

RMS Express – Winlink 2000

Global Radio E-mail System

Phil Sherrod – W4PHS



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.

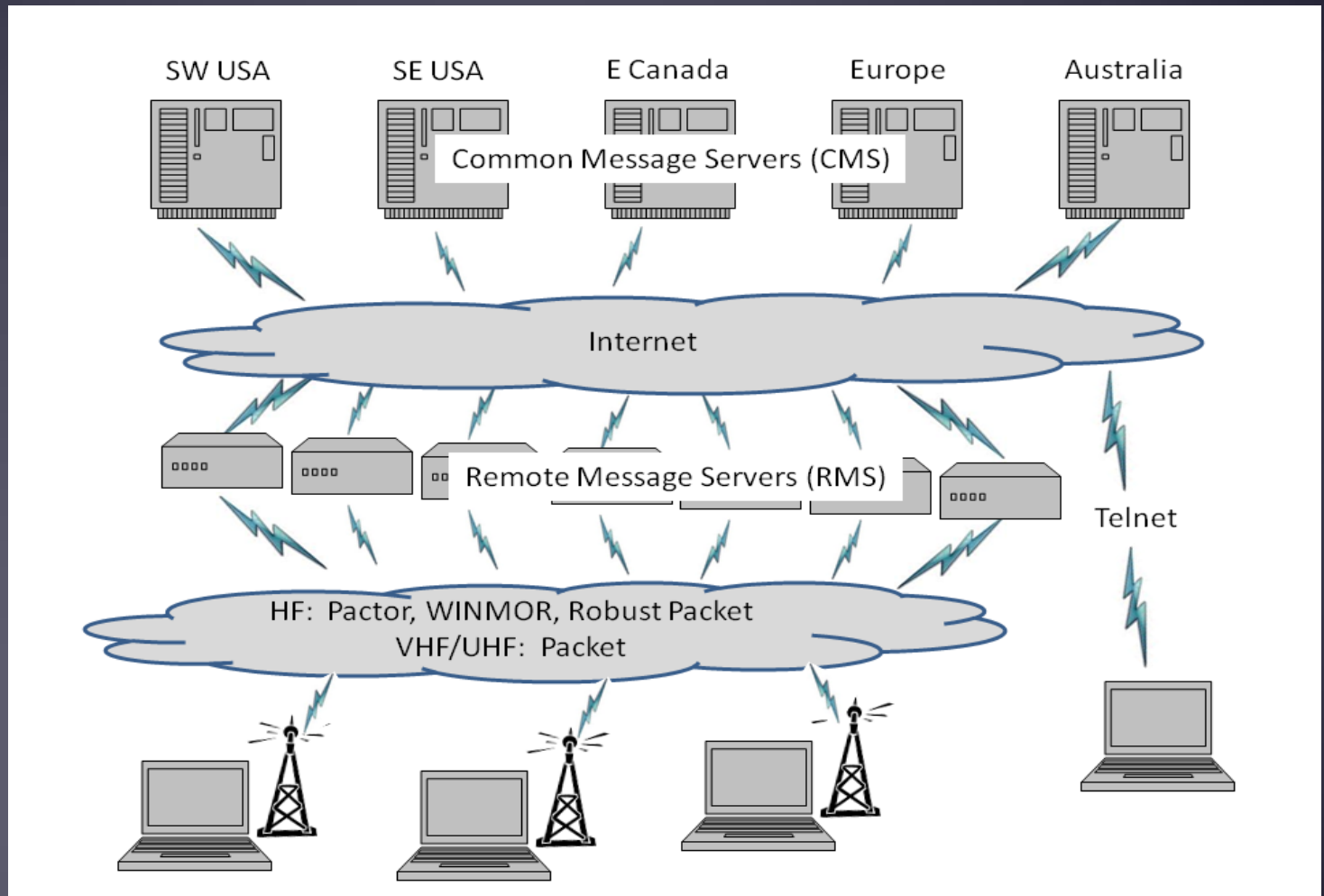
Winlink 2000 System Architecture

Hierarchical levels of the Winlink 2000 system:

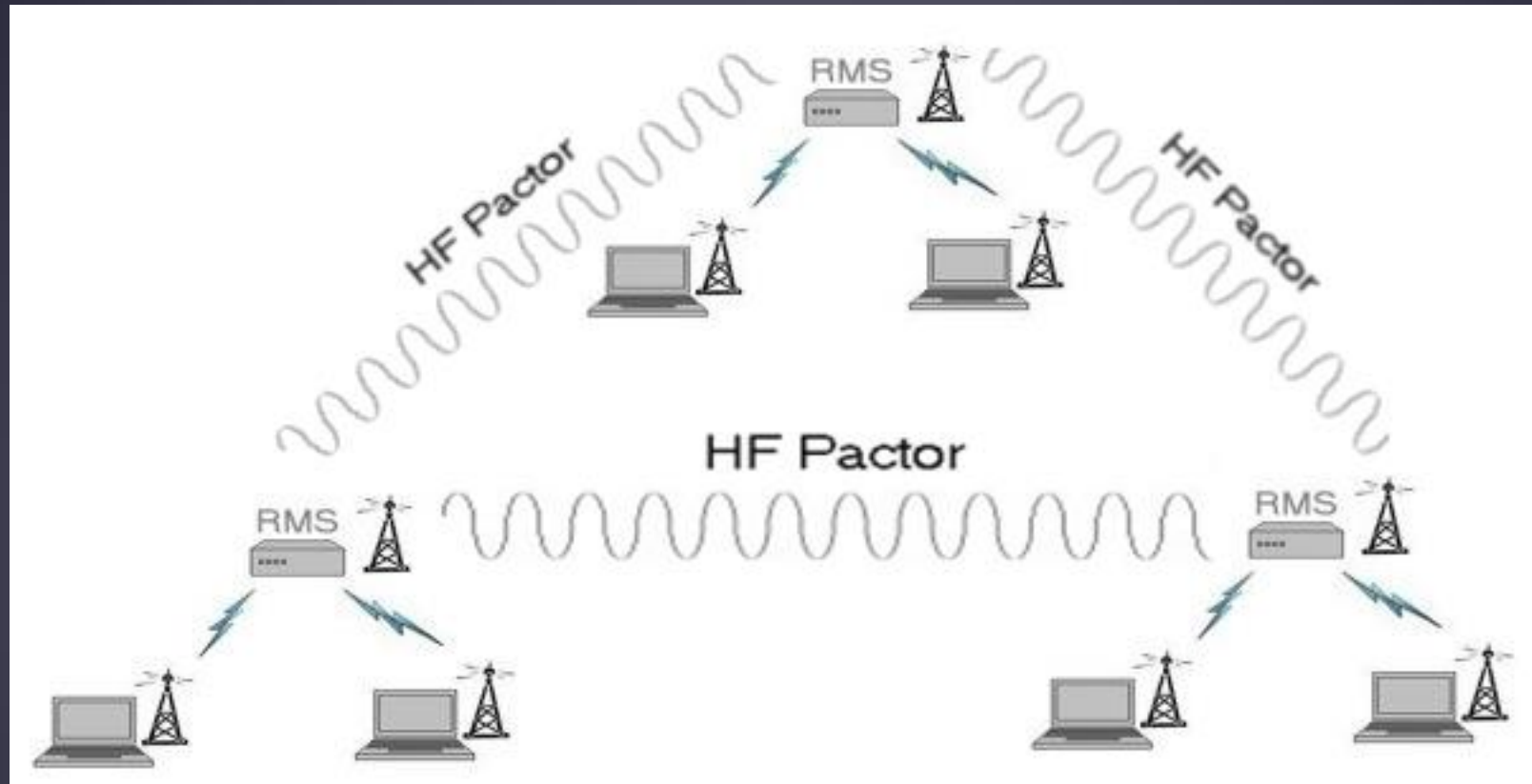
1. ***Client system*** – Radio, computer with Winlink software, TNC (or sound card) and you, the end-user!
2. ***Radio Message Server (RMS)*** – Radio gateway between the client (end-user) and the Winlink system backbone.
3. ***Common Message Servers (CMS)*** – Winlink backbone.
 - 5 CMS locations,
 - redundant, fault-tolerant,
 - located on 3 continents.
 - One CMS sufficient for operation.

Winlink 2000 Normal Network Operation

- CMS
- RMS
(gateway)
- Client
(you)

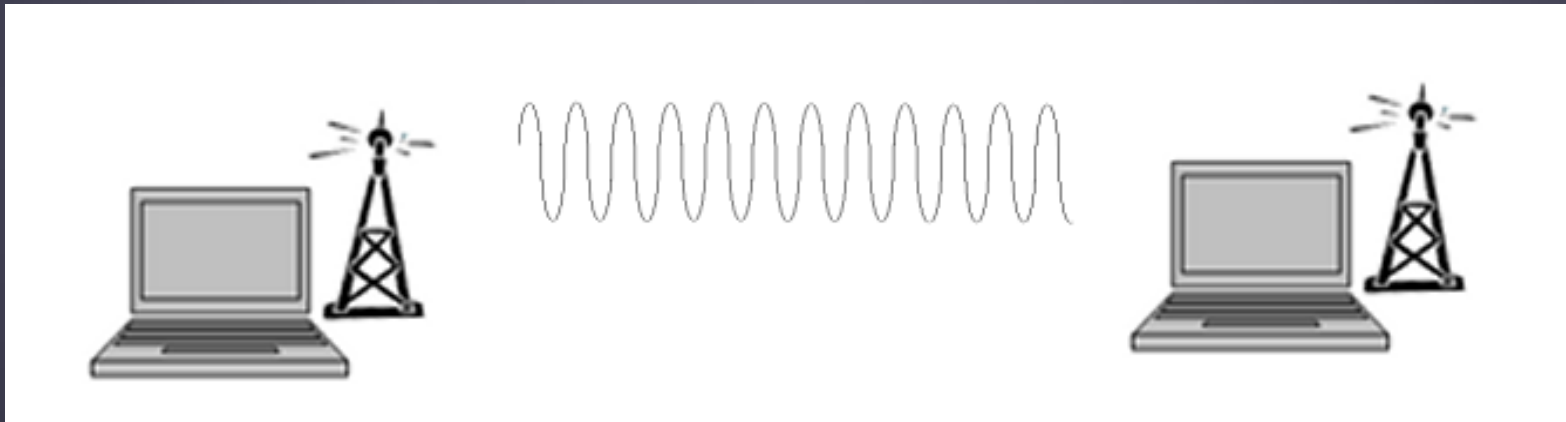


Winlink Radio-Only Network



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

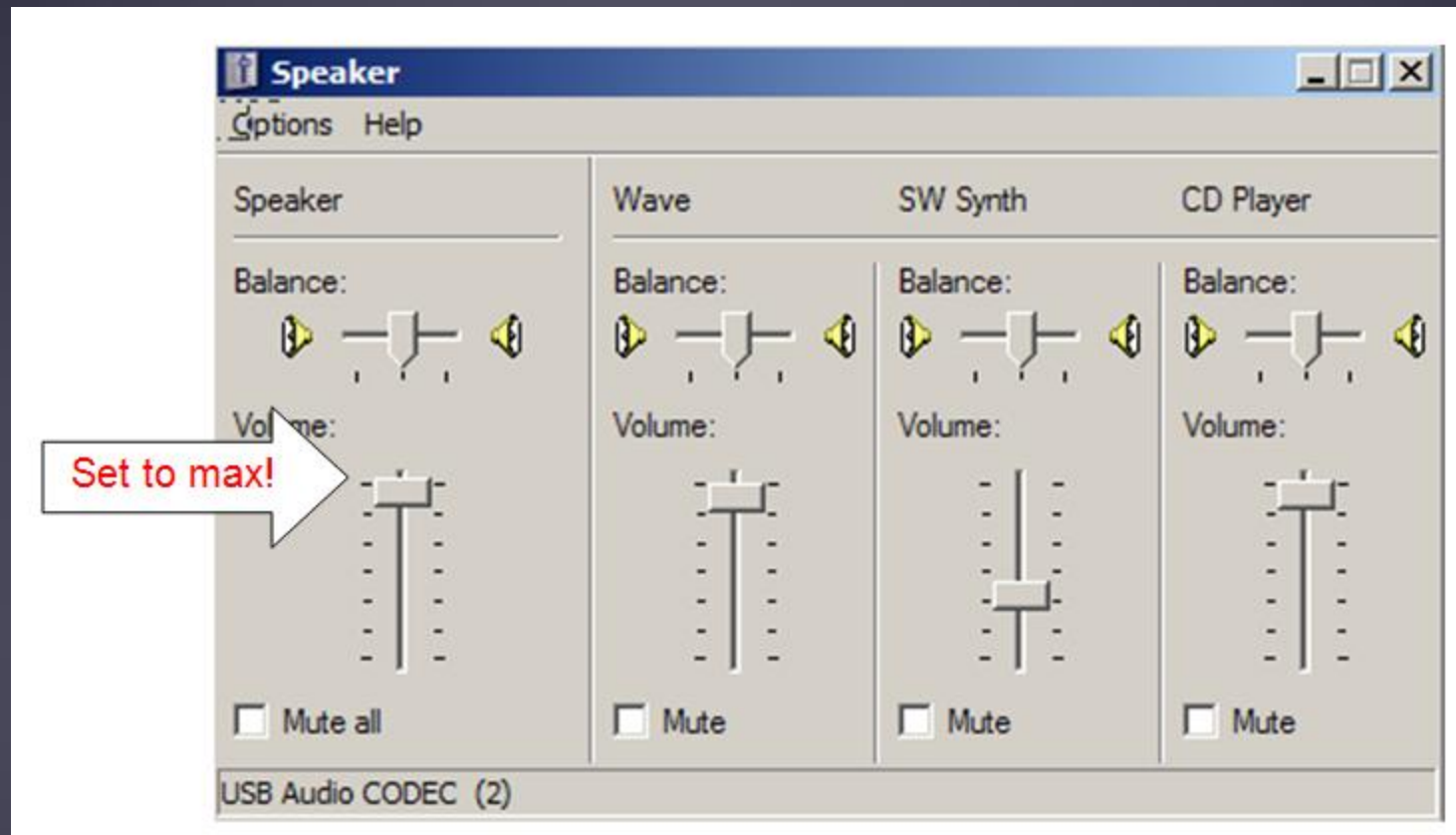
- Computer running Windows XP through Windows 8
- .NET 3.5 framework
- RMS Express program
- ITSHF propagation prediction program
- HF radio with data (sound) port and computer control
- Signalink USB soundcard interface (\$100):
<http://www.tigertronics.com/>
- Note: Some new radios have built-in soundcards
- 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



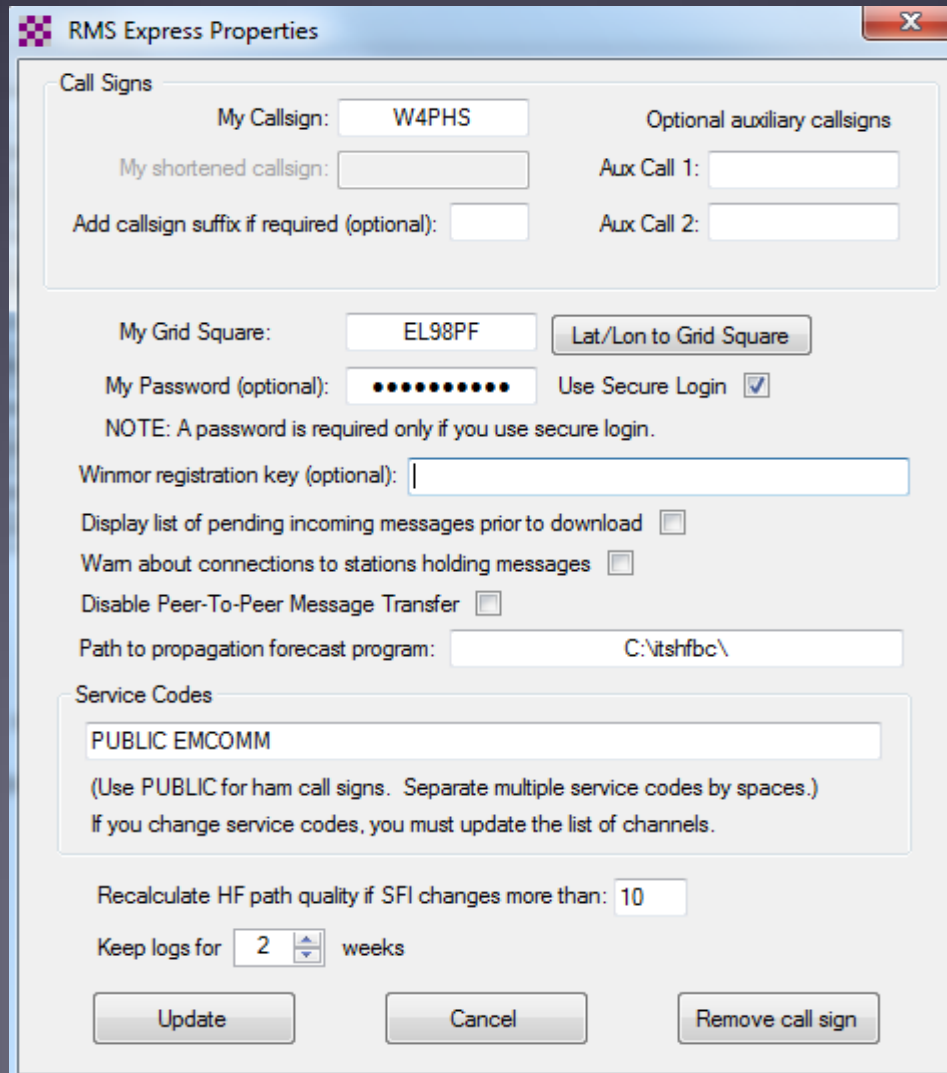
Configuring Sound Levels



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 Properties

Call Signs

My Callsign: Optional auxiliary callsigns

My shortened callsign:

Aux Call 1:

Add callsign suffix if required (optional): Aux Call 2:

My Grid Square:

My Password (optional): Use Secure Login ☒

NOTE: A password is required only if you use secure login.

Winmor registration key (optional):

Display list of pending incoming messages prior to download ☐

Warn about connections to stations holding messages ☐

Disable Peer-To-Peer Message Transfer ☐

Path to propagation forecast program:

Service Codes

(Use PUBLIC for ham call signs. Separate multiple service codes by spaces.)

If you change service codes, you must update the list of channels.

Recalculate HF path quality if SFI changes more than:

Keep logs for weeks

RMS Express Main Screen

Multiple
call signs

Standard
Folders

Personal
message
folders

Contacts
address
book

Begin
connection

Connection
Mode

RMS Express 1.2.11.0 - W4PHS

W4PHS Files Message Attachments Move To: Saved Items Delete Open Session: Winmor WL2K Logs Help

No active session...

System Folders	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
Inbox	2013/02/27 18:02	C2A8F3HV1TQN	227	NNS4UR	NNS4UR	W4PHS	//MARS R/Test read ackno
Read Items	2013/02/26 19:15	3MCGCA5W0TWE	195	NNS4UR	NNS4UR	W4PHS	//MARS R/Test ack
Outbox	2013/02/25 16:06	986W7AC5407K	171	W4PHS	W4PHS	W4PHS	//WL2K /Test Relay 2
Sent Items	2013/02/21 20:48	C4403DK5SX6B	392	SMTP	SMTP:k1ky@bell...	W4PHS	//WL2K/ Message Counter
Saved Items	2013/02/21 19:50	ODP33KNG3XI9	593	SMTP	SMTP:k4cix@co...	W4PHS ...	Re: //WL2K /M700 parts
Deleted Items	2013/02/21 16:38	SDP4883MPBKA	426	W4LTX	W4LTX	W4PHS ...	//WL2K /M700 parts
Drafts							

Personal Folders

Contacts

1clubservice@hertz.com
1momeldrum@gmail.com
5carolyn@bellsouth.net
6153476430@bt.att.net
615-771-4181

Message ID: C2A8F3HV1TQN
Date: 2013/02/27 18:02
From: NNS4UR
To: W4PHS
Source: NNS4UR
Subject: //MARS R/Test read acknowledgement 2

<No message body>

[Read receipt requested]

Composing A Message

New Message Button

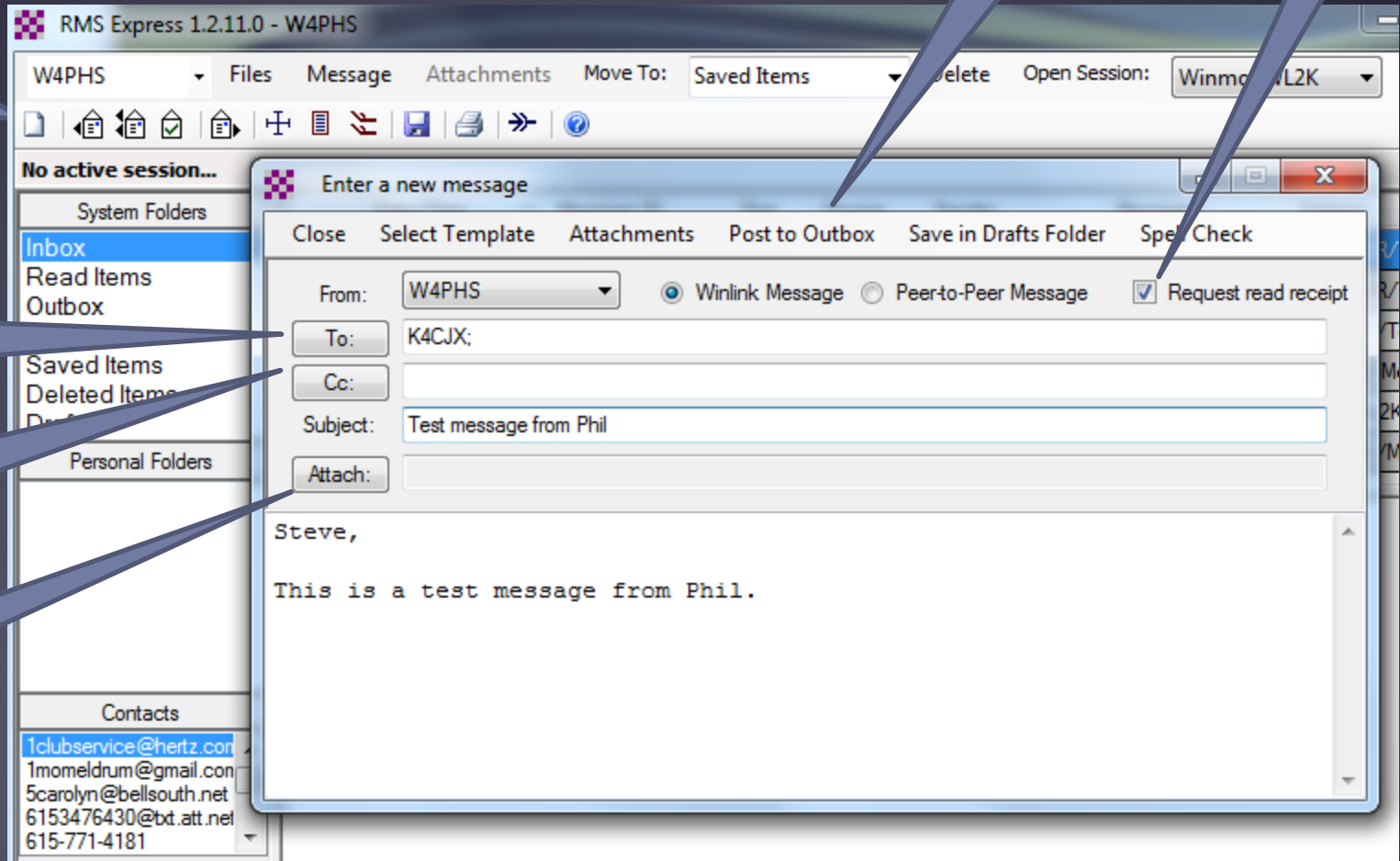
Click "To" or "CC" for contacts

Multiple recipients and CC

File attachments

Post to Outbox

Request read receipt



Using Group Addresses

- Click “Files” followed by “Group Address...”
- Use a group name in the “To” or “CC” fields

Group Addresses

Group ID:

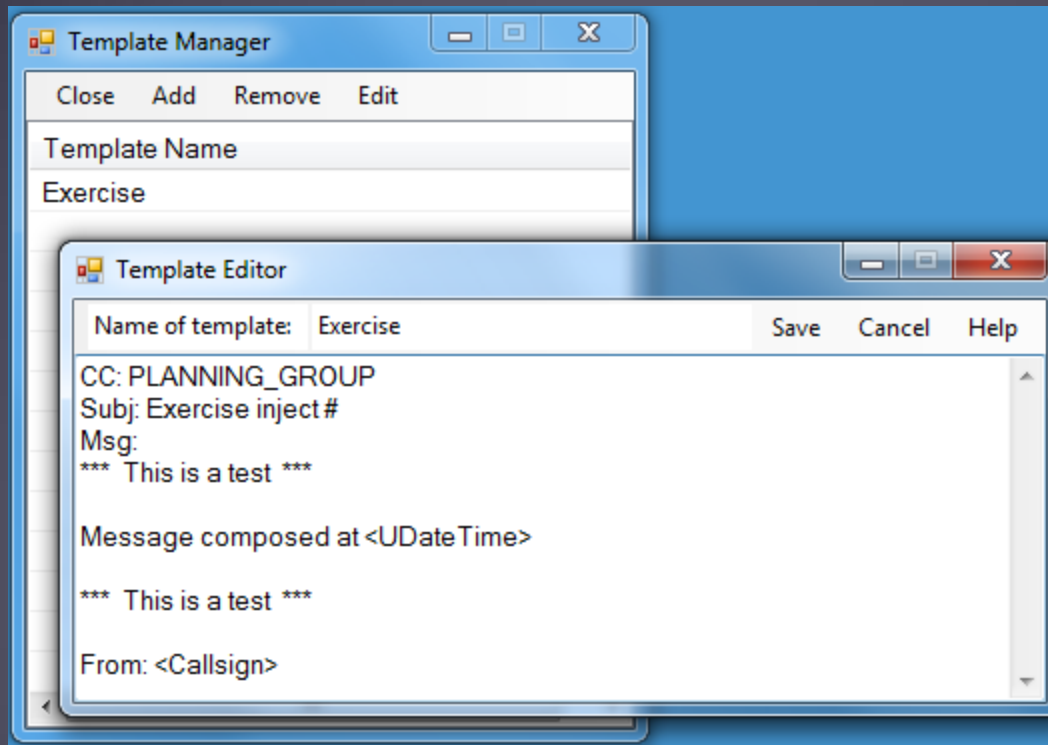
Contacts:

Group Addresses (separate with space or ":\") . . .

PLANNING_GROUP = K4CJX wolfe4pak@bellsouth.net AAA4TN

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

Enter a new message

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

From: W4PHS ☒ Winlink Message ☐ Peerto-Peer Message ☐ Request read receipt

To:

Cc: PLANNING_GROUP

Subject: Exercise inject #

Attach:

*** This is a test ***

Message composed at 2013-05-08 15:45:09Z

*** This is a test ***

From: W4PHS

Pending Message In Outbox

Open
Session

RMS Express 1.2.11.0 - W4PHS

W4PHS Files Message Attachments Move To: Saved Items Delete Open Session: Winmor WL2K Logs Help

No active session...

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2013/05/07 18:06	82IFY8051PI2	219	W4PHS	W4PHS	K4CJX	//WL2K Test message from Phil

System Folders

- Inbox
- Read Items
- Outbox
- Sent Items
- Saved Items
- Deleted Items
- Drafts

Personal Folders

Contacts

- 1clubservice@hertz.com
- 1momeldrum@gmail.com
- 5carolyn@bellsouth.net
- 6153476430@txt.att.net
- 615-771-4181

Message ID: 82IFY8051PI2
Date: 2013/05/07 18:06
From: W4PHS
To: K4CJX
Source: W4PHS
Subject: //WL2K Test message from Phil

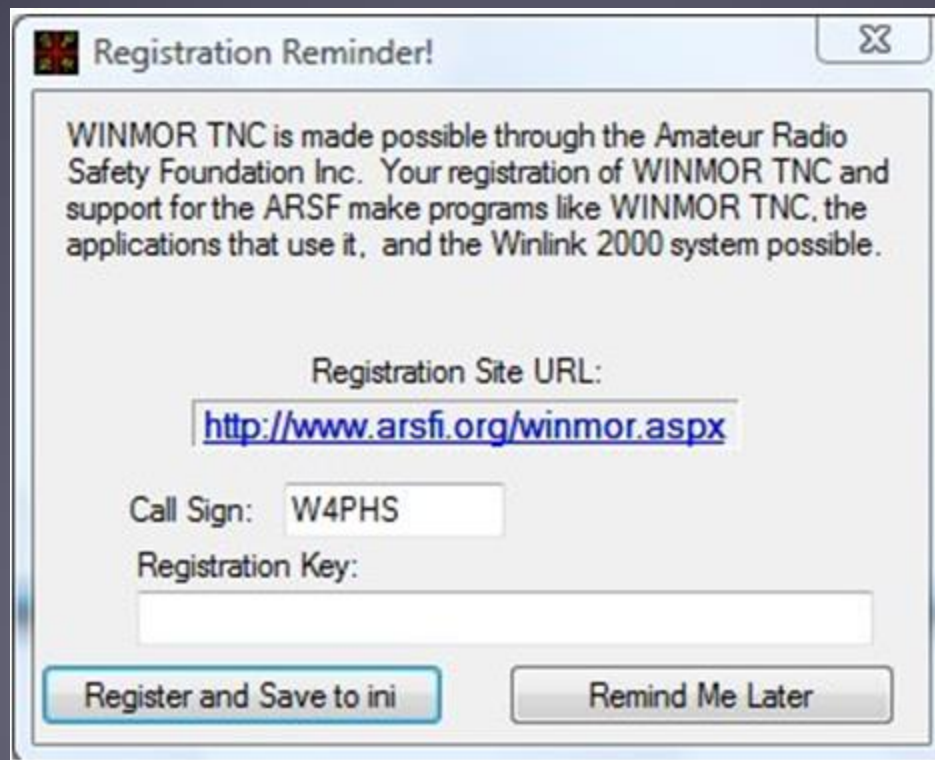
Steve,

This is a test message from Phil.

[Read receipt requested]

Winmor Registration Screen

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



A screenshot of a Windows-style dialog box titled "Registration Reminder!". The dialog box has a standard Windows XP aesthetic with a blue title bar and a close button in the top right corner. The main text area contains a paragraph explaining that WINMOR TNC is made possible through the Amateur Radio Safety Foundation Inc. and that registration and support for ARSF make programs like WINMOR TNC, applications that use it, and the Winlink 2000 system possible. Below this text, there is a label "Registration Site URL:" followed by a text box containing the URL <http://www.arsfi.org/winmor.aspx>. Underneath the URL, there is a label "Call Sign:" followed by a text box containing "W4PHS". Below the call sign, there is a label "Registration Key:" followed by an empty text box. At the bottom of the dialog box, there are two buttons: "Register and Save to ini" on the left and "Remind Me Later" on the right.

Registration Reminder!

WINMOR TNC is made possible through the Amateur Radio Safety Foundation Inc. Your registration of WINMOR TNC and support for the ARSF make programs like WINMOR TNC, the applications that use it, and the Winlink 2000 system possible.

Registration Site URL:

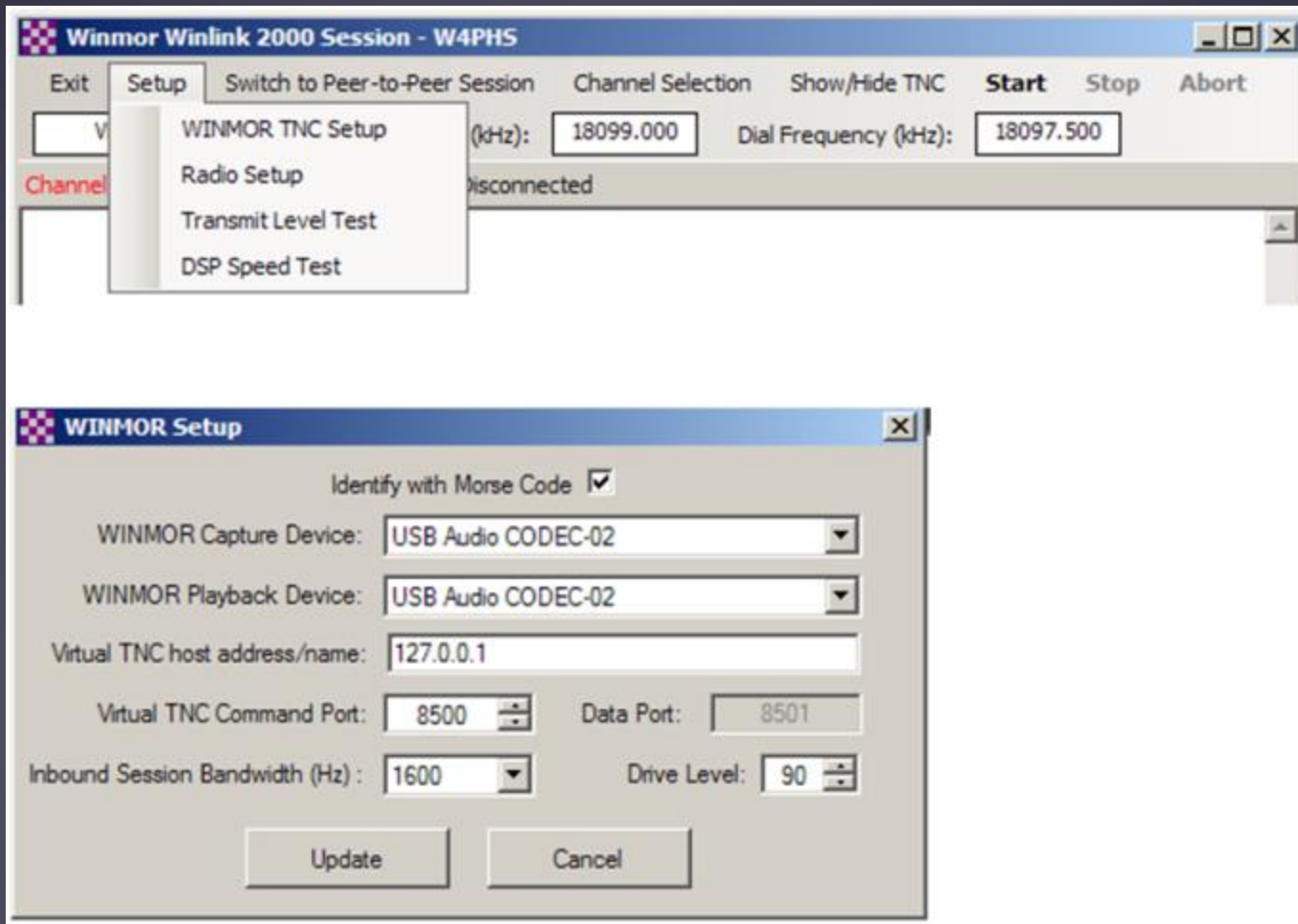
<http://www.arsfi.org/winmor.aspx>

Call Sign: W4PHS

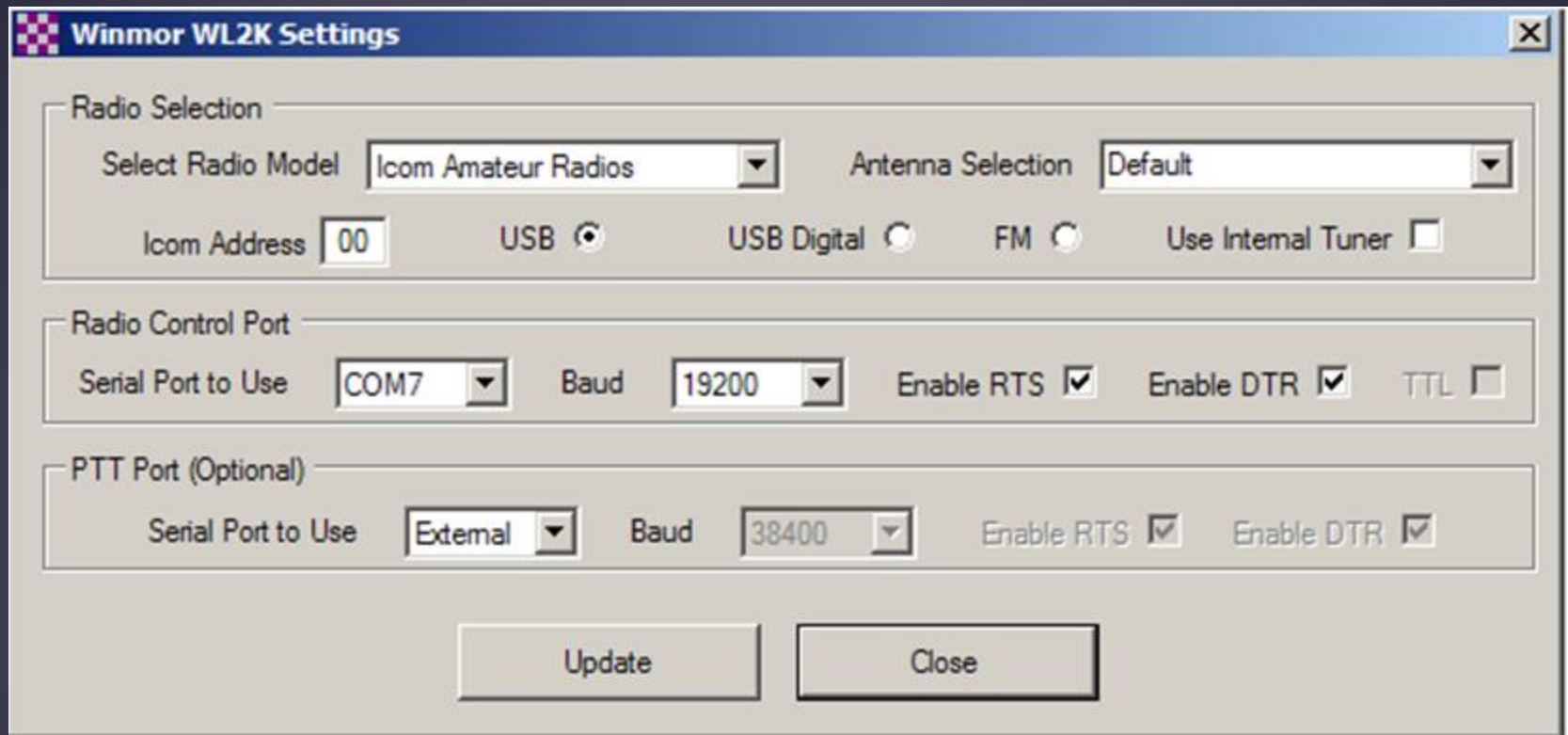
Registration Key:

Register and Save to ini Remind Me Later

Initial Winmor Setup



Winmor Radio Setup



The image shows a screenshot of the 'Winmor WL2K Settings' dialog box. The dialog has a title bar with a close button. It is divided into three main sections: 'Radio Selection', 'Radio Control Port', and 'PTT Port (Optional)'. The 'Radio Selection' section includes a 'Select Radio Model' dropdown set to 'Icom Amateur Radios', an 'Antenna Selection' dropdown set to 'Default', an 'Icom Address' text box with '00', and radio mode options: 'USB' (selected), 'USB Digital', 'FM', and 'Use Internal Tuner' (unchecked). The 'Radio Control Port' section includes a 'Serial Port to Use' dropdown set to 'COM7', a 'Baud' dropdown set to '19200', and checkboxes for 'Enable RTS' (checked), 'Enable DTR' (checked), and 'TTL' (unchecked). The 'PTT Port (Optional)' section includes a 'Serial Port to Use' dropdown set to 'External', a 'Baud' dropdown set to '38400', and checkboxes for 'Enable RTS' (checked) and 'Enable DTR' (checked). At the bottom are 'Update' and 'Close' buttons.

Winmor WL2K Settings

Radio Selection

Select Radio Model: Icom Amateur Radios

Antenna Selection: Default

Icom Address: 00

USB ☒ USB Digital ☐ FM ☐ Use Internal Tuner ☐

Radio Control Port

Serial Port to Use: COM7

Baud: 19200

Enable RTS ☒ Enable DTR ☒ TTL ☐

PTT Port (Optional)

Serial Port to Use: External

Baud: 38400

Enable RTS ☒ Enable DTR ☒

Update Close

HF Channel Selection Screen

All RMS or
radio-only

Update
channel
list

Double
click to
select

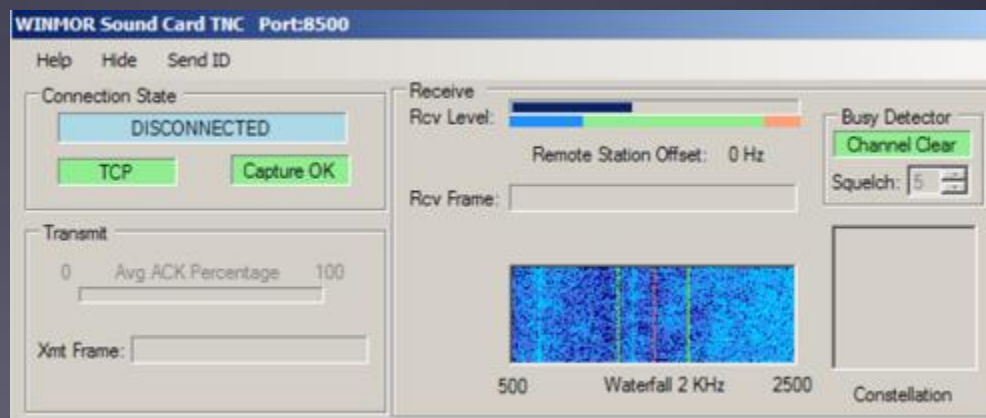
Click
Header
to Sort

Green: good
Yellow: fair
Red: bad

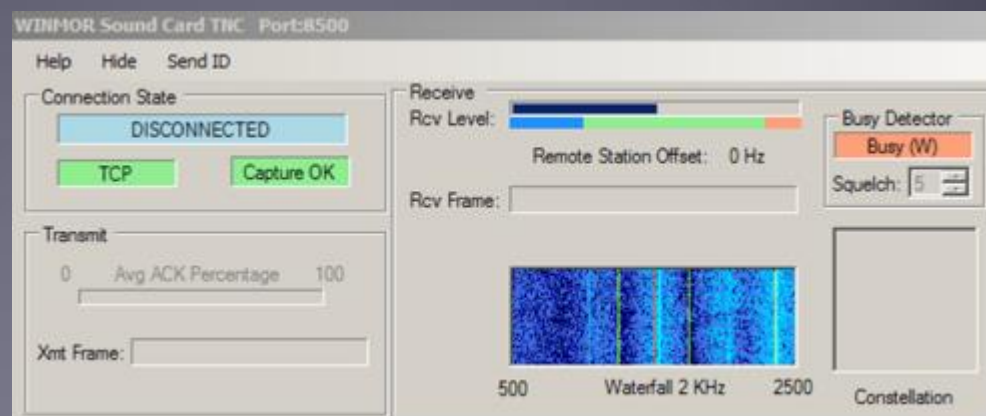
HF Channel Selector									
Exit Select Update Table Update Table Via Radio SFI All RMS									
Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
KN6KB	3590.000	1600	EL98PF	00-23	PUBLIC	0	000	100	100
KN6KB	14066.500	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

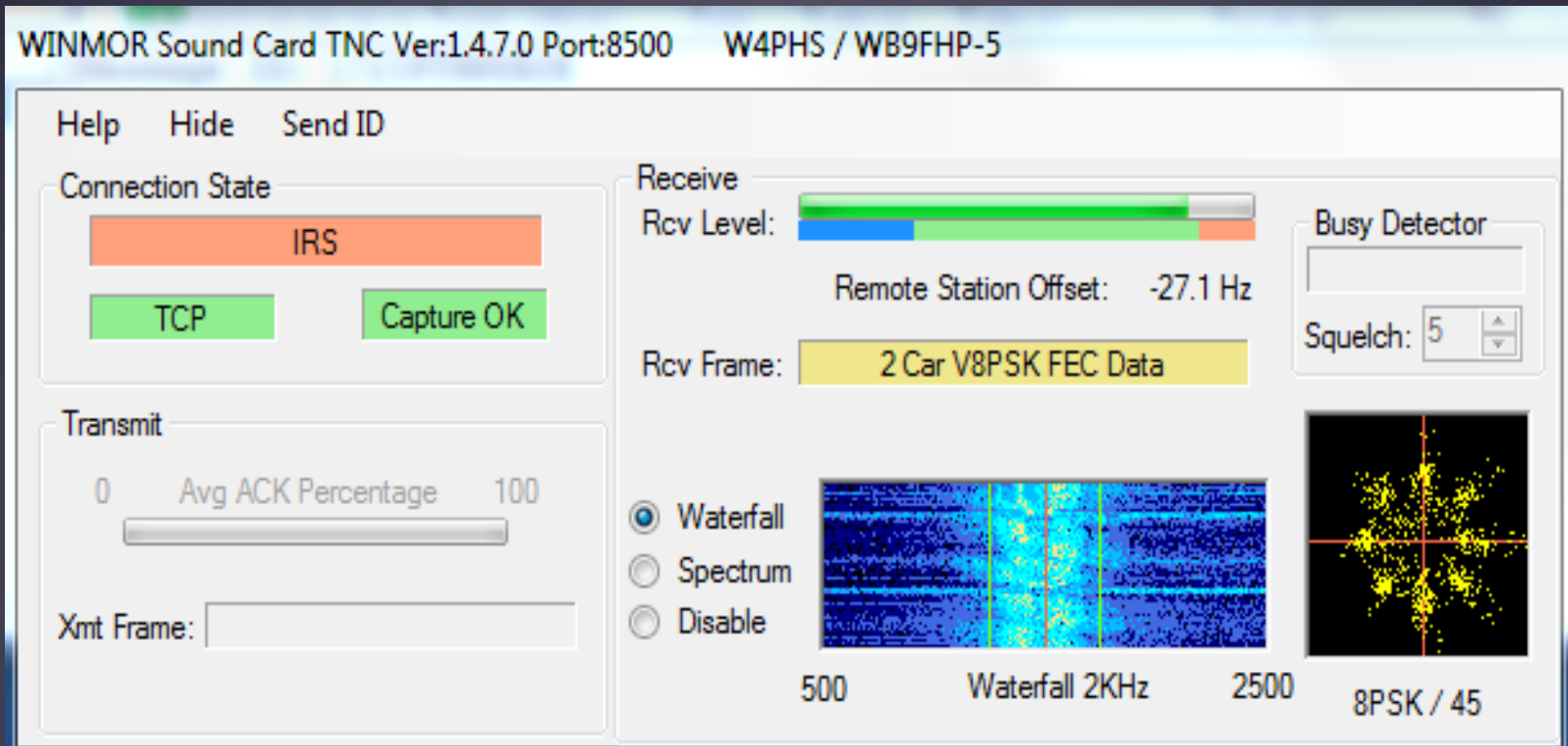
- Free Channel:



- Busy Channel:

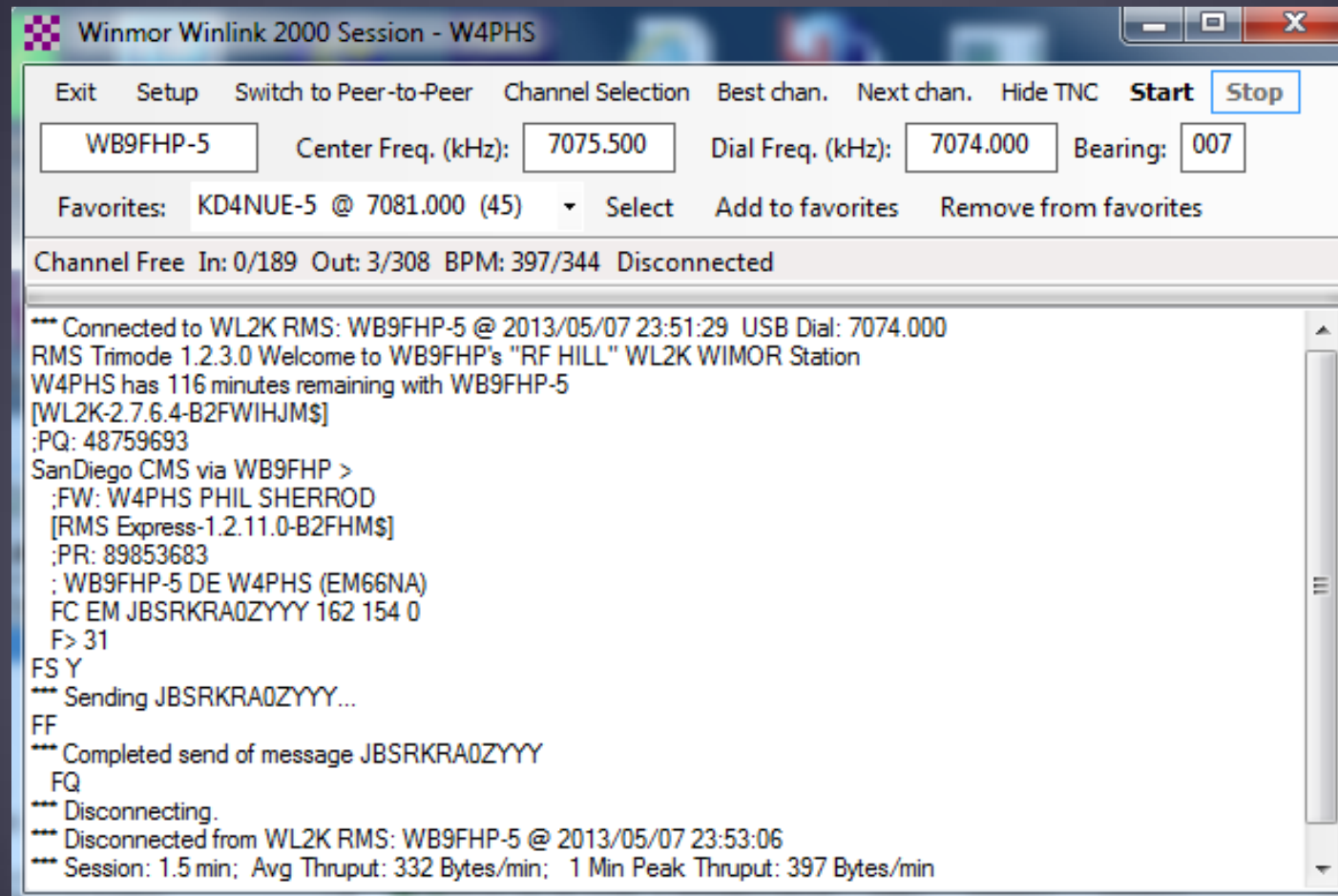


Active Winmor Connection



Winmor Session Log

- Connect, login, send message, log off



Reading Incoming Messages

RMS Express 1.2.11.0 - W4PHS

W4PHS Files Message Attachments Move To: Saved Items Delete Open Session: Winmor WL2K Logs Help

No active session...

System Folders	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
Inbox	2013/02/21 16:38	SDP4883MPBKA	426	W4LTX	W4LTX	W4PHS ...	//WL2K /M700 parts
Read Items	2013/01/02 18:56	ON3NIDAARB4E	525	DK3CW	DK3CW	W4PHS	Re:Getting unhandled except
Outbox	2013/01/02 18:56	MZR80UF904YP	357	DK3CW	DK3CW	W4PHS	ACK: Re:Getting unhandled e
Sent Items	2012/09/19 14:43	F8Z8PW6YQHBS	7090	SMTP	SMTP:phil@phils...	W4PHS	RAR file from external
Saved Items	2012/08/28 16:17	PZSFVLG6DD6P	271	K4IDK	K4IDK	W4PHS	ACK: Net
Deleted Items	2012/08/17 20:01	6D1RK040UH42	251	AAR4MX	AAR4MX	W4PHS	Message sent with request fo
Drafts							

Personal Folders

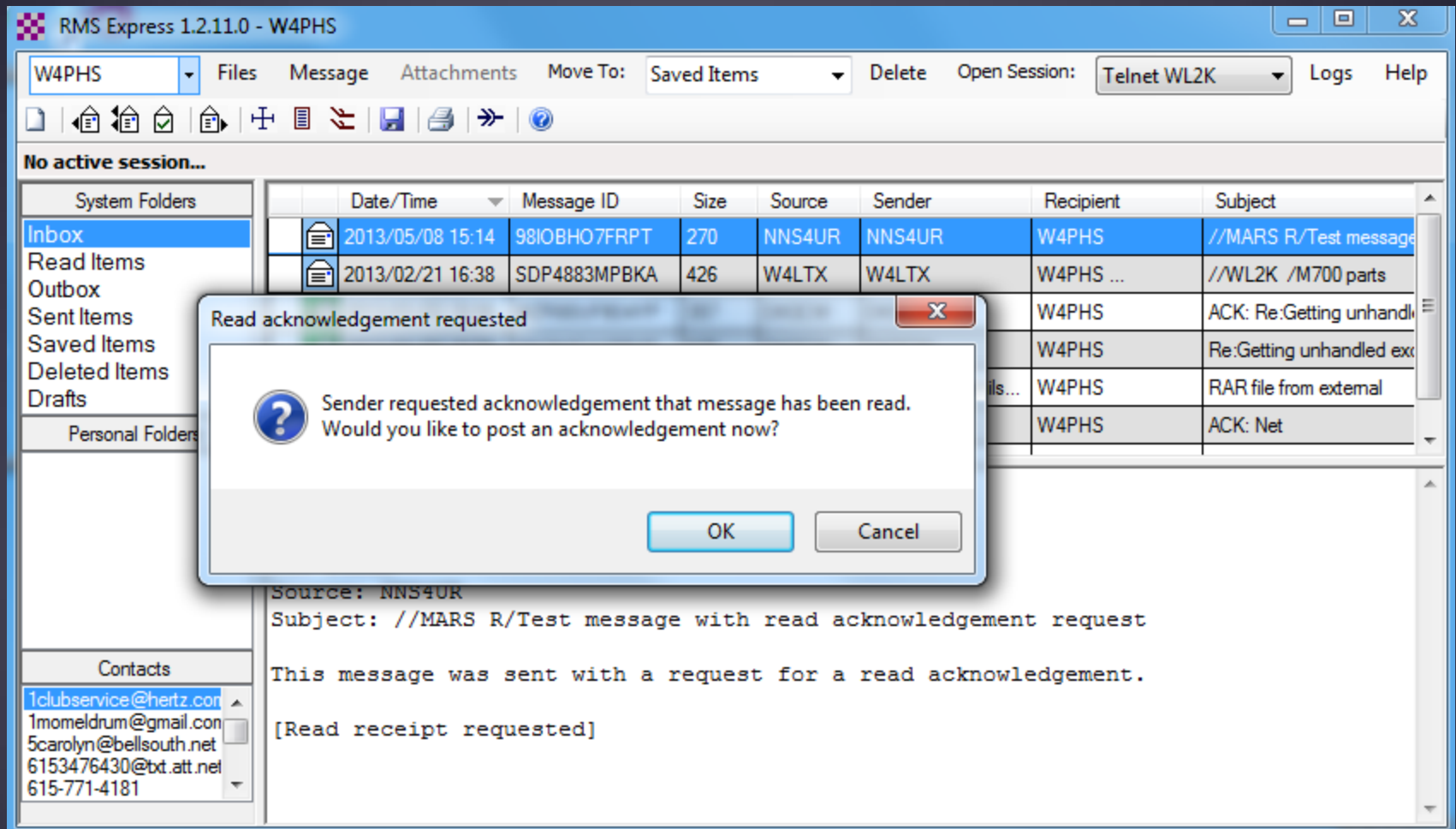
Contacts

1clubservice@hertz.com
1momeldrum@gmail.com
5carolyn@bellsouth.net
6153476430@td.att.net
615-771-4181

Message ID: SDP4883MPBKA
Date: 2013/02/21 16:38
From: W4LTX
To: W4PHS; k4cjx@comcast.net
Source: W4LTX
Subject: //WL2K /M700 parts

Steve or Phil,
Can you find out if Icom still has parts for a M700 serial 05457. A board smoked when power was applied although it did not draw much power from the supply.
The store here in Rus Rus wants to use this on a local HF in country net.

Notification of Read Acknowledgement



Message Receipt Acknowledgements

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

Acknowledge receipt of message by W4PHS

Close Select Template Attachments Post to Outbox Save in Drafts Folder

From: **W4PHS** ☒ Winlink Message ☐ Peerto-Peer Message

To: k4cjx@comcast.net;

Cc:

Subject: ACK: //mars/test

Attach:

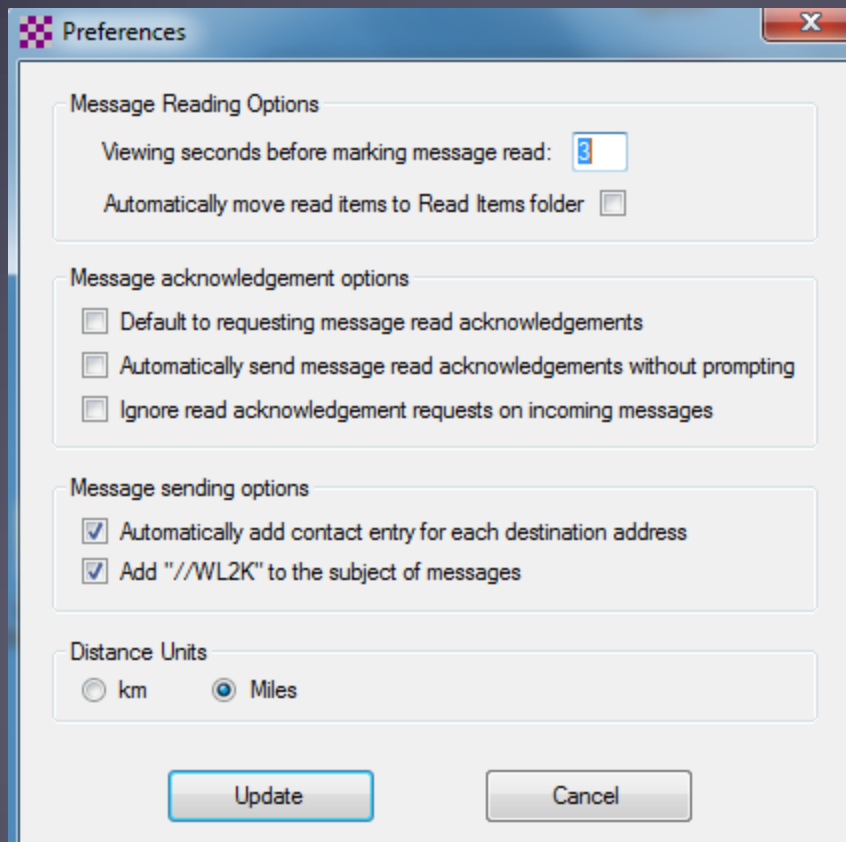
[message acknowledgement]

The following message was received by W4PHS

Subject: //mars/test
Sender: k4cjx@comcast.net
To: W4PHS
Received: 2011/09/13 15:12
Message-ID: VXMWNWKEYEIIY
Number of attachments: 0
Size: 223

User Preferences

- Click “Files” followed by “Preferences...”



RMS Express Message Review

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

Review Pending Messages

Pending incoming messages

Message ID	Date	Time	Size	From	Subject
☒ 73QIXZMP7L62	2012/04/13	23:47	383	K4CJX@COMCAST.NET	ARE YOU GOING TO THE MEETING?
☒ 3BS4WLDTHGRO	2012/04/13	22:05	386	PHIL@PHILSHERROD....	TEST MESSAGE 1
☒ TBV1HTIQM9W	2012/04/13	22:05	386	PHIL@PHILSHERROD....	TEST MESSAGE 2
☒ OAH1TROQ92T0	2012/04/14	00:30	589	K4CJX@ME.COM	DISREGARD THE PREVIOUS COML INSTRUCTIO...
☒ HSUB7396F4U2	2012/04/14	00:25	670	K4CJX@COMCAST.NET	ICS STAGING AREA EASY TO FIND
☒ 1AGOIO2ED10S	2012/04/14	00:31	26177	AAA9AC	HOW TO USE THE ANTENNA CALCULATOR
☒ MKSE1C6VZX2	2012/04/14	00:27	26373	K4CJX@COMCAST.NET	INTEROPERABILITY IS EASY WITH THE TRIMODE...
☒ K1MBQHRWWL5Q	2012/04/14	00:23	41595	K4CJX@COMCAST.NET	IMPORTANT INFORMATION FOR TONIGHT
☒ XN01Z6UUWOOB	2012/04/14	00:28	50702	K4CJX@ME.COM	THIS COULD HELP IF YOU USE IT
☐ 3GN09WF039RY	2012/04/13	22:07	147422	PHIL@PHILSHERROD....	MESSAGE WITH FILE ATTACHMENT

Check the messages you want to download.
Messages that are not checked will be deleted from the server.

☒ Display this message review screen for each download cycle

Download Checked Messages Select All Messages Deselect All Messages

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

Winlink Query Catalog

Categories	Inquiry ID	Description	Size	Originated
ARCTIC_ICE	ARES_E_LTR	Current ARRL ARES E-Letter	35537	2009-45-06
ARRL	LETTER	Current ARRL Letter	23103	2010-17-04

Selections

ARES_E_LTR

Double click to add or delete query selections...

Post Request

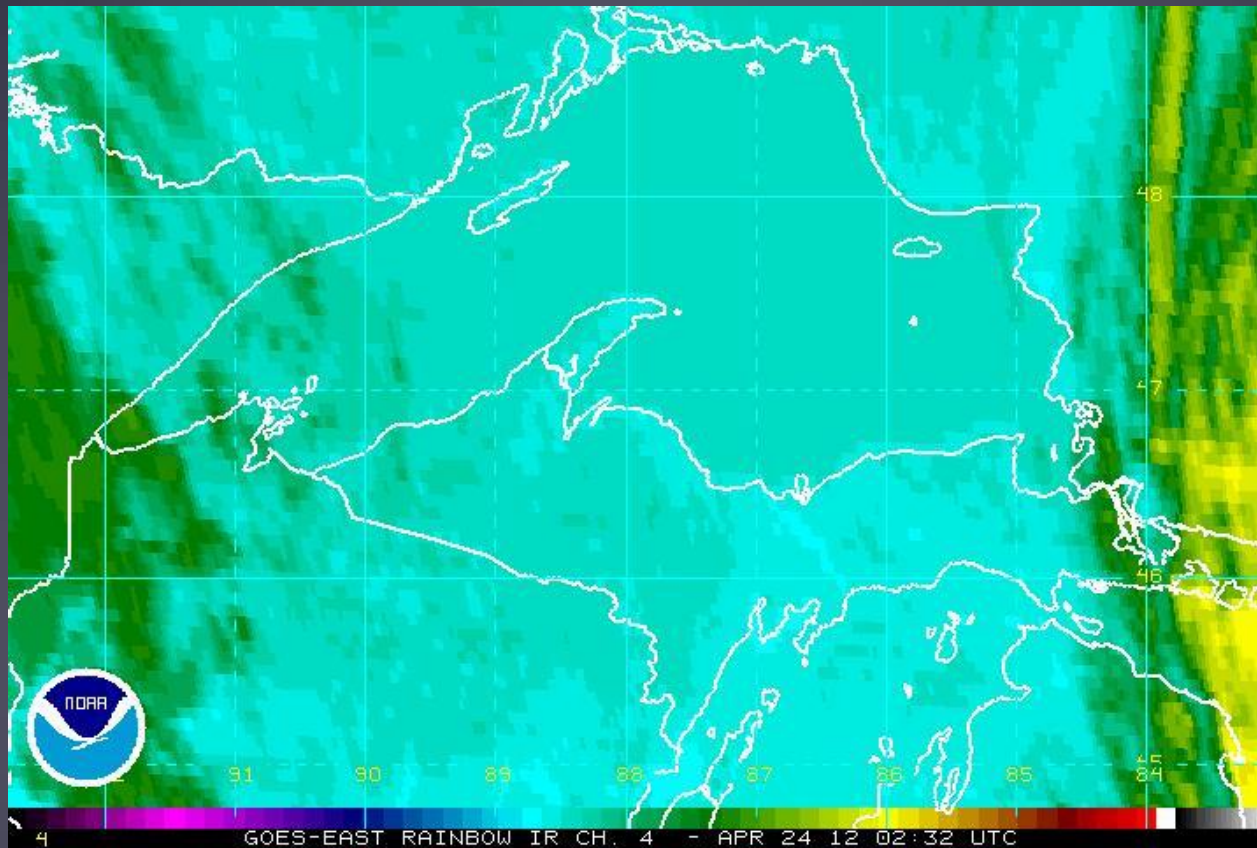
Last Update
2012/04/20 11:00

Request Catalog Update

Cancel

Categories list: ARCTIC_ICE, ARRL, AUT_HAM, GERMAN_BCST, GMD_METFR, GULF_CURRENT, HF_NETS, HONDURAS, INDIAN_OCEAN, LIGHTNING, MEL_EXPLORE, METAR, METAREA, METAREA_I, METAREA_II, METAREA_III, METAREA_IV, METAREA_IX, METAREA_V, METAREA_VI, METAREA_VII, METAREA_VIII, METAREA_X, METAREA_XI, METAREA_XII, METAREA_XIV, METAREA_XVI, NAVIMAIL, PROPAGATION, S/PACIFIC_WX, SAT_KEPS, SAT_PIX, UK_CADET

Weather Map Image Returned for Request



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.

GPS / Position Report

GPS Serial Port: GPS Baud Rate:

\$GPRMC,104855.000,A,3604.2206,N,08649.4427,W,0.05,53.91,200412,...A*4E

Reporting - Last good GPS fix at 2012/04/20 10:48:55 UTC

GPS Latitude: GPS Longitude:

GPS Speed: Knots GPS Course: True

Position Report

Your last position report was posted at 0000/00/00 00:00 UTC

Report Date/Time: UTC

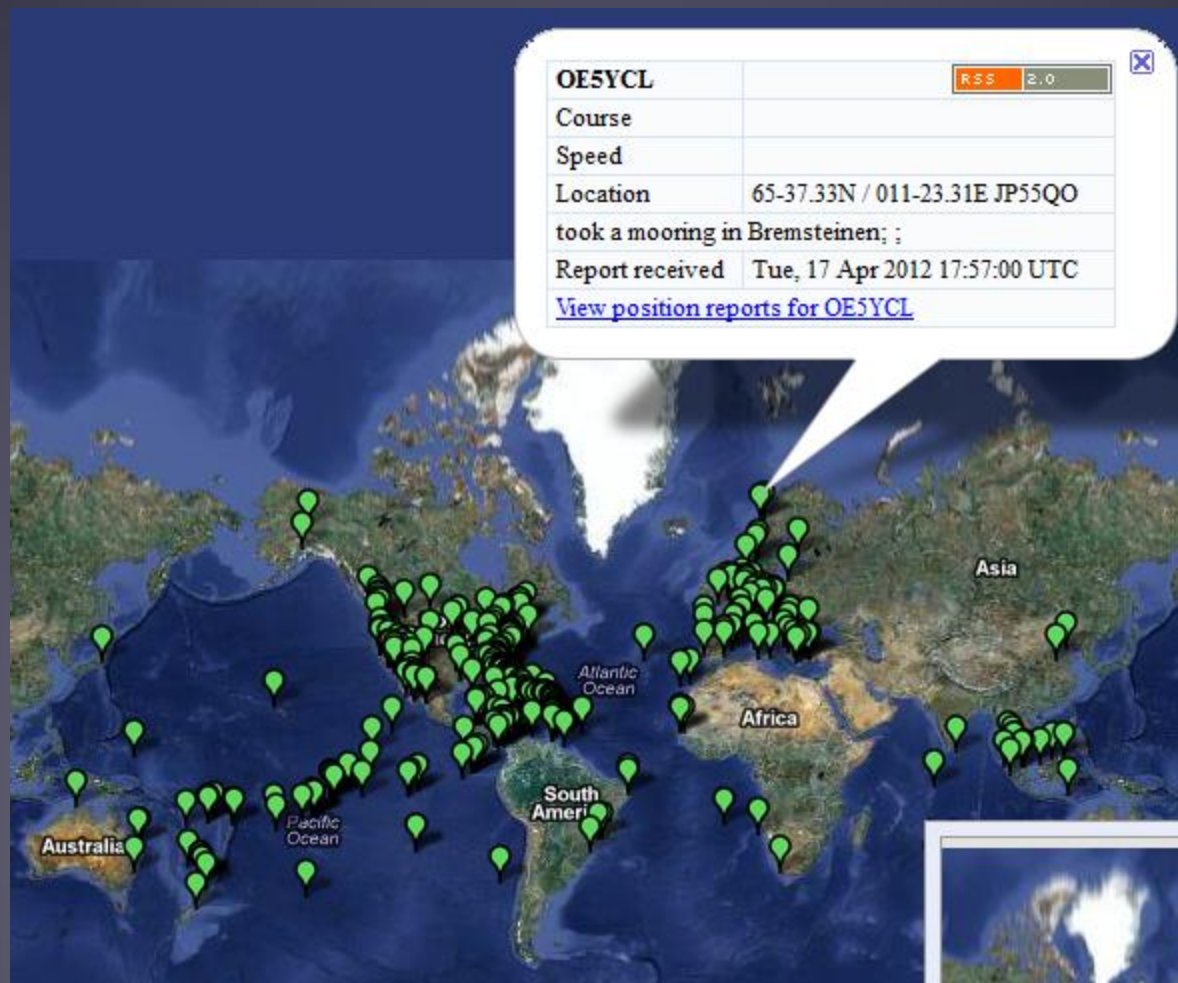
Latitude: Longitude:

Speed: Knots Course: True

Comment - 148 Characters Maximum:

Useful in tracking with e-mailed disaster assessments.

Winlink.org Real-time Position Report Page



RMSMessageLog ICS-309 Generator

RMS Express Message Log Report Generator by W4PHS

RMS Express Message Log

Call sign of station: WC4EOC-2

Log	Time	From	To	Subject
Sent	5-Nov-2011 02:31	WC4EOC-2	KA40TB	//WL2K Test message from exchange 28
Read	5-Nov-2011 02:31	KA40TB	WC4EOC-1;C4EOC-2;K...	CP-3 Message5
Read	5-Nov-2011 02:31	KA40TB	AK4GD-5;I4PSR;C4EO...	CP-2
Read	5-Nov-2011 02:31	KA40TB	WC4EOC-1;C4EOC-2;K...	CP-1
Sent	5-Nov-2011 02:44	WC4EOC-2	KI4PSR	//WL2K Hi from exchange 28
Read	5-Nov-2011 02:46	KA40TB	WC4EOC-2	Re: Test message from exchange 28
Sent	5-Nov-2011 03:06	WC4EOC-2	jon@aristoworks.com	//WL2K Test
Read	5-Nov-2011 03:19	jon@aristoworks.com	WC4EOC-2	Re: Test
Sent	5-Nov-2011 03:54	WC4EOC-2	WC4EOC-3	//WL2K Orion

Refresh message list

Logs to include

☒ Inbox ☒ Read Items ☒ Outbox ☒ Sent Items ☐ Saved items ☐ Drafts ☐ Deleted items

Date-time range for log entries

☒ Limit start date/time: 5-Nov-2011 00:00 Set start date ☐ Limit end date/time: Set end date

Generate message log reports

Generate ICS-309 report Generate CSV file

Program settings and information

Program settings Help Program information

Exit

Messages during period

Select folders

Starting & ending report period

Generate ICS-309 pdf file

Generated ICS-309 PDF Message Log Report

[illegible]

Winlink Drop Kits for Field Operation

