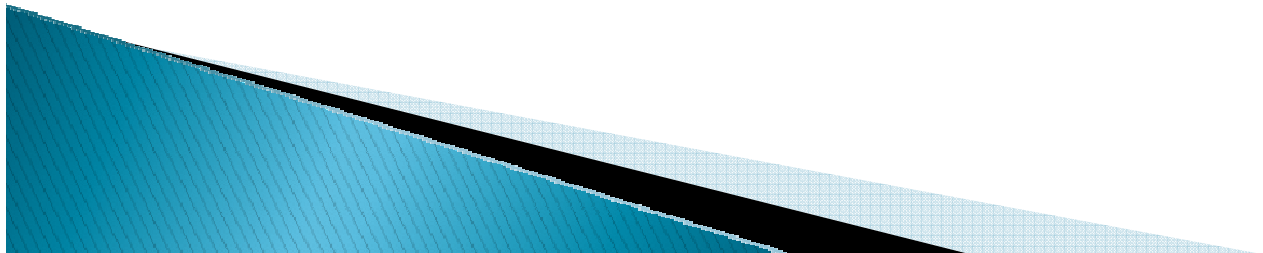
Winlink 2000
E-mail via Radio

What we are going to cover tonight:

- **Winlink 2000 System**

- **RMS Express**



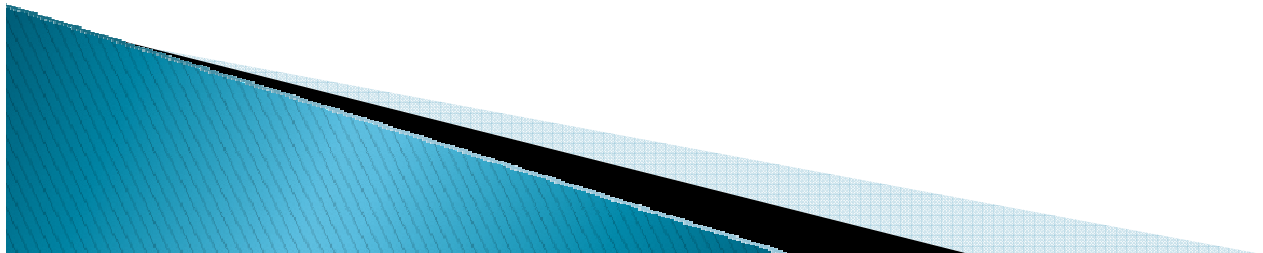
Winlink 2000: What is it?

At a high level:

- Winlink is a system that supports e-mail over radio.

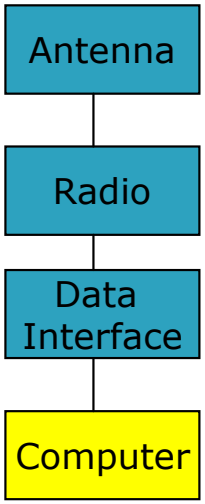
- It is used in the amateur radio service, government and non-government DHS Tiered services.

- Winlink is free of charge.



Winlink 2000: What is it?

A typical WL2K user's station is composed of familiar components.



Your computer is equipped with WL2K client software.

Winlink 2000: What is it?

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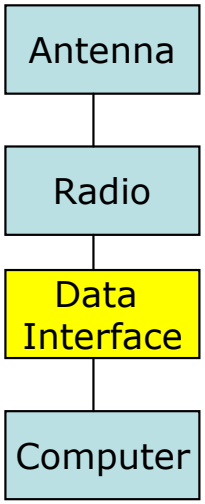
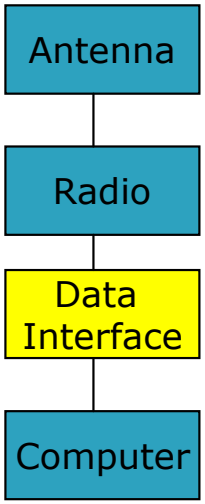


Data interfaces come in several types and radio protocols (modes)

- ***Multimode controller***
- ***Terminal node controller (TNC)***
- ***Radio modem***

Winlink 2000: What is it?

A typical WL2K user's station is composed of familiar components.



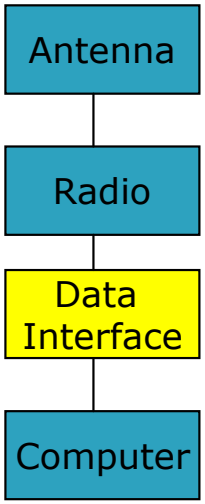
Data interfaces come in several types and radio protocols (modes)

***Packet radio* is a mode used mainly On UHF and VHF with FM.**

***PACTOR* is a mode used on HF for long-distance with SSB.**

Winlink 2000: What is it?

A typical WL2K user's station is composed of familiar components.



Data interfaces come in several types and radio protocols (modes)

Computer sound cards **can also be used as a low-cost data interface for a mode called WINMOR, on HF.**

Winlink 2000: What is it?

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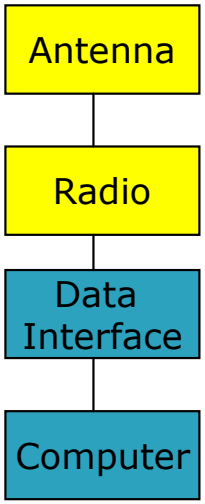
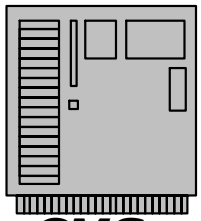


Of course, a transceiver and a good antenna are required for connecting with distant gateway stations over the airwaves.

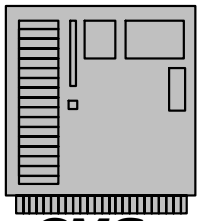
Winlink 2000: What is it?

Perth



CMS

San Diego



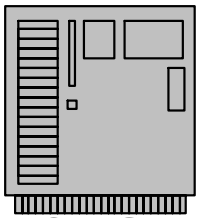
CMS

The WL2K system has redundant, mirror-image servers connected together on the internet.

We call them *CMS* or *Common Message Servers*.

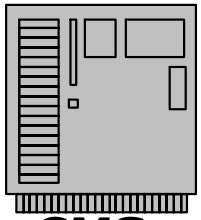
They are located well-apart around the world and *any one of them can easily support the whole WL2K system* if one or more should go offline.

Vienna



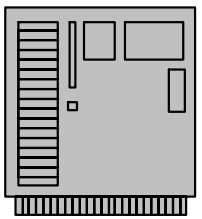
CMS

Halifax



CMS

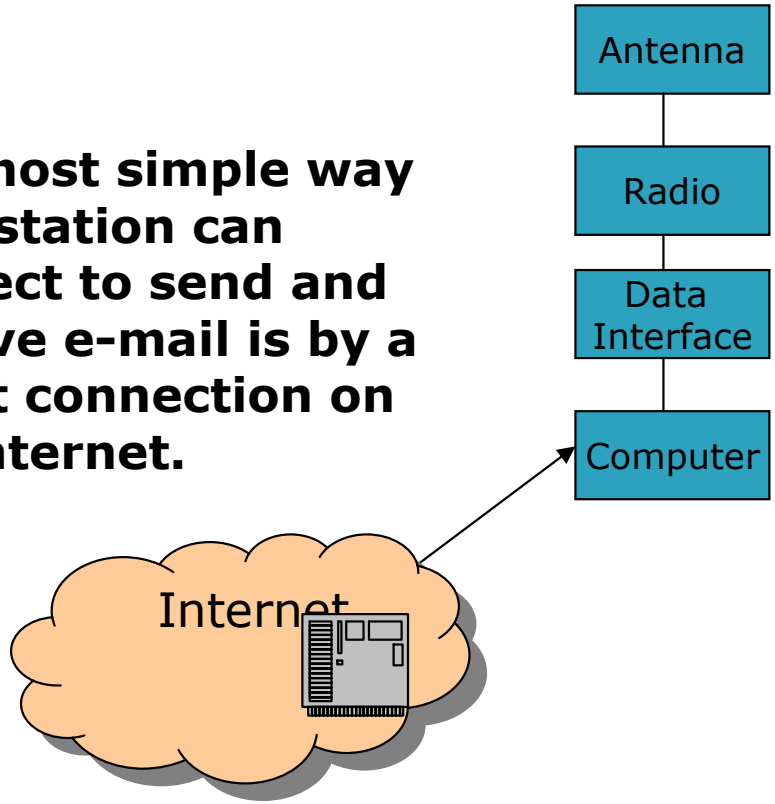
Brentwood



CMS

Winlink 2000: What is it?

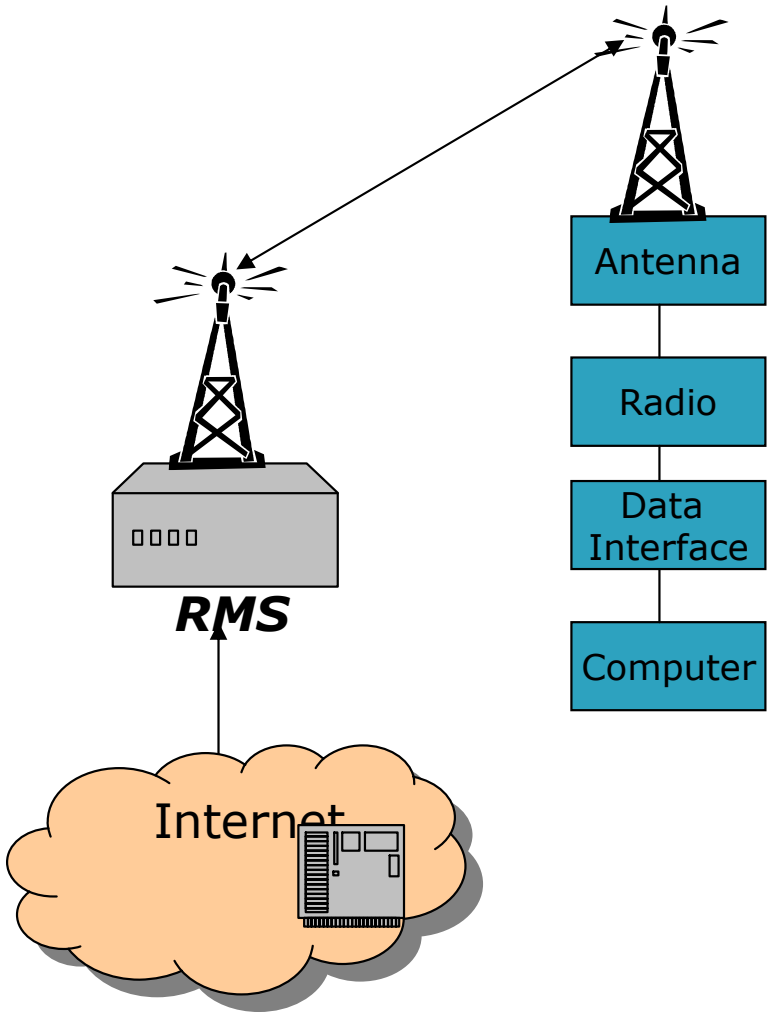
The most simple way your station can connect to send and receive e-mail is by a direct connection on the internet.



No data interface, radio or antenna is needed, but an internet connection and client software is needed.

It makes no difference which CMS site is accessed. If one is offline, another answers.

Winlink 2000: What is it?

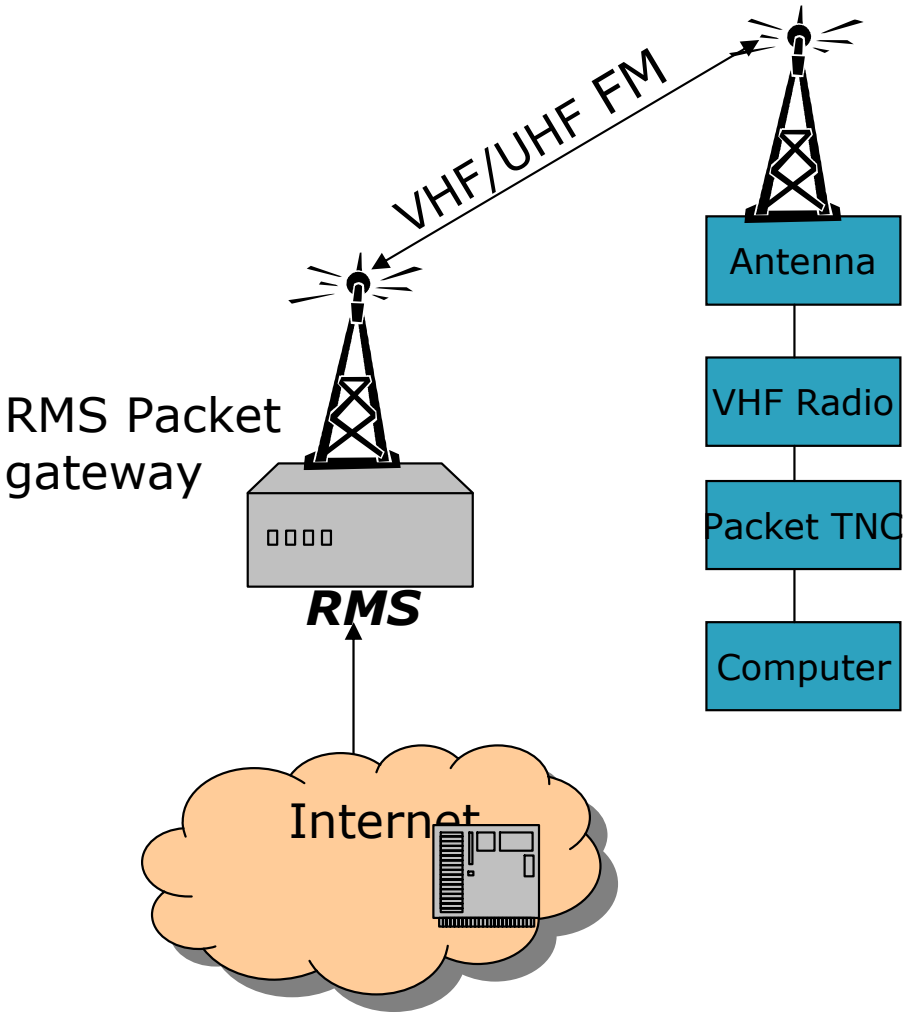


The largest part of the WL2K system is made up of many, many, volunteer *RMS* or *Radio Mail Server* gateway stations.

RMS gateway stations provide a pathway for your station to a CMS using radio connections.

The RMS gateway is connected to the internet and CMS *so you don't have to*!

Winlink 2000: What is it?

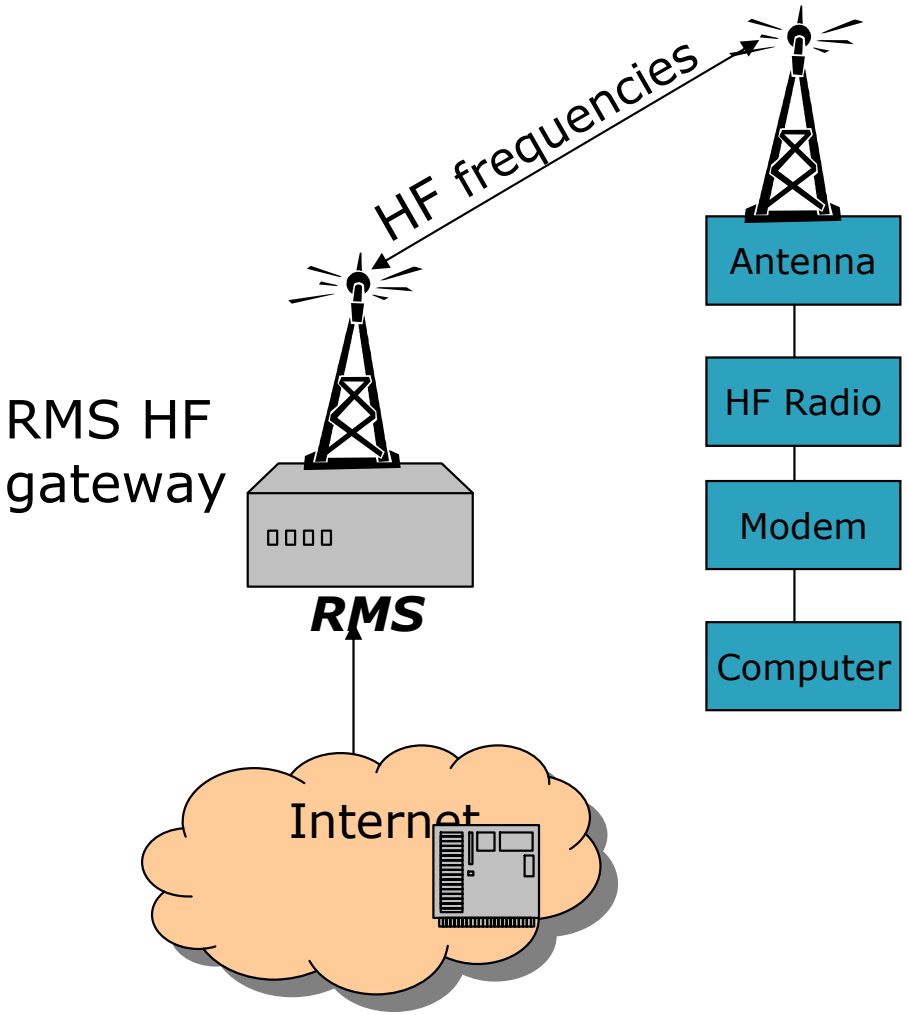


Over short range up to 30 miles, you use packet radio on UHF or VHF FM.

The RMS gateway station you connect with is an RMS Packet gateway station.

If you have a packet TNC and a nearby RMS Packet station you can use this method.

Winlink 2000: What is it?

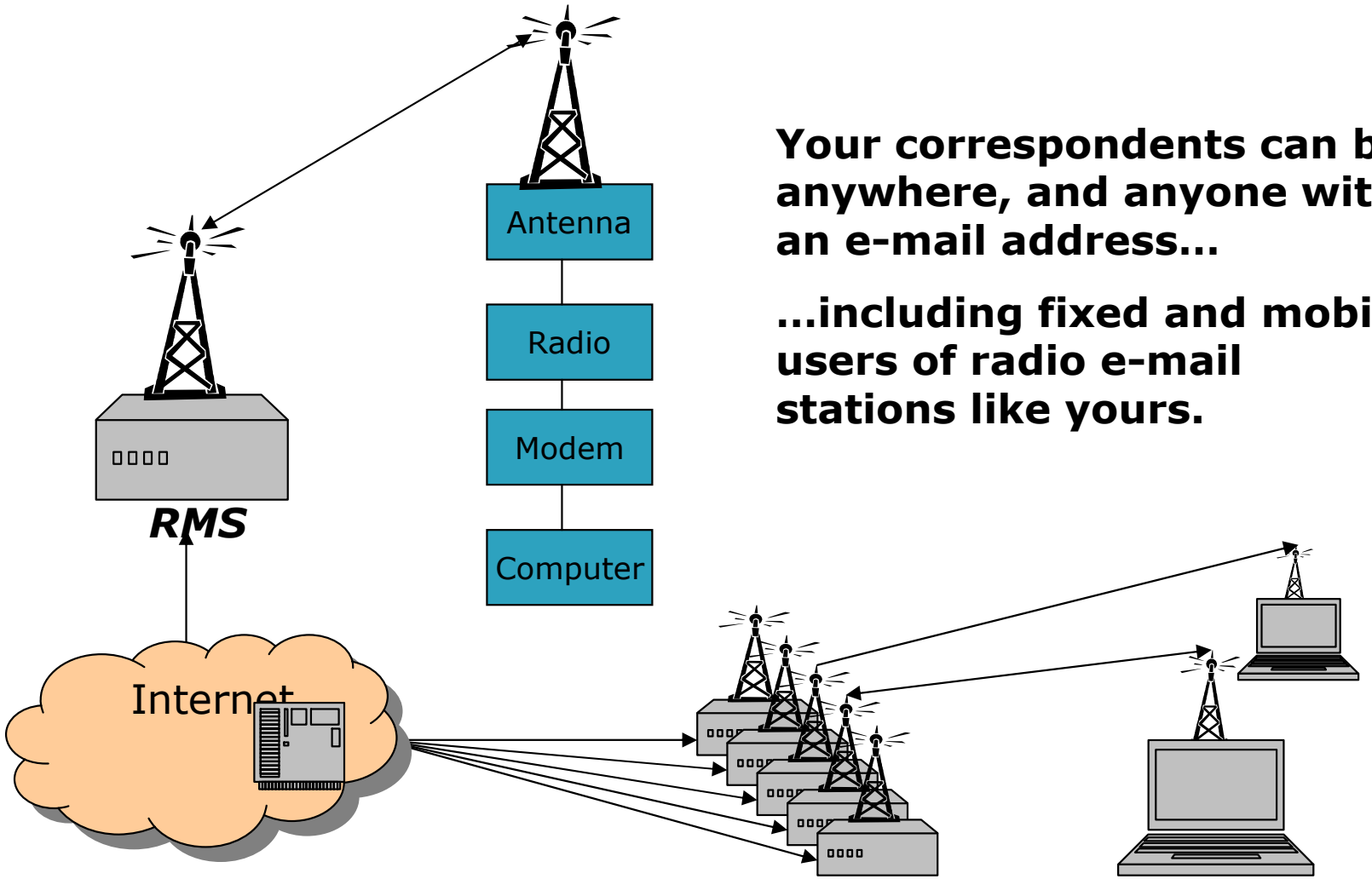


You can use HF radio over both short and long distances .

The RMS gateway station you connect with is an *HF RMS* gateway station.

If you have an HF transceiver and a modem or sound card you can use this method.

Winlink 2000: What is it?

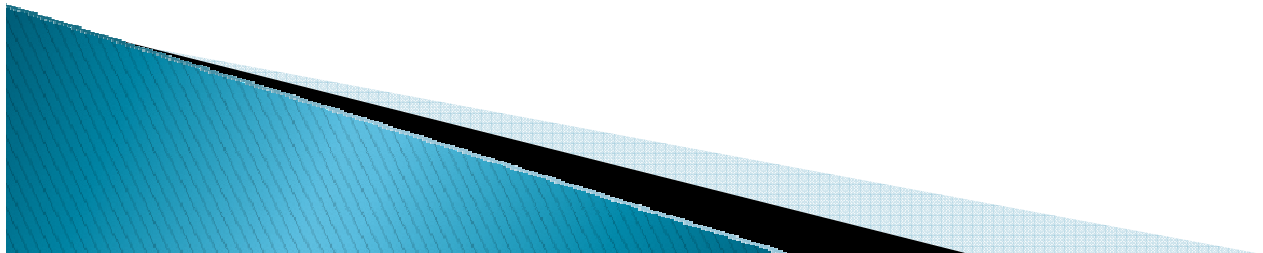


Your correspondents can be anywhere, and anyone with an e-mail address...

...including fixed and mobile users of radio e-mail stations like yours.

Winlink 2000: What is it?

Okay.
What if the internet is out?



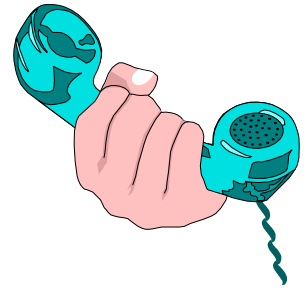
Winlink 2000: What is it?

Key assumptions/facts:

- Failures occur locally, regionally, even across continents.
- Failures have not occurred globally.
- Internet technology was designed to make it survive nuclear war.
- If the Internet totally fails, there are Winlink options

Winlink 2000: What is it?

The "***last mile***" is an important concept in Emergency Communications.



It is the path across an area where conventional communications have been ***disrupted or overloaded*** by an incident.

Winlink 2000: What is it?

We cannot predict the size of "the last mile."

Regional

Winlink 2000: What is it?

We cannot predict the size of "the last mile."

International

Winlink 2000: What is it?

Winlink is a dependable, back-up E-mail *system* that bridges *"the last mile"* no matter its size.

Winlink 2000: What is it?

Winlink 2000: What is it?

Over 130 plus HF RMS Stations

Over 65 MARS RMS HF Stations

Winlink 2000: What is it?

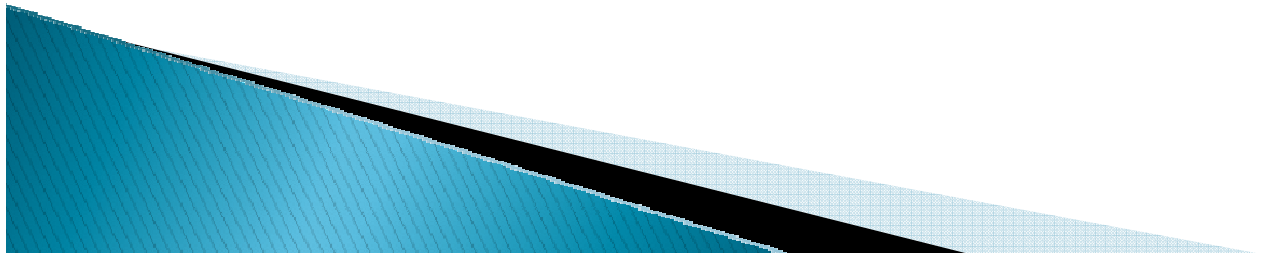
Over 500 Amateur RMS Packet Gateway Stations

Winlink 2000: What is it?

To summarize:

Winlink 2000 is a robust Worldwide e-mail over radio network system

- Redundant, globally distributed, Common Message Servers (CMS)
- Support local communications with RMS Packet servers
- Support distant communications with RMS PACTOR/WINMOR Servers



Winlink 2000: What is it?

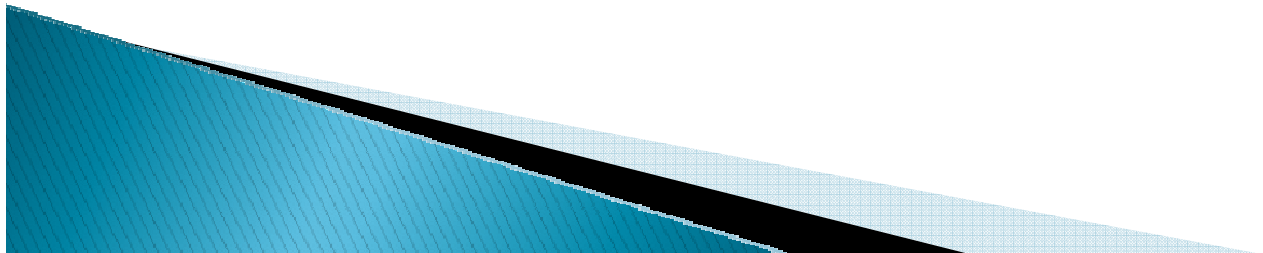
To summarize:

Winlink 2000 is a robust World-wide e-mail over radio system

Redundant, globally distributed, Central Message Servers (CMS)

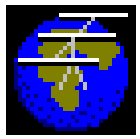
- Support local communications with RMS Packet servers
- Support distant communications with RMS PACTOR Servers

Please now let’s shift gears and focus on Winlink 2000 user software

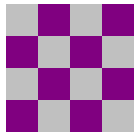


Winlink 2000: User Software

There are currently three principal programs users can use to access the Winlink 2000 system:


Airmail

Paclink


RMS Express

http://www.winlink.org/ClientSoftware

Winlink 2000: User Software

RMS Express:

Newest member of WL2K user software family

Supports HF PACTOR, HF WINMOR, VHF/UHF Packet and Telnet

Supports RMS Gateways and peer-to-peer connects.

Wide variety of TNC types supported, including a generic “KISS” mode.

Contains template for over over 700 WX and related products.

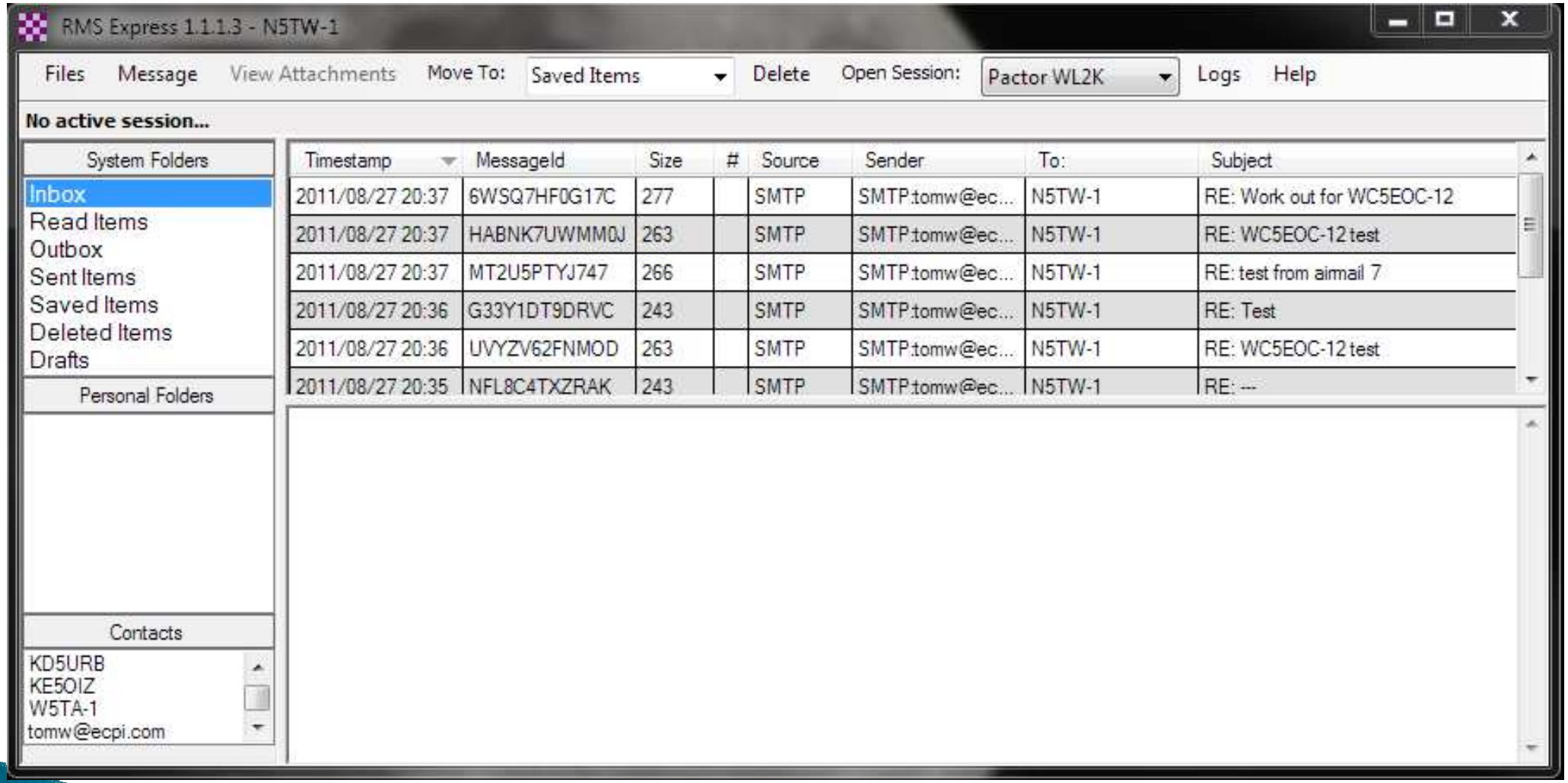
Contains interface for real-time GPS reporting.

Setup is simple with automatic program and frequency list updates.

Available at: http://www.winlink.org/ClientSoftware

Winlink 2000: User Software

RMS Express:



Winlink 2000: User Software

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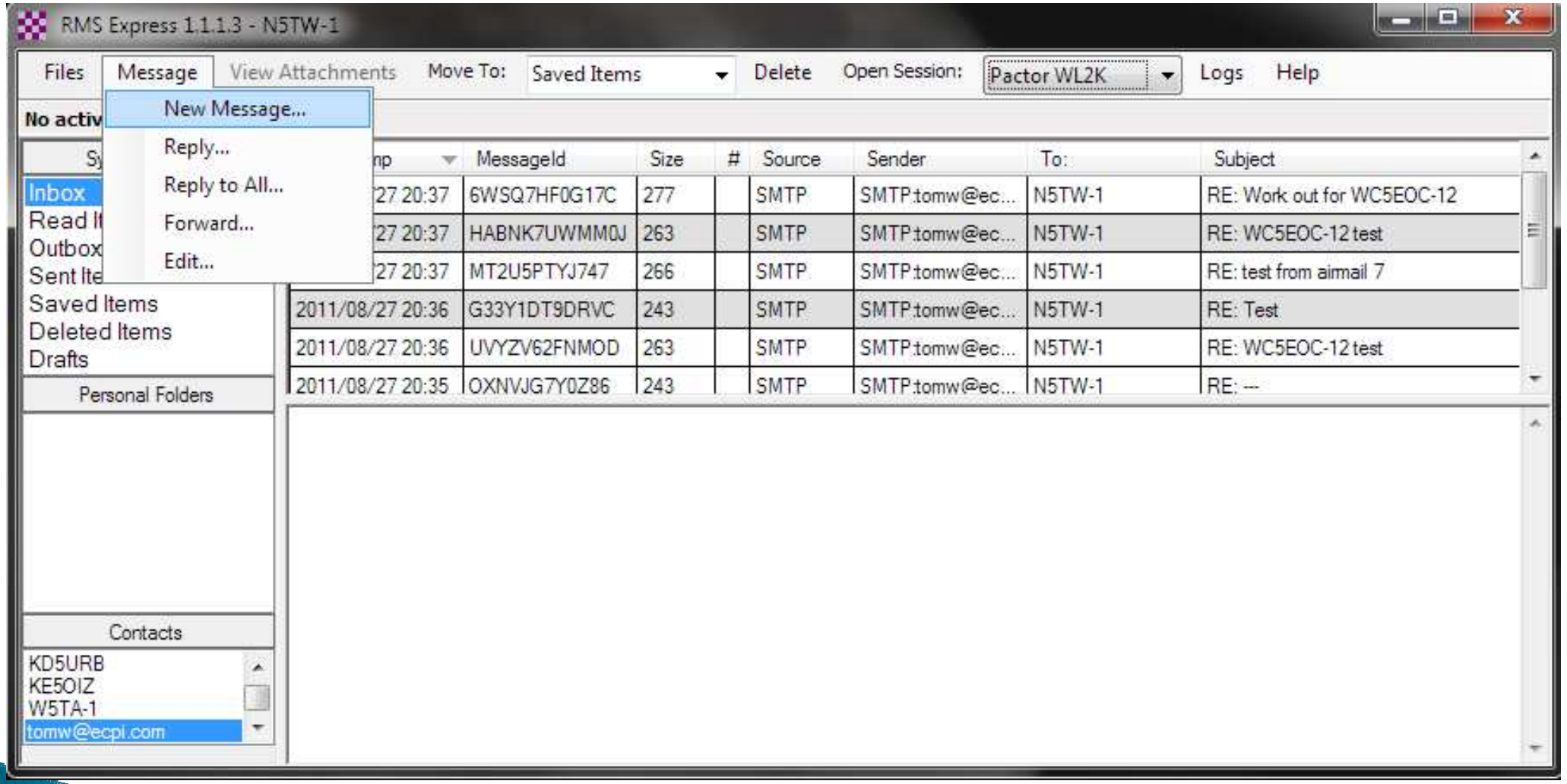

Winlink 2000: User Software

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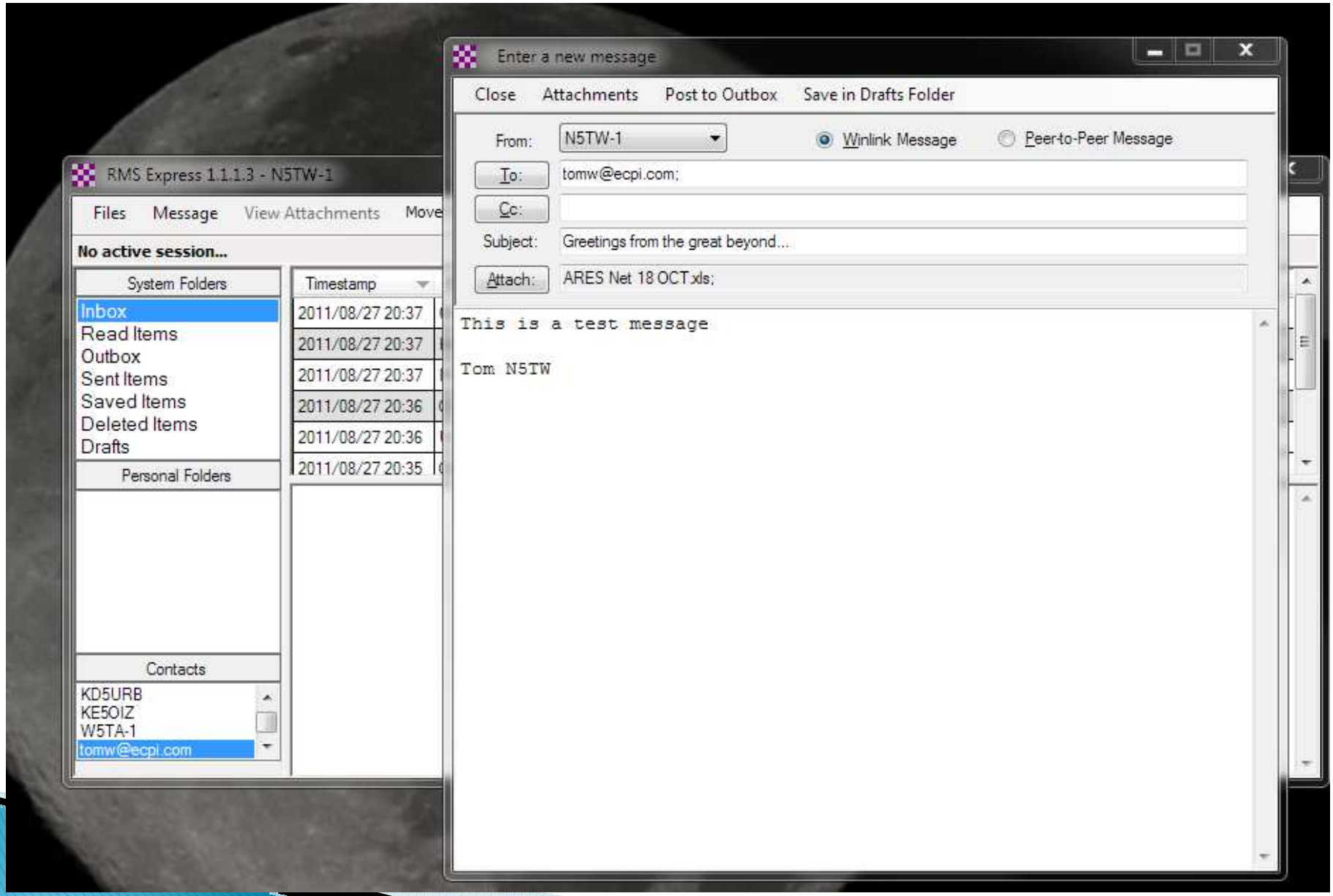

Winlink 2000: User Software

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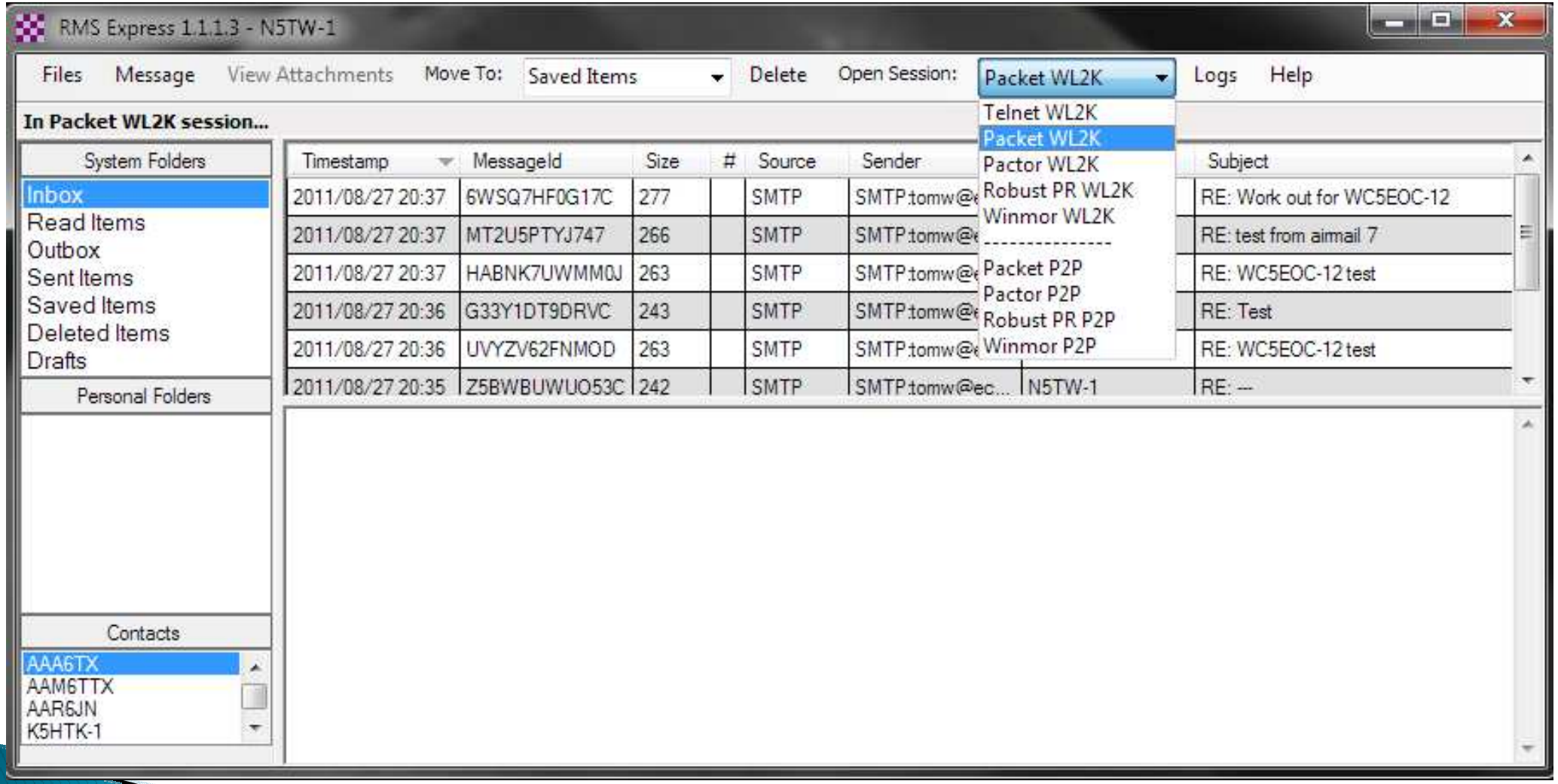

Winlink 2000: User Software

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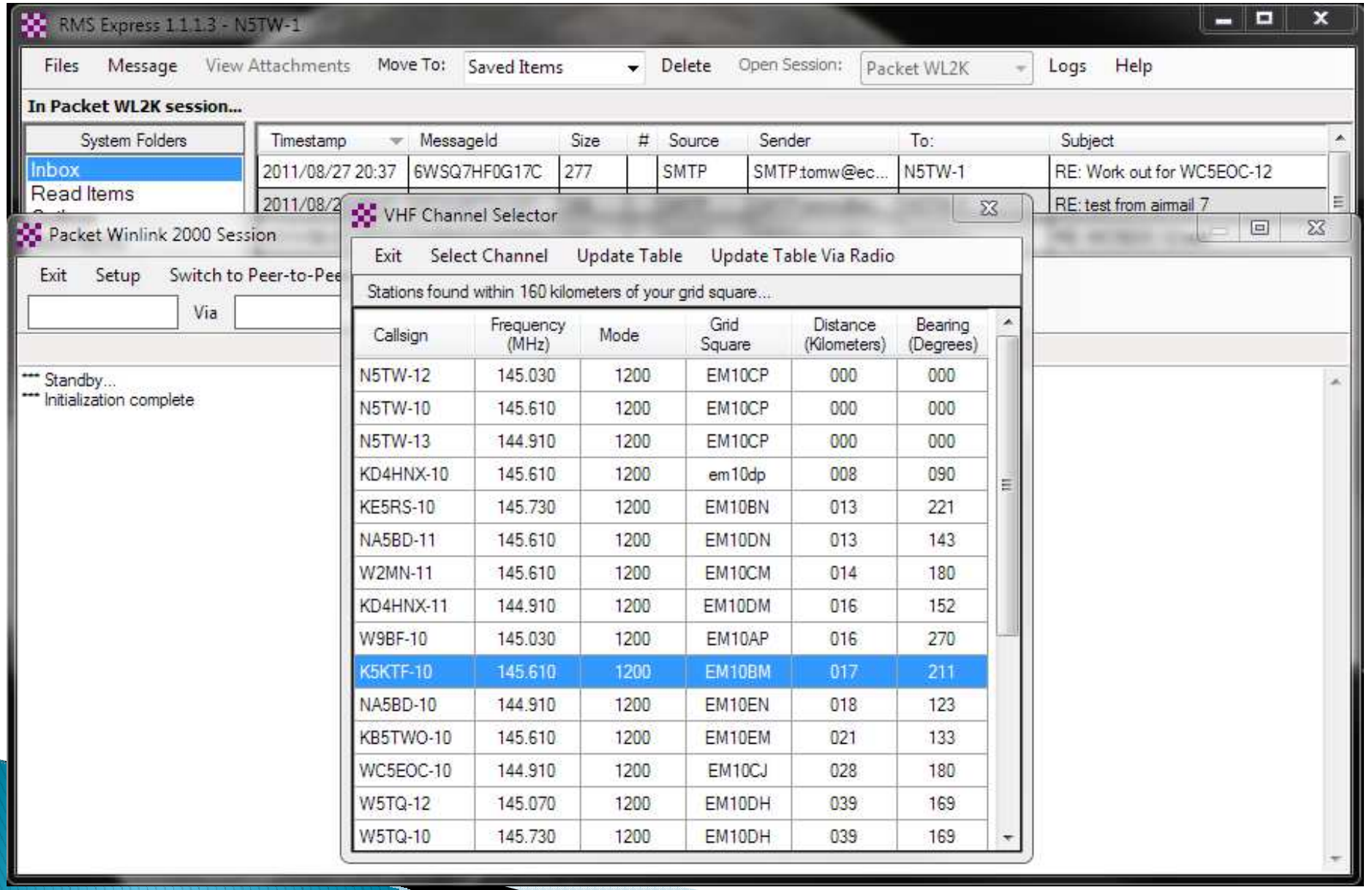

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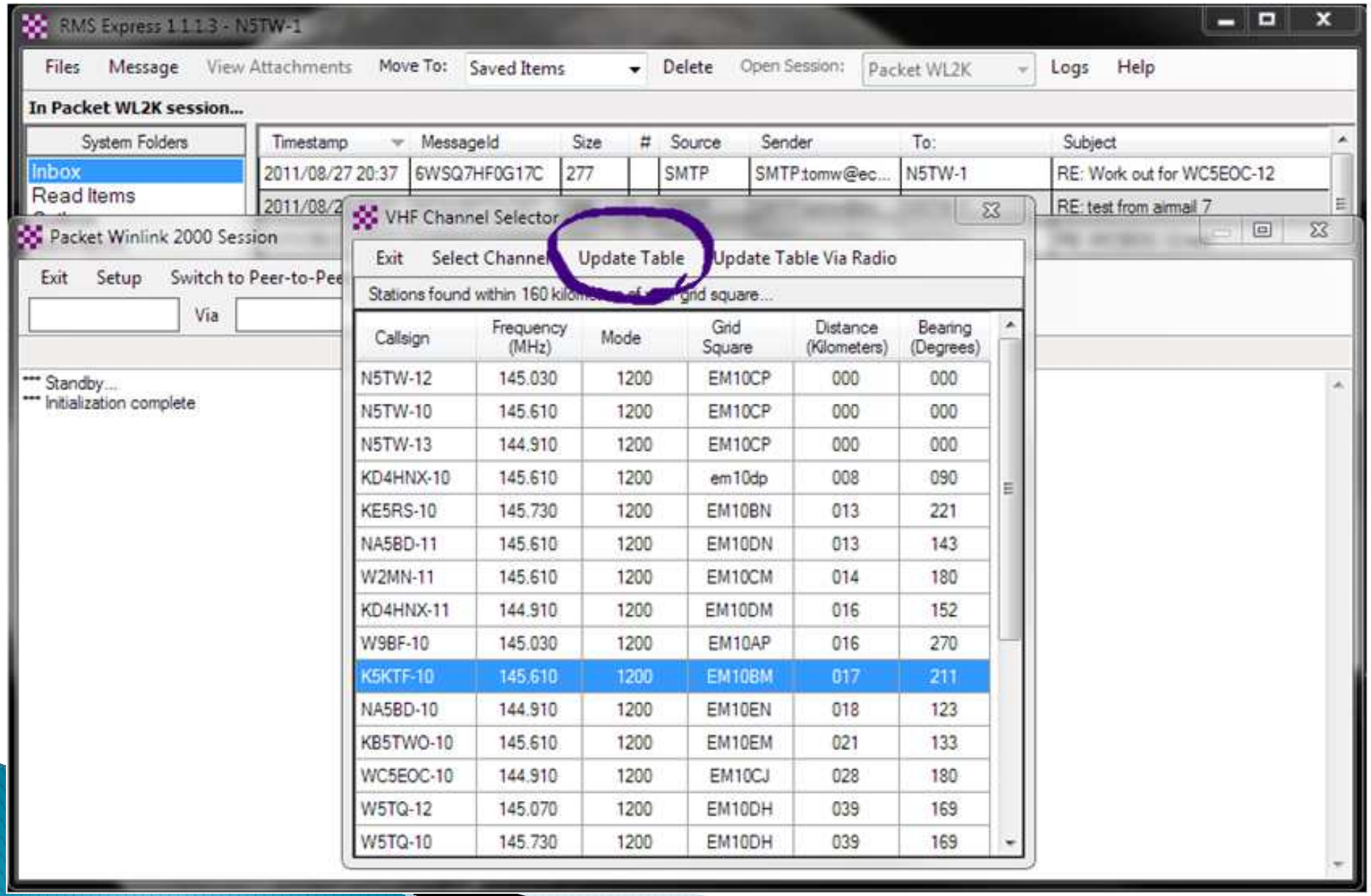

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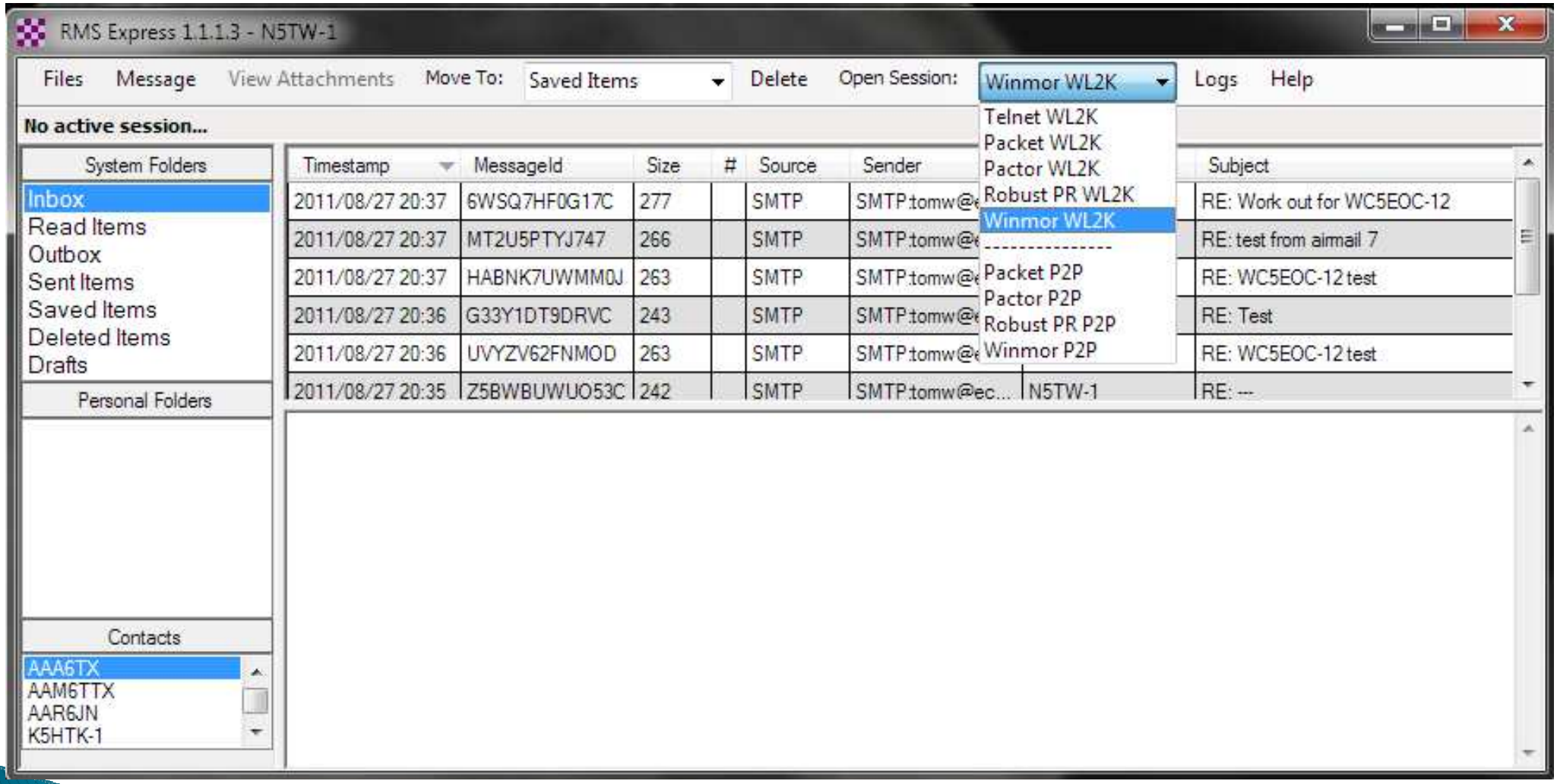

Winlink 2000: User Software

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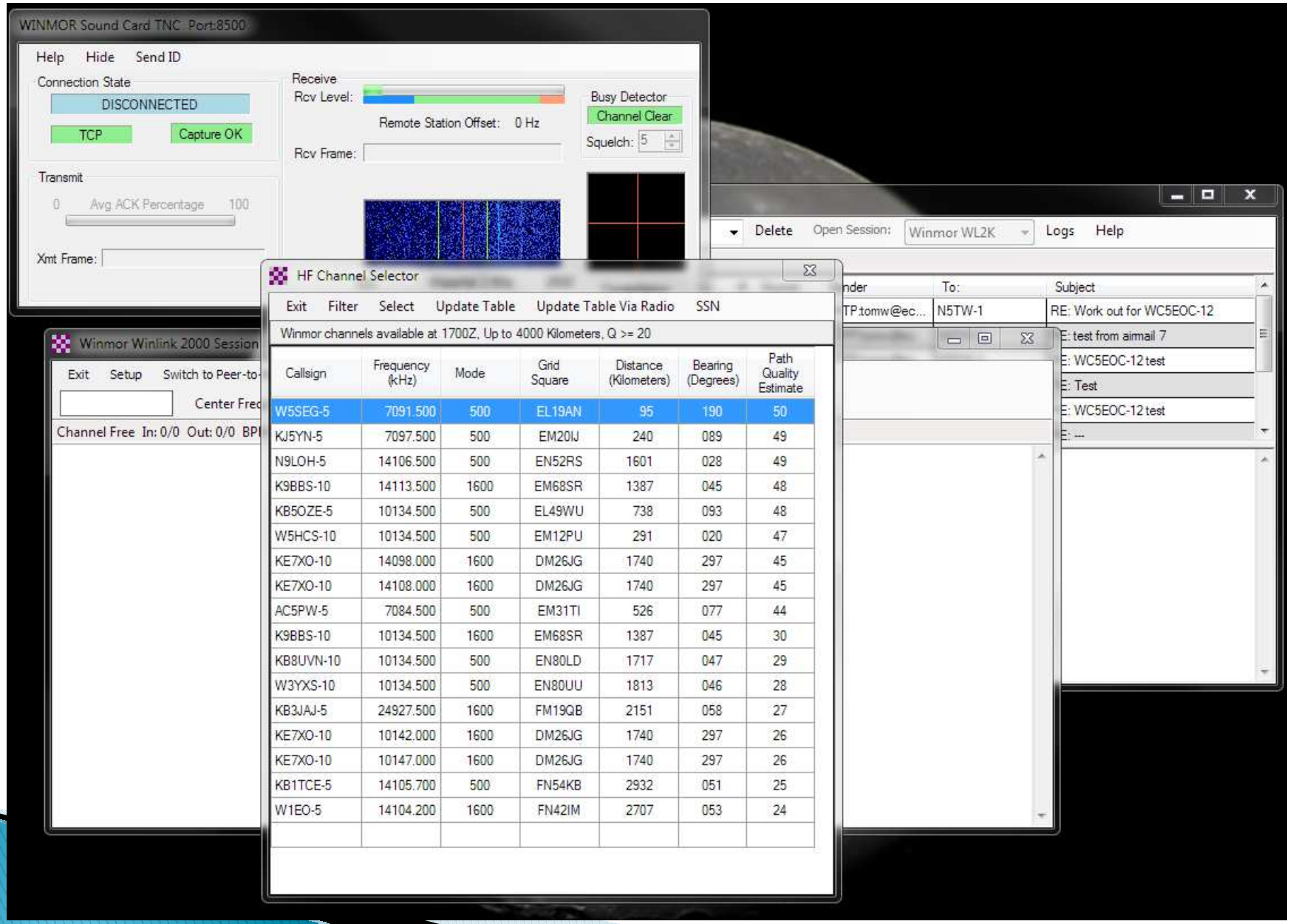

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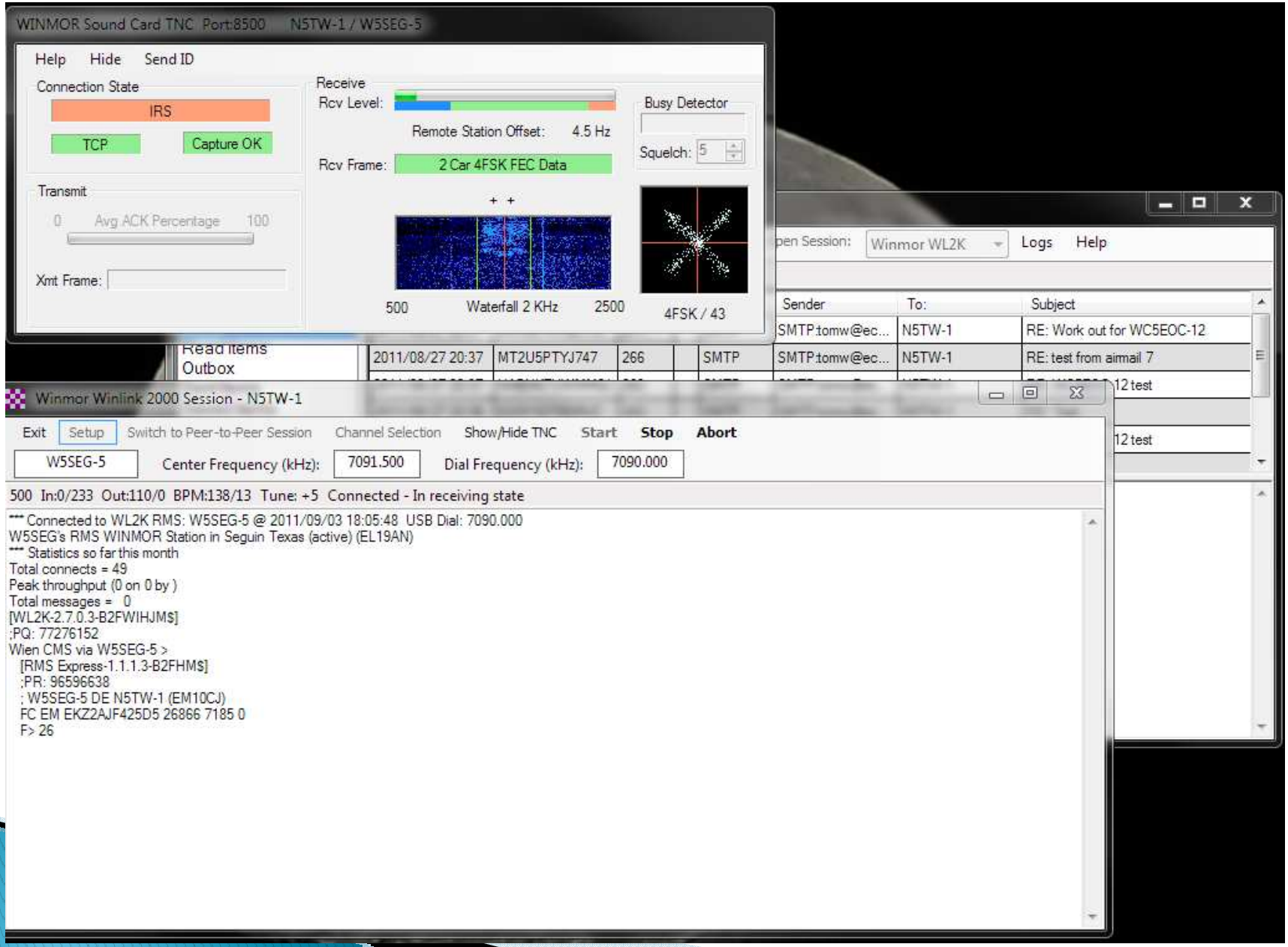


Winlink 2000: User Software

PACTOR versus WINMOR

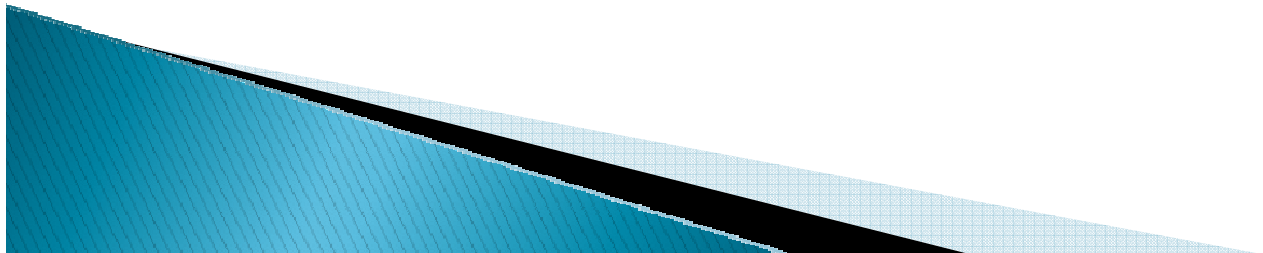
Performance:	**PACTOR-I**	**200 bps max**	**450 Hz**
	WINMOR 450	**329 bps max**	**450 Hz**
	PACTOR-II	**850 bps max**	**450 Hz**
	WINMOR 1600	**1314 bps max**	**1600 Hz**
	PACTOR-III	**3600 bps max**	**2400 Hz**
	PACTOR-IV	**9000 bps max**	**2400 Hz**

WINMOR approaches PACTOR-II under GOOD conditions
degrades more quickly with poorer conditions

More RMS PACTOR servers than WINMOR ones (72 versus 46)

WINMOR reduced cost footprint & HW useful in other modes

For serious EMCOMM, go PACTOR II/III

Winlink 2000:

Questions?