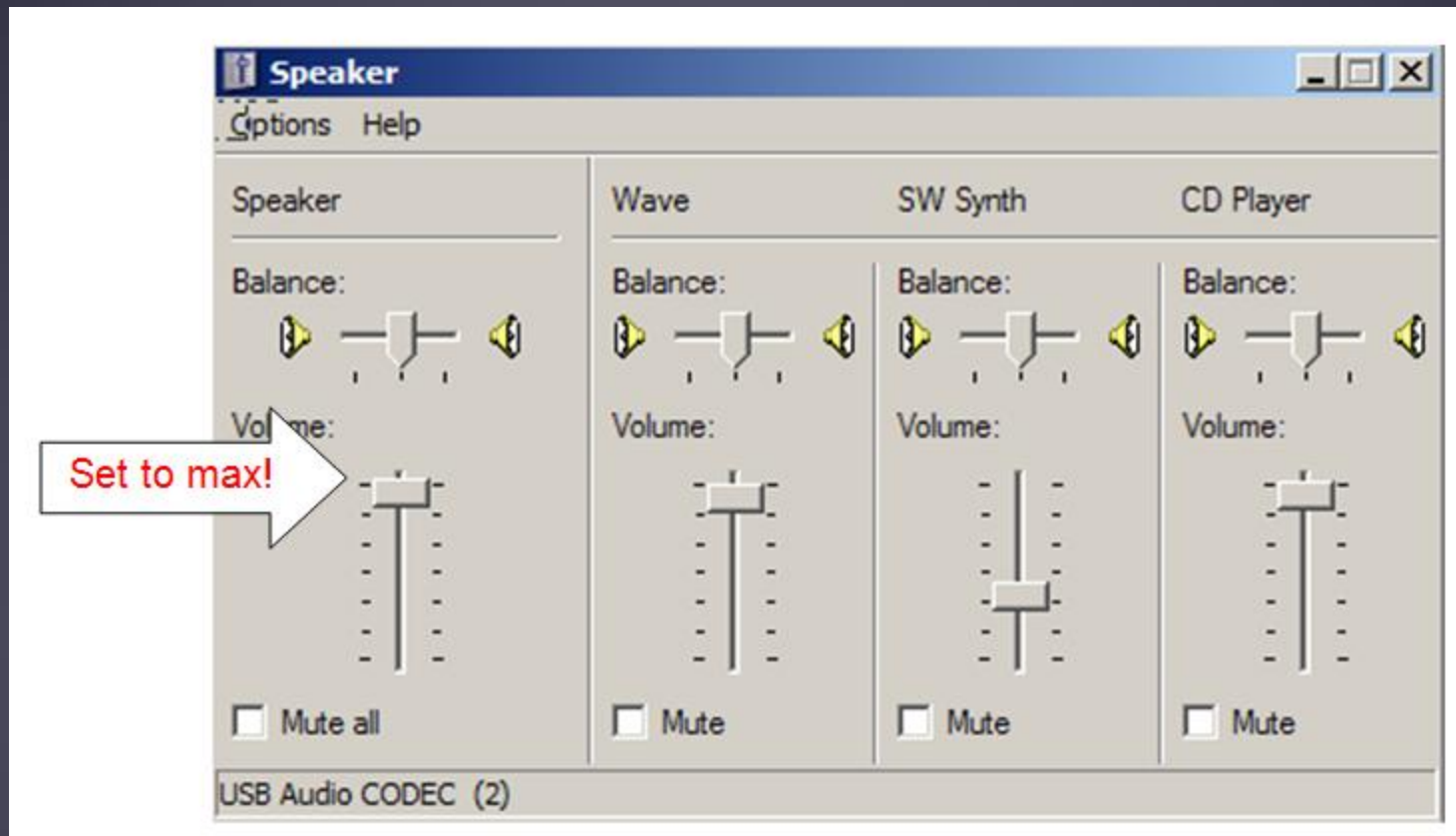
Installing RMS Express

- Download zip file:
  ftp://autoupdate.winlink.org/User%20Programs/
- Extract the .msi installer from the zip file and run it
- Browse C:\RMS Express\, right click on
  RMS Express.exe and select option to create a shortcut.
- Note: Winmor will be installed automatically
- Download propagation prediction program zip file,
  Extract .exe installer file from zip file and run it

RMS Express Initial Setup

RMS Express Main Screen

Begin connection

Connection Mode

Multiple call signs

Standard Folders

Personal message folders

Contacts address book

Composing A Message

Amateur Radio Safety Foundation, Inc.

Using Group Addresses

- Click "Files" followed by "Group Address…"
- Use a group name in the "To" or "CC" fields

Creating Message Templates

- Fills in "boilerplate" information for messages
- Click "Message" followed by "Templates…"
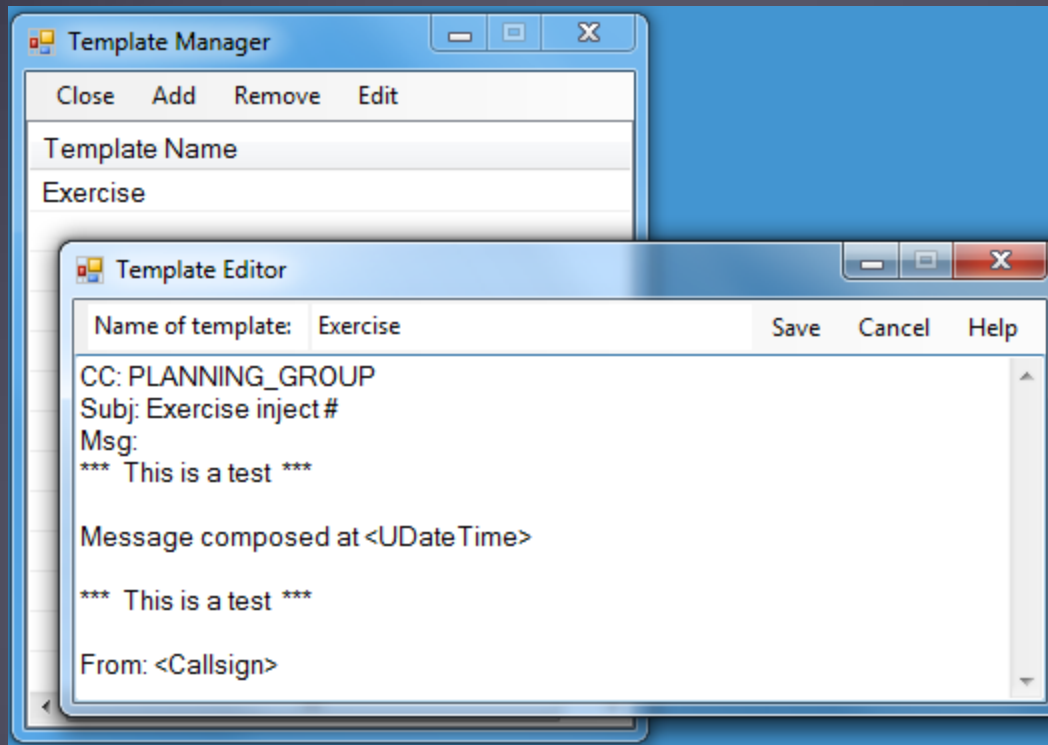
Using a Message Template

- Begin composing a message
- Click "Select Template" and select the template

Click to select a template

CC and subject filled in automatically

Body initialized from template

Pending Message In Outbox

Open Session

Amateur Radio Safety Foundation, Inc.

Winmor Registration Screen

- Appears each time you start Winmor until you register and get a key.

Initial Winmor Setup

Winmor Radio Setup

HF Channel Selection Screen

All RMS or radio-only

Update channel list

Double click to select

Click Header to Sort

Green: good
Yellow: fair
Red: bad

HF Channel Selector

Exit   Select   Update Table   Update Table Via Radio   SFI   All RMS

Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
KN6KB	3590.000	1600	EL98PF	00-23	PUBLIC	0	000	100	100
KN6KB	14066.500	500	EL98PF	00-23	PUBLIC	0	000	100	100
KN6KB	10131.500	500	EL98PF	00-23	PUBLIC	0	000	100	100
KN6KB	7083.000	500	EL98PF	00-23	PUBLIC	0	000	100	100
KN6KB	14110.500	1600	EL98PF	00-23	PUBLIC	0	000	100	100
N0IA	7063.900	500	EL98JV	00-23	PUBLIC	89	327	76	42
W5WSR	14077.500	500	EL29GA	00-23	PUBLIC	1440	277	68	41
KD4NUE-5	7081.000	500	EM91ED	00-23	PUBLIC	336	345	72	41
KB4SC	7065.900	500	EM92WX	00-23	PUBLIC	531	006	70	40
KB5OZE-5	10134.500	500	EL49WU	00-23	PUBLIC	932	283	69	40
N9ZZK	14096.500	1600	EN51VG	16-23	PUBLIC	1601	337	58	39
N9ZZK	14095.000	500	EN51VG	16-23	PUBLIC	1601	337	58	39
W0ECM-10	14093.500	500	EM26bh	00-23	PUBLIC	1681	306	58	38
AJ4GU	7089.500	500	EM83AK	00-23	PUBLIC	656	333	57	37
VE1YZ	18099.000	1600	FN84FS	00-23	PUBLIC	2383	035	54	37
VA3LKI	14112.000	1600	FN04CR	00-23	PUBLIC	1835	002	52	36
W1EO	14104.200	1600	FN42IM	00-23	PUBLIC	1799	026	53	36

Check If Channel Is Free

- Free Channel:
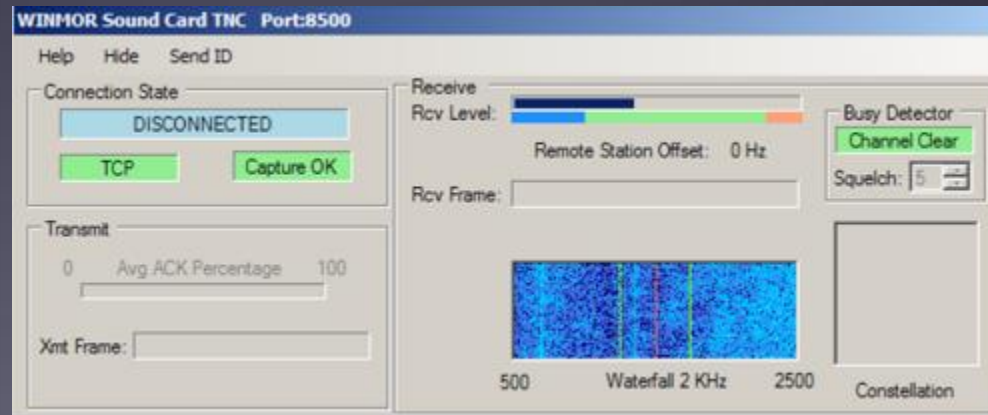
- Busy Channel:
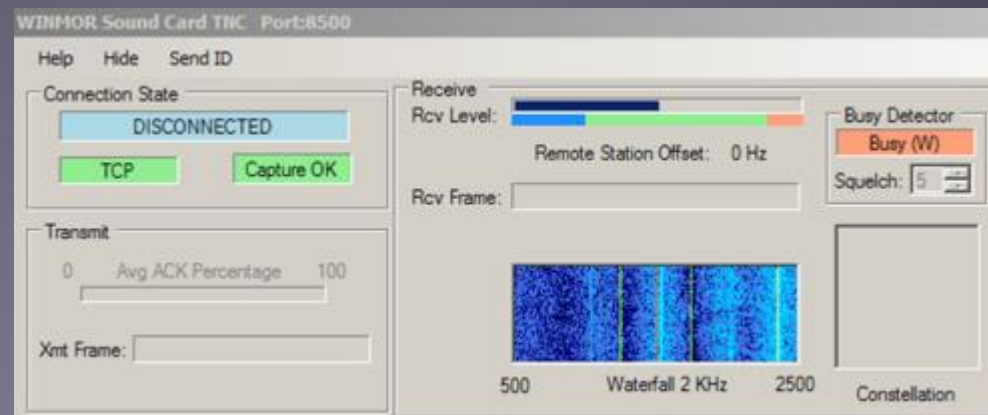
Active Winmor Connection
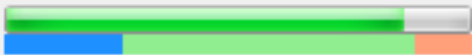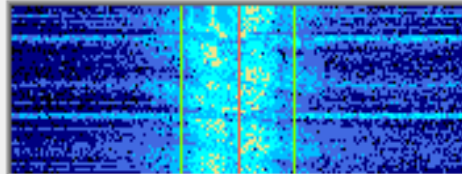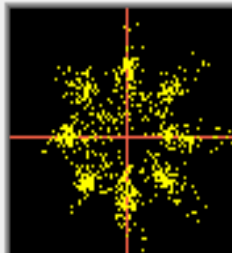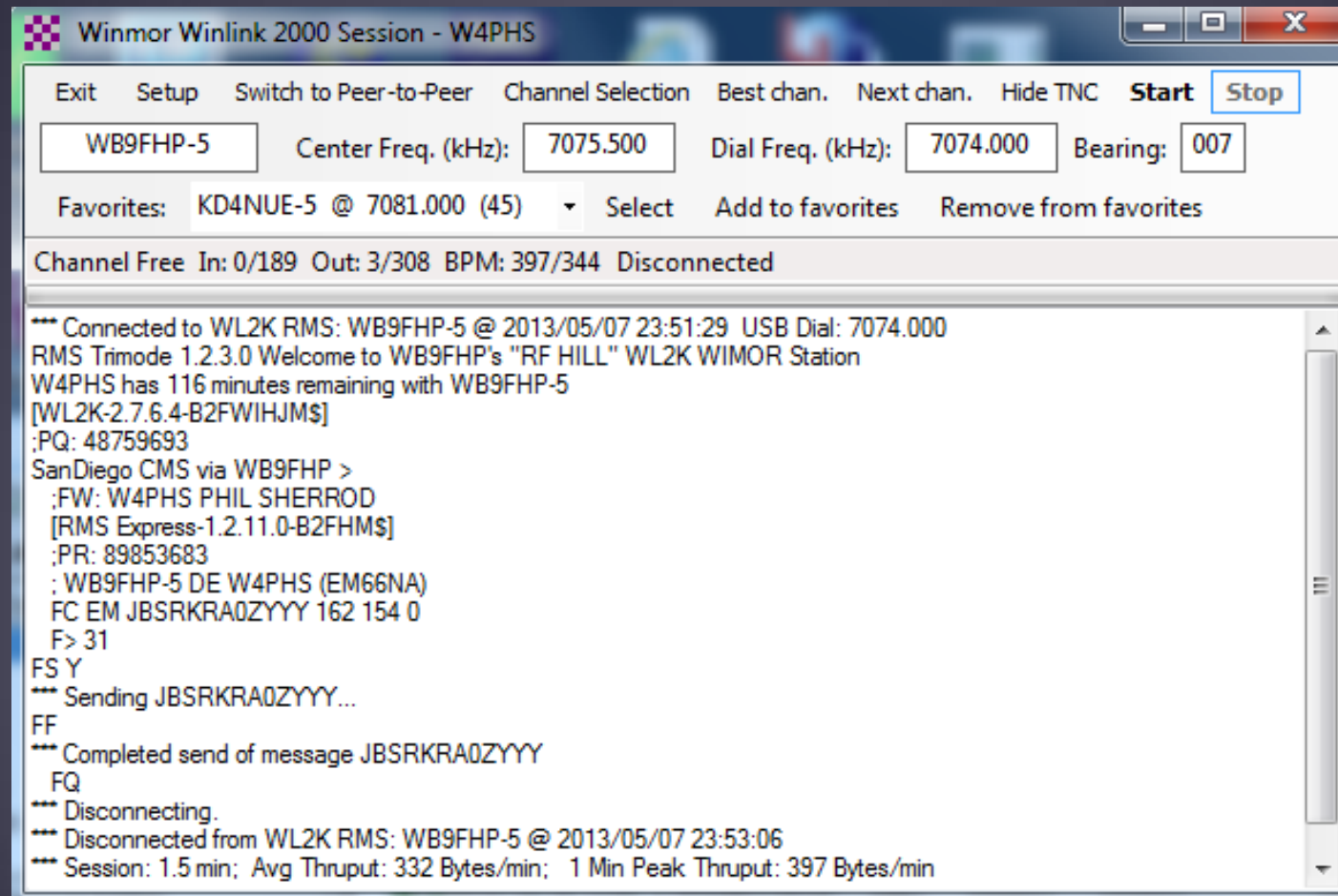
Winmor Session Log

- Connect, login, send message, log off

Reading Incoming Messages

Notification of Read Acknowledgement

Message Receipt Acknowledgements

- Positive acknowledgment that message was received
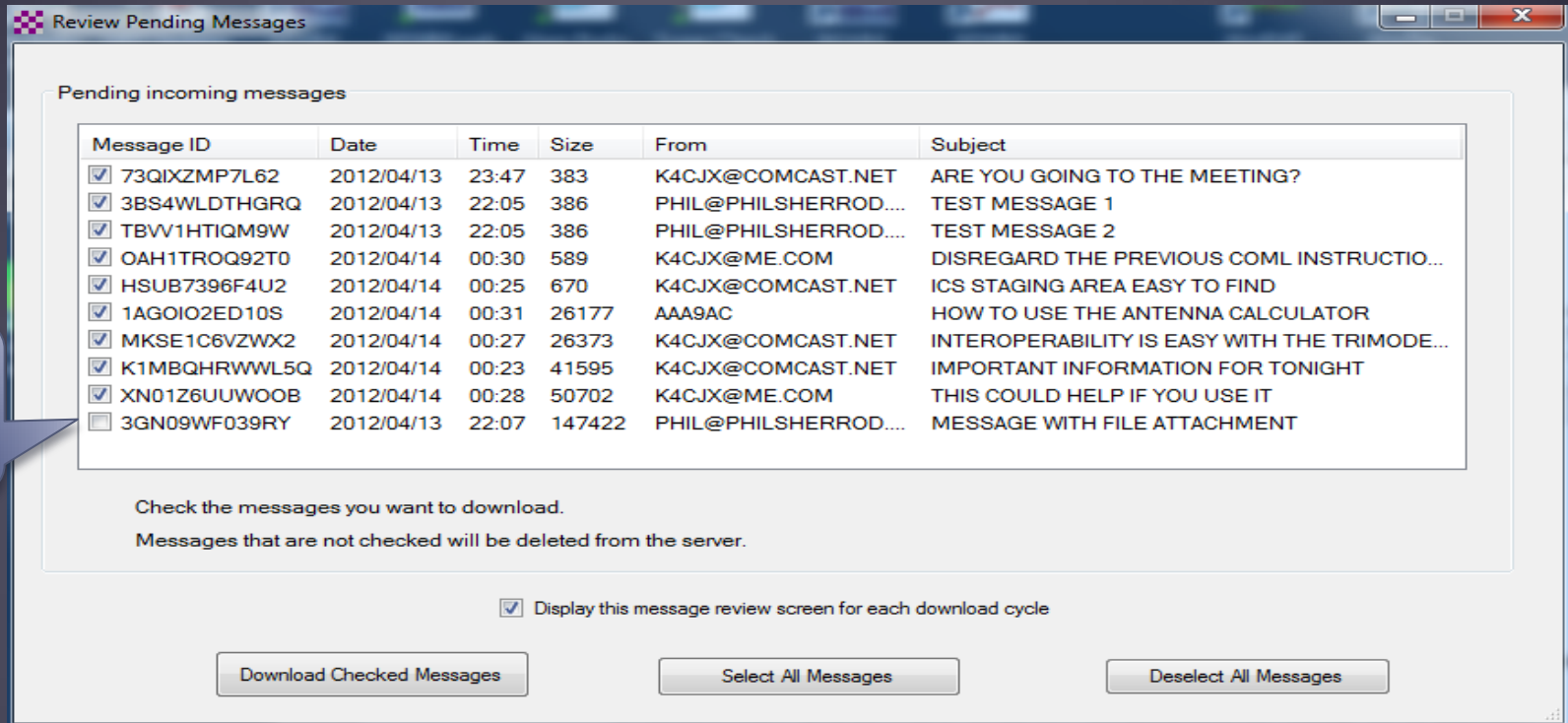- Information about message filled in automatically

User Preferences

- Click "Files" followed by "Preferences..."
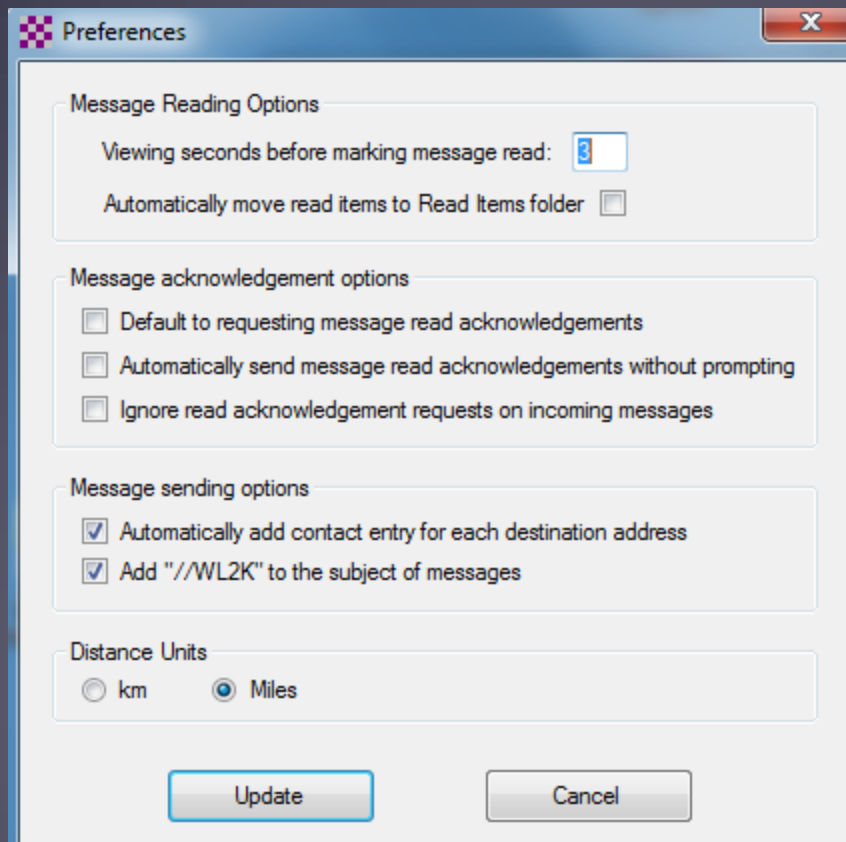
RMS Express Message Review

- Review pending messages before downloading.
- Select which messages to download.

Message too large & not wanted

Catalog Information Requests

- Use the "Winlink Catalog Request" feature in RMS Express to request:
  - Weather maps for most areas of the world
  - Weather forecasts
  - Maritime HF nets and frequencies
  - Satellite images
  - Location of closest 30 stations
  - ARRL Newsletter, e-letter, etc.
  - Misc. bulletins

RMS Express Query Catalog

Weather Map Image Returned for Request

GOES-EAST RAINBOW IR CH. 4 - APR 24 12 02:32 UTC
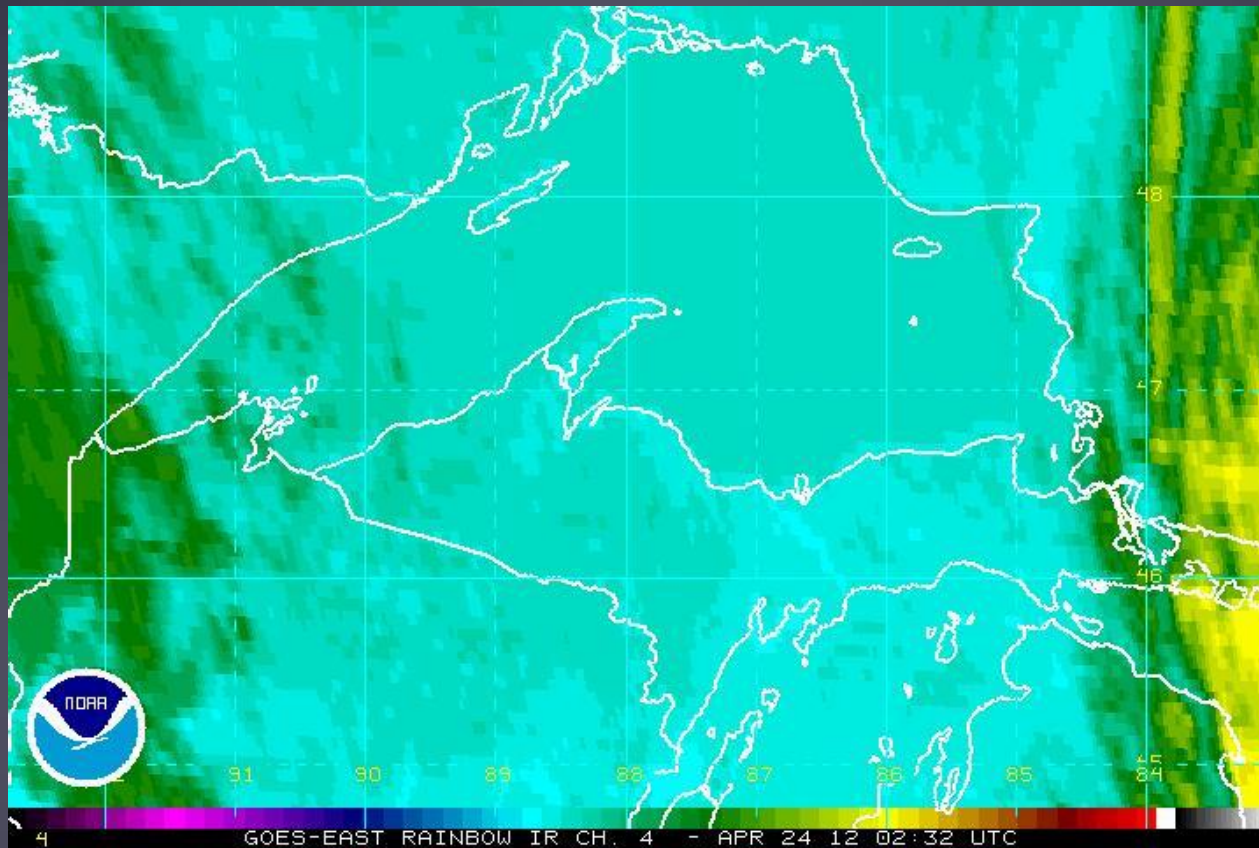
Winlink Position Reports

- You can send position reports to the Winlink system.
  - Coordinates sent via connected GPS.
  - Otherwise, your position may be entered manually.
- Position Reports are sent to:
  - Winlink system map
  - ShipTrak maps
  - APRS maps
  - YotReps maps
- Extremely valuable for pinpointing locations, especially for maritime operation.
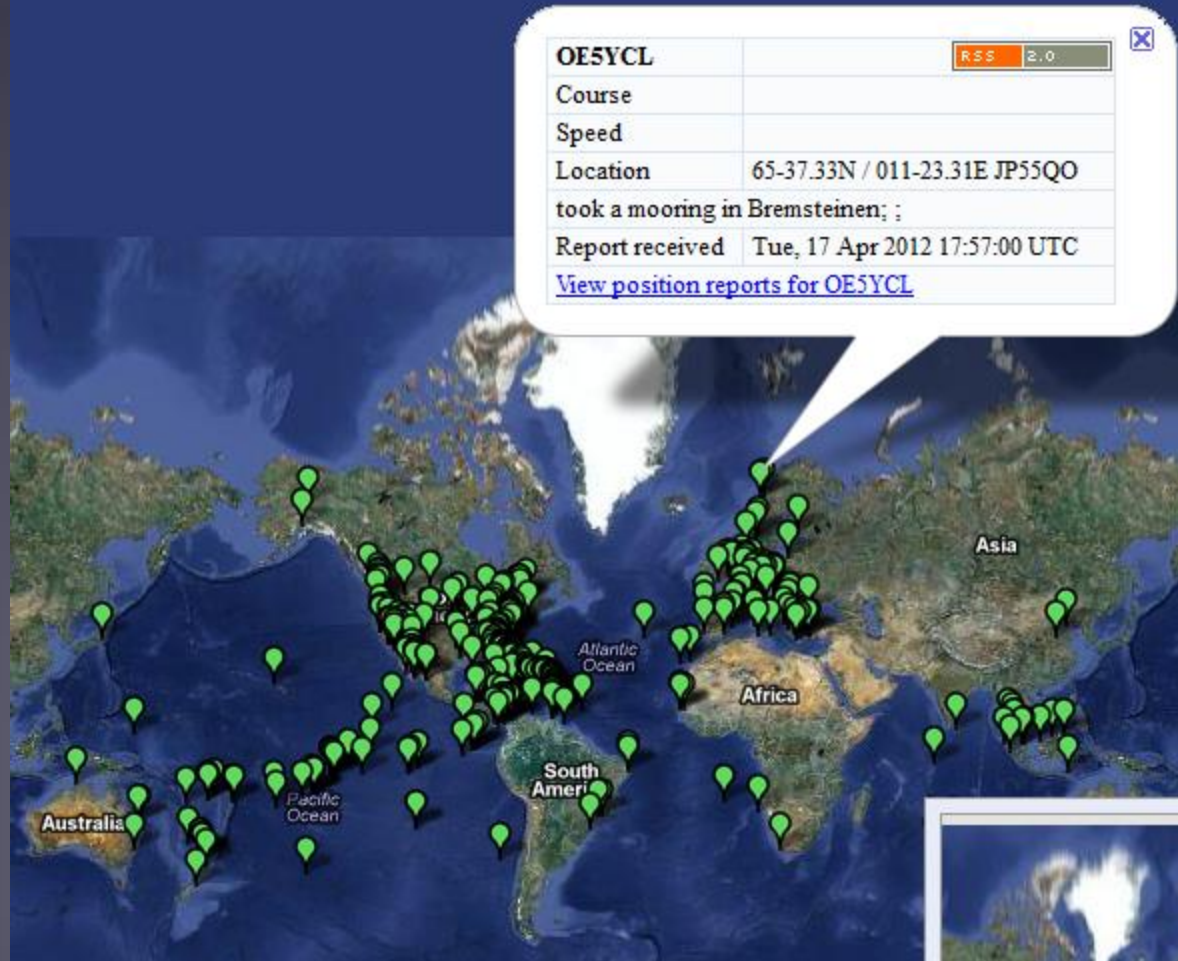
Posting a Position Report

Data from a connected GPS unit.

WX assistance to the NWS Voluntary Marine Observation Program.

Useful in tracking with e-mailed disaster assessments.

Winlink.org Real-time Position Report Page

RMSMessageLog ICS-309 Generator

Amateur Radio Safety Foundation, Inc.

Generated ICS-309 PDF Message Log Report

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Winlink Drop Kits for Field Operation