



# *Webinar*

September 21, 2011

# What we are going to cover tonight:

- **What is Winlink 2000?**
  - **The many variations of user software**
  - **Winlink 2000 Sysop Software**
  - **Winlink implementation strategy ideas**
- 

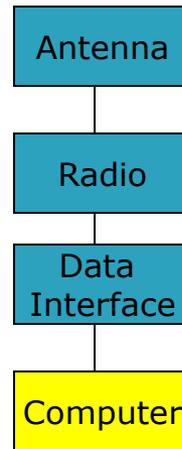
# Winlink 2000: What is it?

**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?

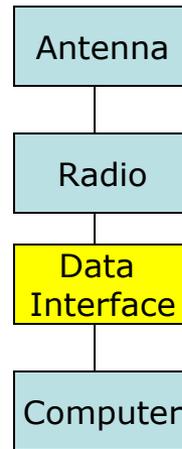
**A typical WL2K user's station is composed of familiar components.**



**Your computer is equipped with WL2K client software.**

# Winlink 2000: What is it?

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

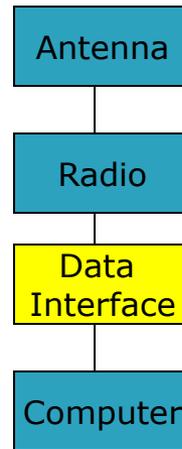


**Data interfaces come in several types and radio protocols (modes)**

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

# Winlink 2000: What is it?

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



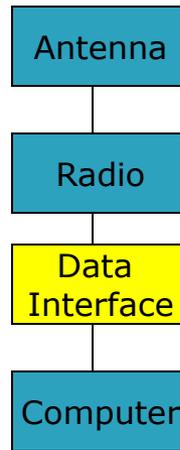
Data interfaces come in several types and radio protocols (modes)

***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.

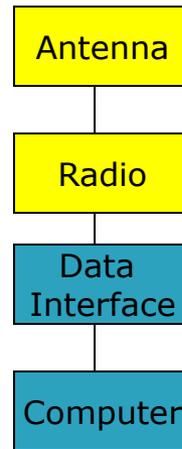


Data interfaces come in several types and radio protocols (modes)

***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?

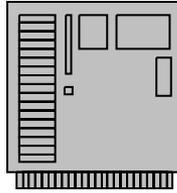
A typical WL2K user's station is composed of familiar components.



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

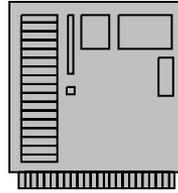
# Winlink 2000: What is it?

Perth



***CMS***

San Diego



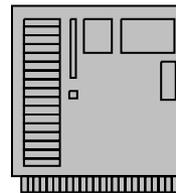
***CMS***

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

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

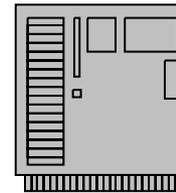
They are located well-apart around the world and ***any one of them can easily support the whole WL2K system*** if one or more should go offline.

Vienna



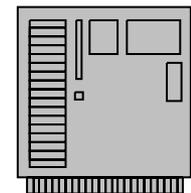
***CMS***

Halifax



***CMS***

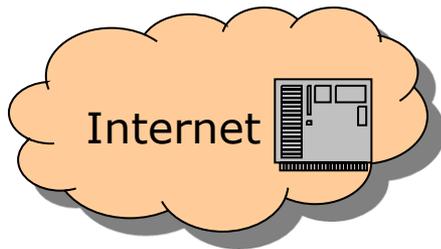
Brentwood



***CMS***

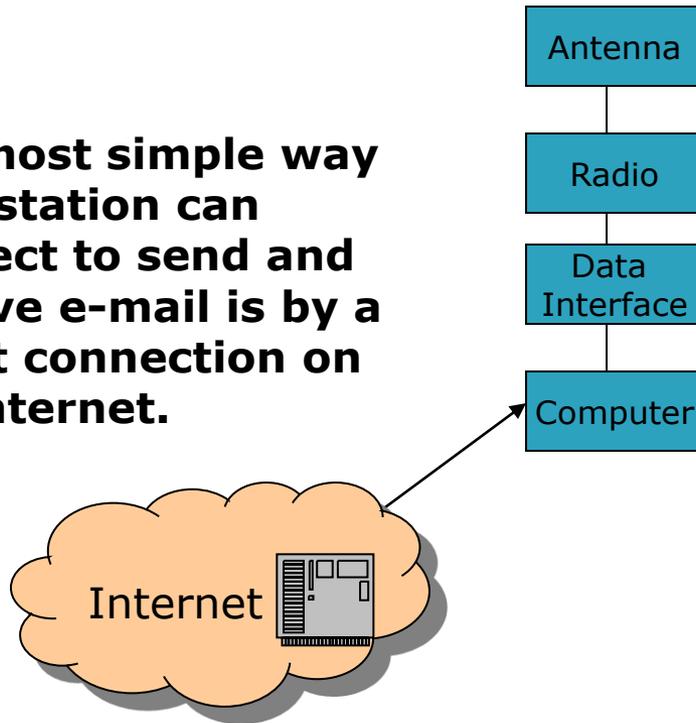
# Winlink 2000: What is it?

**Since any one can support the whole system, let's simplify the diagram.**



# Winlink 2000: What is it?

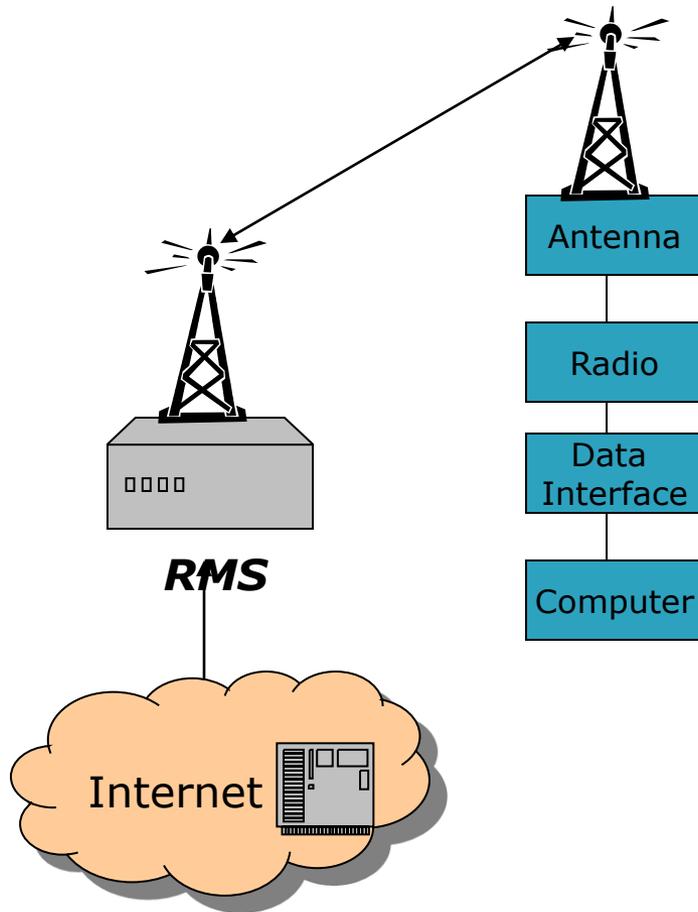
**The most simple way your station can connect to send and receive e-mail is by a direct connection on the internet.**



**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?

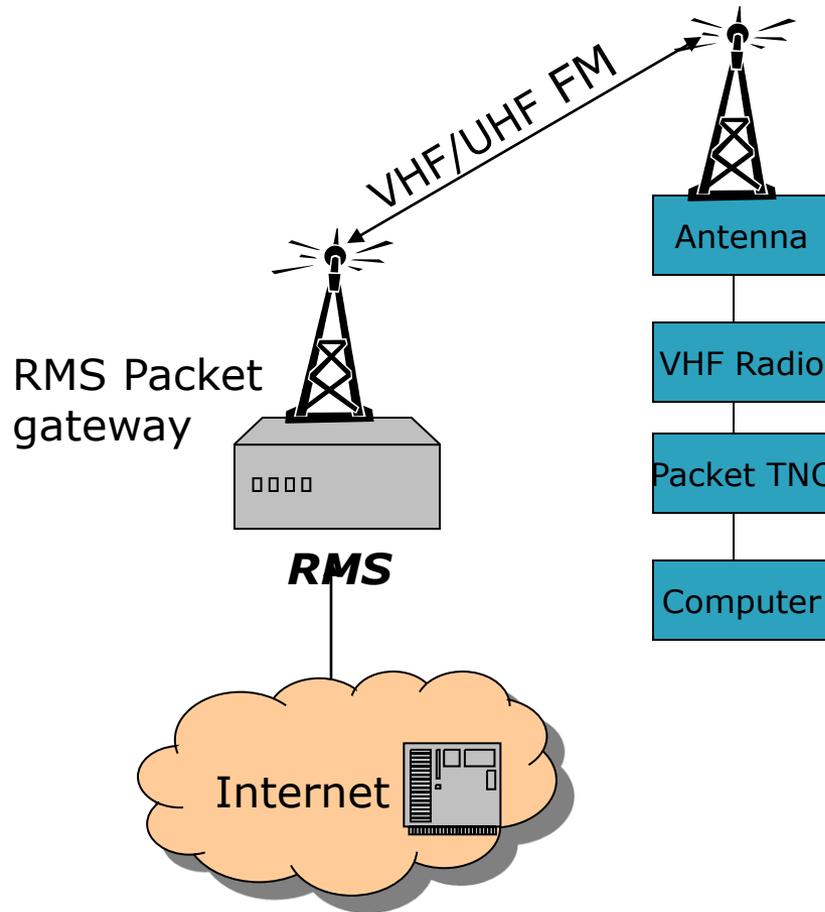


The largest part of the WL2K system is made up of many, many, volunteer *RMS* or *Radio Mail Server* gateway stations.

*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?

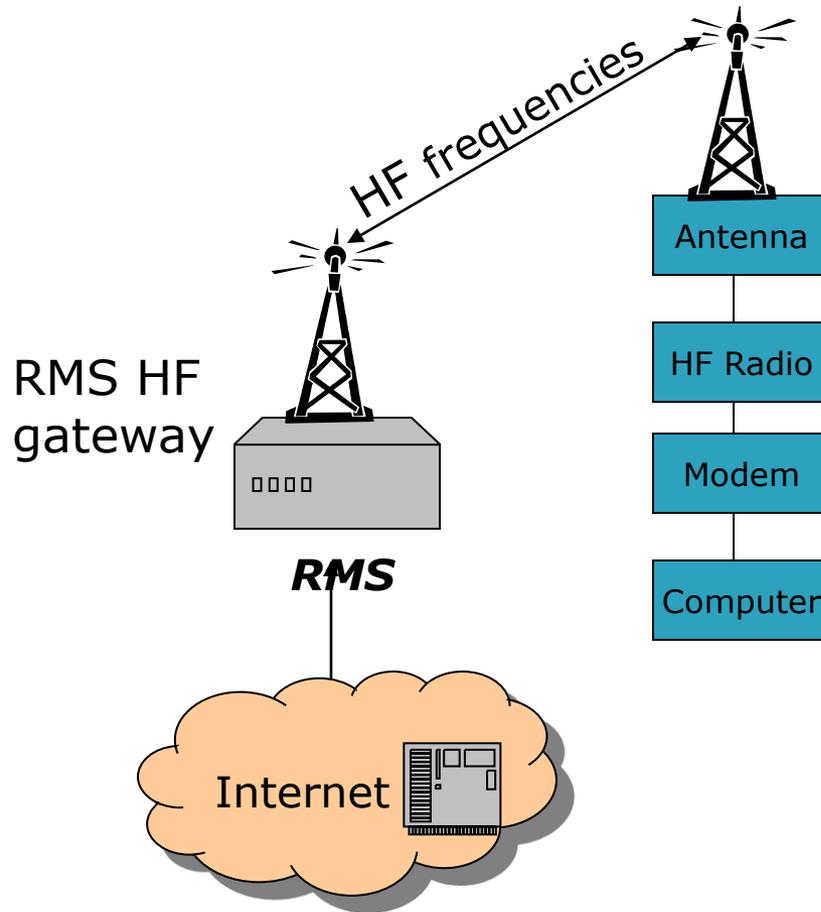


**Over short range up to 30 miles, you use packet radio on UHF or VHF FM.**

**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?

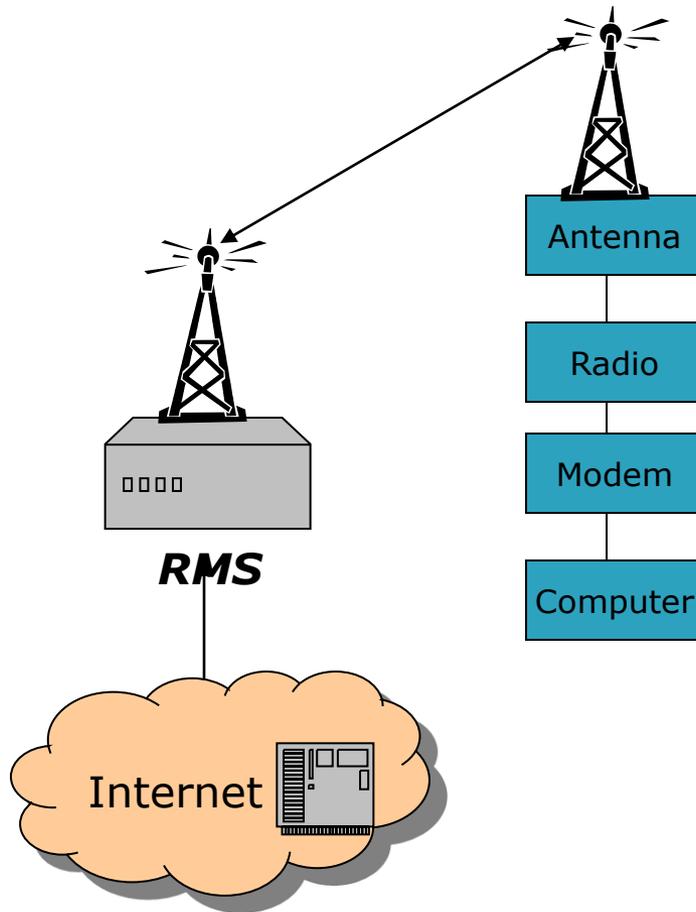


**You can use HF radio over both short and long distances .**

**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?

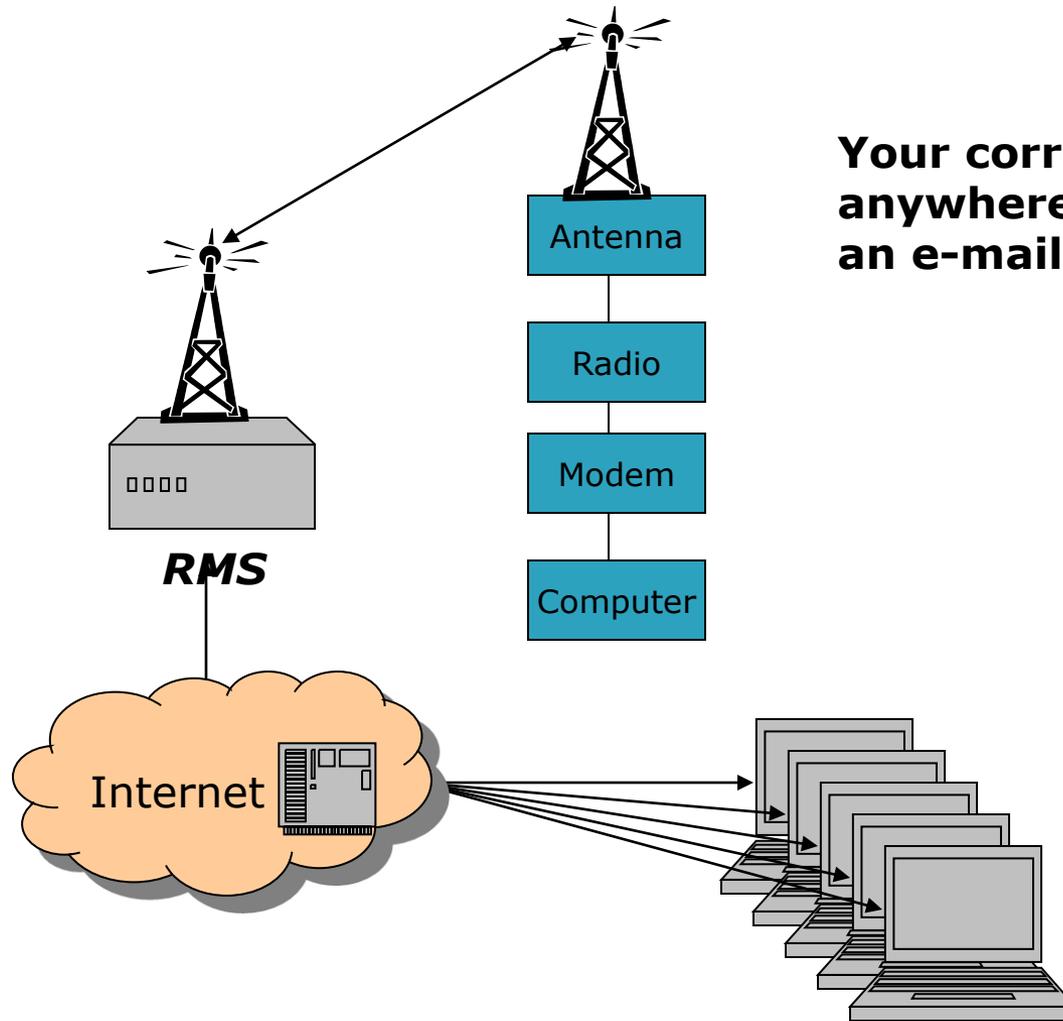


**There are other, more advanced connections possible using:**

- Packet radio networks
- D-Star
- WiFi or HSMM (High Speed MultiMedia)
- Multi-user LANs

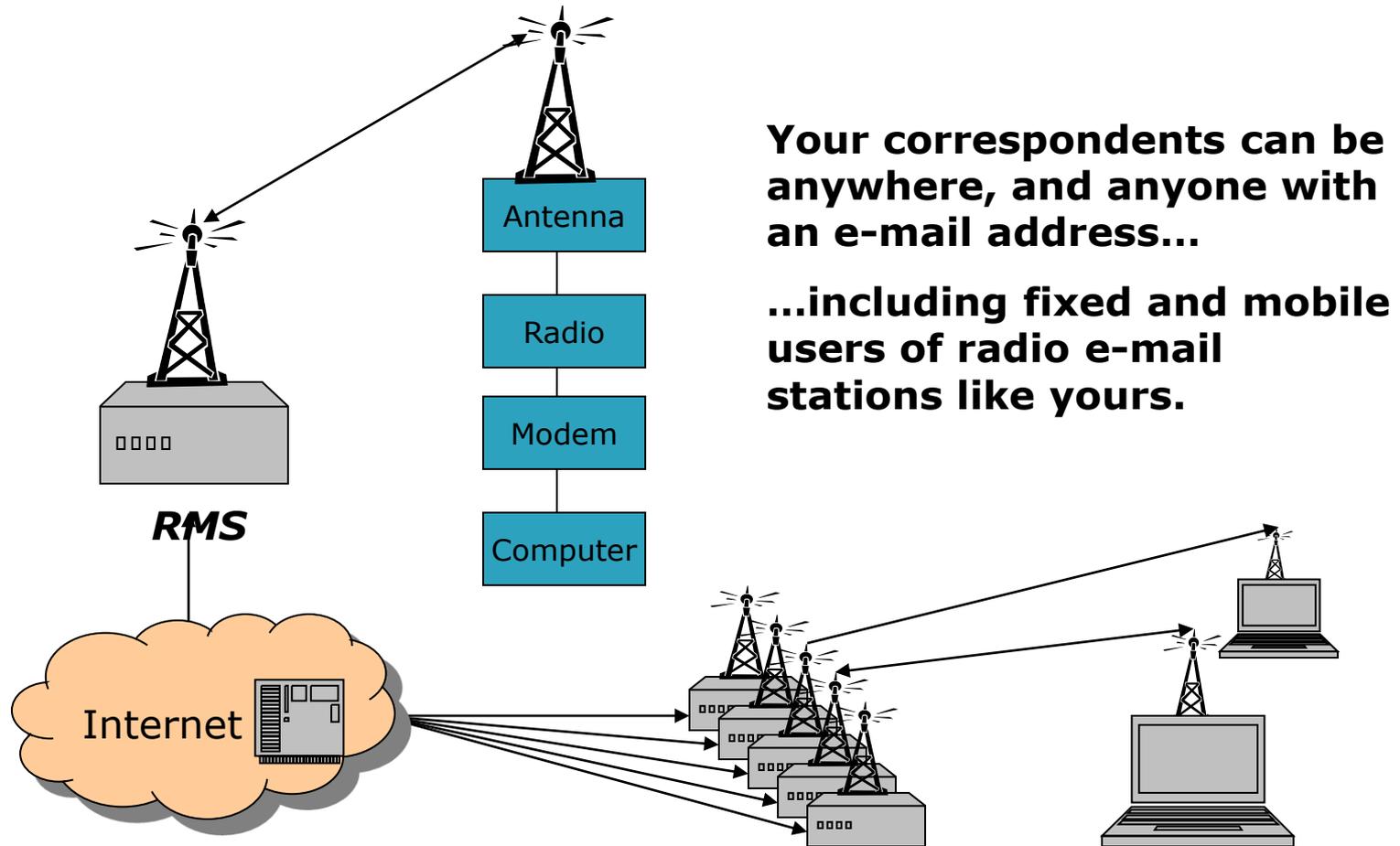
**Knowledge of these is not necessary for most users.**

# Winlink 2000: What is it?



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

# Winlink 2000: What is it?



# 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.”

Local



# 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?

**Send an email from here? No problem.**

**Can your radio do that?**

<http://www.winlink.org>



# Winlink 2000: What is it?

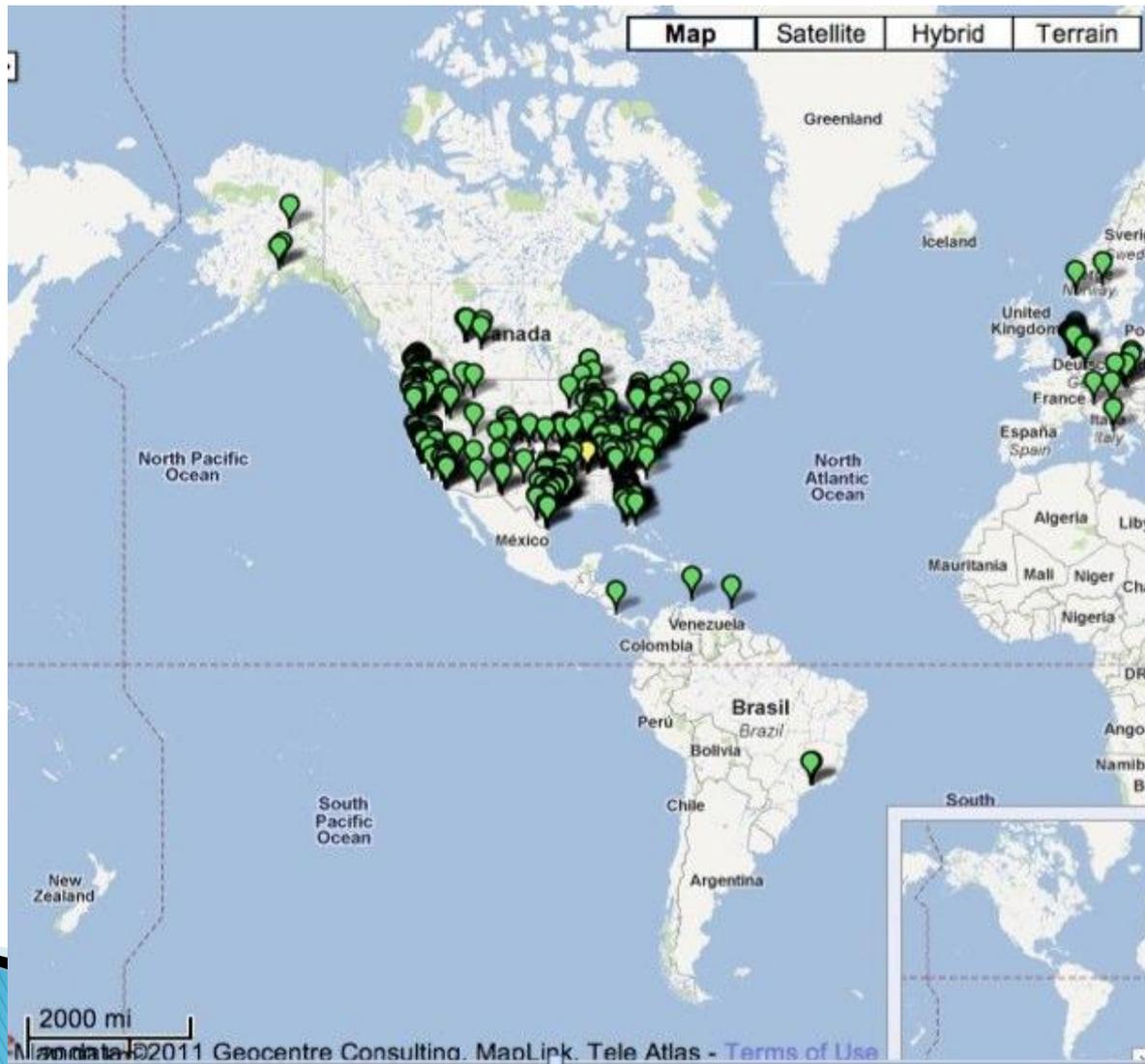
Over 130 plus HF RMS Stations

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

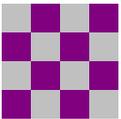
There are currently three principal programs users can use to access the Winlink 2000 system:



Airmail



Paclink



RMS Express

<http://www.winlink.org/ClientSoftware>

# Winlink 2000: User Software



## **Airmail:**

Original program for sending / receiving WL2K messages.

Supports HF PACTOR, VHF/UHF Packet and Telnet.

Supports peer-to-peer and connections to RMS Gateways.

Limited TNC types supported.

Simple built in e-mail interface.

Setup is less straightforward than newer clients.

Contains a catalog of over 700 WX Products and other related info.

Contains an interface for real-time GPS reporting.

Still in widespread use, especially by the maritime community.

Available at: <http://groups.yahoo.com/group/airmail2000/>

# Winlink 2000: User Software



## Airmail:

The screenshot displays the Airmail software interface. The main window shows a 'Message Index' table with columns for Message ID, From, To, Via, Subject, Size, Date, and File. A message with ID 'BOQ81HDXGH40.msg' is selected, and its details are shown in a pop-up window. The details include the sender 'TOM WHITESIDE', recipient 'NSTW-1', and subject 'RE: test from airmail 12'. The message body contains a reference to an 'Original Message' from 'NSTW-1@Winlink.org' with subject 'test from airmail 12'. A terminal window is also open, showing a log of network activity, including a disconnection from NSTW and a successful PTC-lpro modem initialization.

Message ID	From	To	Via	Subject	Size	Date	File
BOQ81HDXG...	TOM WHITES...		HAM.HF...	RE: test from airmail 12	687	2011/08/27 19:43:24	C:\Airmail\Inbox\BOQ81HDXGH40.msg
N024R2LTM6C9	TOM WHITES...		HAM.HF...	RE: test from airmail 11	682	2011/08/27 19:43:20	C:\Airmail\Inbox\N024R2LTM6C9.msg
UBHP1AICBFKW	TOM WHITES...		HAM.HF...	RE: test from airmail 9	680	2011/08/27 19:43:16	C:\Airmail\Inbox\UBHP1AICBFKW.msg
Z45924UOU2N0	TOM WHITES...		HAM.HF...	RE: test from airmail 7	700	2011/08/27 19:36:52	C:\Airmail\Inbox\Z45924UOU2N0.msg
JH1D5T16PTLF	TOM WHITES...		HAM.HF...	RE: Test from airmail 6	685	2011/08/27 19:36:50	C:\Airmail\Inbox\JH1D5T16PTLF.msg
LEFFX88XIRPP0	TOM WHITES...		HAM.HF...	RE: test from airmail 8	685	2011/08/27 19:36:46	C:\Airmail\Inbox\LEFFX88XIRPP0.msg
UIU591DVLKV	TOM WHITES...		HAM.HF...	RE: test from airmail 4	685	2011/08/27 19:36:42	C:\Airmail\Inbox\UIU591DVLKV.msg
ZNDHY3DSZH...	TOM WHITES...		HAM.HF...	RE: test from airmail 5	685	2011/08/27 19:36:38	C:\Airmail\Inbox\ZNDHY3DSZHDP.msg
VDICPD40JDN	TOM WHITES...		HAM.HF...	RE: Test from airmail 2	700	2011/08/27 19:35:50	C:\Airmail\Inbox\VDICPD40JDN.msg
LNO7R318AJX	TOM WHITES...		HAM.HF...	RE: test from airmail 3	700	2011/08/27 19:35:46	C:\Airmail\Inbox\LNO7R318AJX.msg
USZ0PJCK1O55	TOM WHITES...		HAM.HF...	RE: test from airmail 1	700	2011/08/27 19:35:42	C:\Airmail\Inbox\USZ0PJCK1O55.msg
BDVPP1K5ONR3	TOM WHITES...		HAM.HF...	test to airmail 1	564	2011/08/27 19:34:48	C:\Airmail\Inbox\BDVPP1K5ONR3.msg
1262_W3MRC	W3MRC	john@ke5rs.c...	HAM.HF...	Winlink 2000 W3MRC Syst...	2115	2011/08/01 21:18:58	C:\Airmail\Inbox\1262_W3MRC.msg
2TLH3S1M937Q	TOM WHITES...		HAM.HF...	RE: Work out for WC5EOC...	1874	2011/08/01 21:18:52	C:\Airmail\Inbox\2TLH3S1M937Q.msg
ZURHY1ECXXT	TOM WHITES...		HAM.HF...	RE: Work out for WC5EOC...	1810	2011/08/01 21:18:52	C:\Airmail\Inbox\ZURHY1ECXXT.msg
N209XL8GCU...	TOM WHITES...		HAM.HF...	RE: Work out for WC5EOC...	1445	2011/08/01 21:18:52	C:\Airmail\Inbox\N209XL8GCU...
SOG0840FUKFB	TOM WHITES...		HAM.HF...	RE: WC5EOC-12 test	1415	2011/08/01 21:18:52	C:\Airmail\Inbox\SOG0840FUKFB...

Message Details for BOQ81HDXGH40.msg:

From: "TOM WHITESIDE" <tomw@ecpi.com>  
To: NSTW-1  
Subject: RE: test from airmail 12  
Sent Via: HAM.HF.N5TW  
Email Gate: SMTP  
Date (utc): Saturday, August 27, 2011 7:41 PM

-----Original Message-----  
From: NSTW-1@Winlink.org [mailto:N5TW-1@Winlink.org]  
Sent: Saturday, August 27, 2011 2:33 PM  
To: tomw@ecpi.com  
Subject: test from airmail 12

<No message body found>

Terminal Log:

```
01 : NSTW de N5TW-1  
01 : FC EM 150S N5TW-1 157 143 0  
01 : FC EM 1507_N5TW-1 157 143 0  
01 : F: 37  
01 : FS YY  
01 : Sending "RE: test from airmail 8", 143 bytes (3% compressed)  
01 : Sending "RE: test from airmail 4", 143 bytes (3% compressed)  
01 : FF  
01 : FQ  
01 : .NSTW de N5TW-1 SK  
01 : < id > n5tw de n5tw-1  
01 : 2011/08/27 19:45:29 Disconnected from NSTW  
01 : 2011/08/27 19:45:48 PTC-lpro modem released  
01 : 2011/09/02 17:57:57 PTC-lpro modem initialized OK  
01 : < Modem serial#: 0100000AE2FDEC07 >  
01 : < Professional (Factor-3) firmware ver: 4.0, P-3 license OK >  
01 : Tx Data 0/0 bytes Rx Data 0/0 bytes  
01 : Factor mode initialized OK Factor3: Standby NSTW Georgetown, TX  
01/03/29 17:59:22 C:\Airmail\Inbox\DUMLZ205U897.msg
```

# Winlink 2000: User Software



## **Paclink:**

Established program on 3<sup>rd</sup> generation – very stable

Supports HF PACTOR, VHF/UHF Packet and Telnet

Wide variety of TNC types supported including AGW packet engine

Pop/SMTP e-mail server supports popular client e-mail software

Provides multiple users access over a Wi-Fi or wired LAN.

Setup is simple

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

# Winlink 2000: User Software



**Paalink:**

The screenshot displays the Mozilla Thunderbird email client interface. The main window shows an email titled "HELLO GRAND POOBAH" from Tom N5TW <n5tw-1@winlink.org> to K4CJX@WINLINK.ORG. The email body contains the text: "-- Tom Whiteside N5TW".

In the bottom right corner, a Paalink application window titled "Paalink - N5TW-1" is open. It shows a status window with the following text:

```
File Connect Abort Logs Help
*** Searching for available CMS sites...
*** Paalink ready...
```

The status bar at the bottom of the Paalink window displays: "To Clients: 33 To Winlink: 19 | Version: 4.3.0.4 | Uptime: 0 00:00:19 | Total: 99".

# Winlink 2000: User Software



Paclink:

The screenshot shows the Mozilla Thunderbird email client interface. The inbox contains the following messages:

Subject	From	Date
Re: test from airmail 8	tomw@ecpl.com	8/27/2011 2:55 PM
Re: test from airmail 4	tomw@ecpl.com	8/27/2011 2:53 PM
Re: Test from airmail 6	tomw@ecpl.com	8/27/2011 2:55 PM
Re: PL12	tomw@ecpl.com	8/27/2011 2:56 PM
Re: PL10	tomw@ecpl.com	8/27/2011 2:56 PM
Re: PL11	tomw@ecpl.com	8/27/2011 2:56 PM
Re: PLTEST 3	tomw@ecpl.com	8/27/2011 2:56 PM
Re: PACLINK TEST 2	tomw@ecpl.com	8/27/2011 2:57 PM
Re: PACLINK TEST 1	tomw@ecpl.com	8/27/2011 2:57 PM
Re: PACLINK TEST 4	tomw@ecpl.com	8/27/2011 2:57 PM

In the foreground, the Paclink - NSTW-1 window is open, displaying the following text:

```
File Connect Abort Logs Help
--- Searching for available CMS sites...
--- Paclink ready...

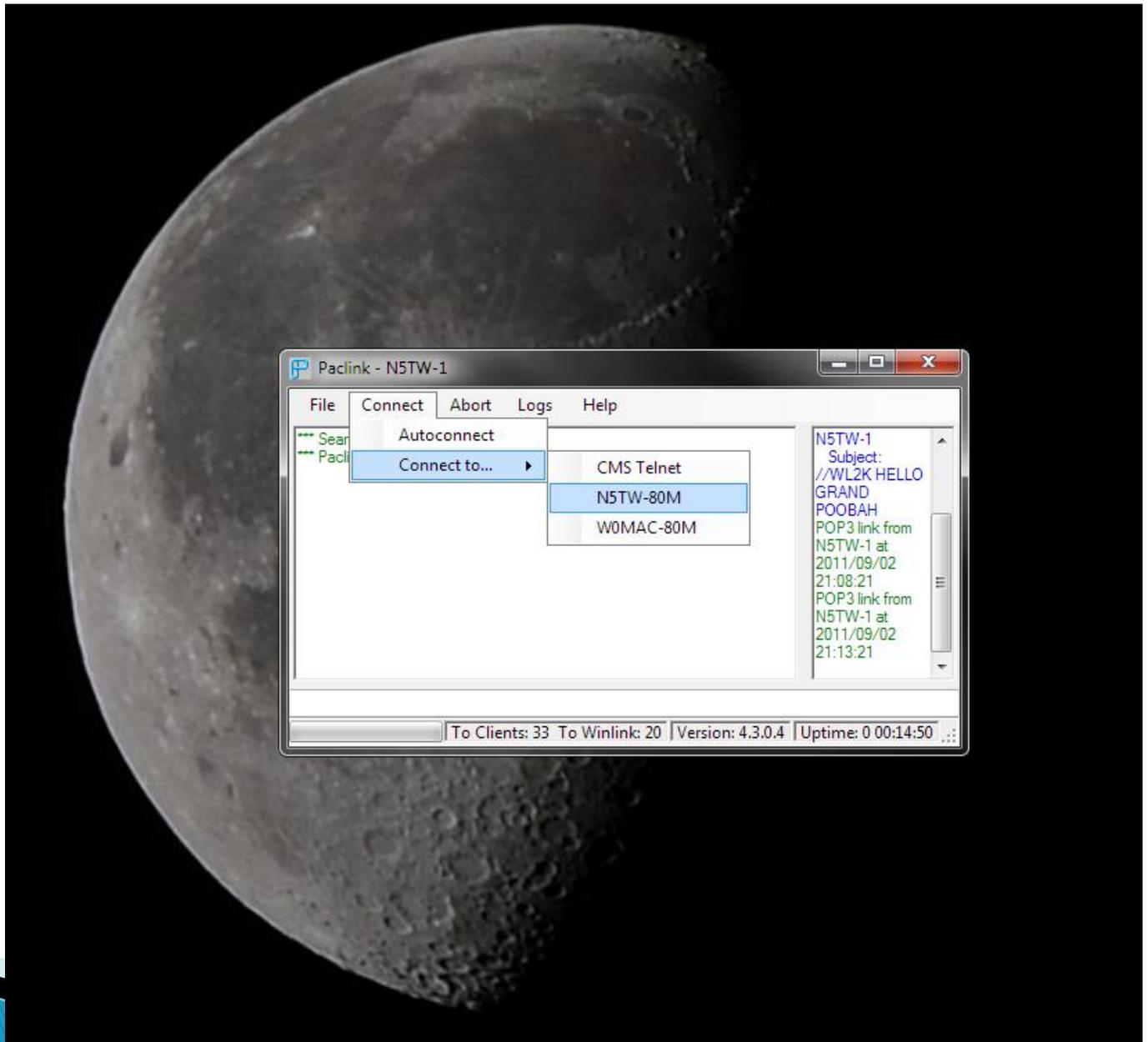
POPS link from
NSTW-1 at
2011/08/28
21:03:21
VQ0JNSUFGG
received from
NSTW-1
  Subject: WLBK
HELLO GRAND
POCBAH
```

The status bar at the bottom of the Thunderbird window shows: Deleted 1 message from Drafts | To Clients: 33 | To Winlink: 20 | Version: 4.30.4 | Uptime: 3:00:04:26 | Total: 79

# Winlink 2000: User Software



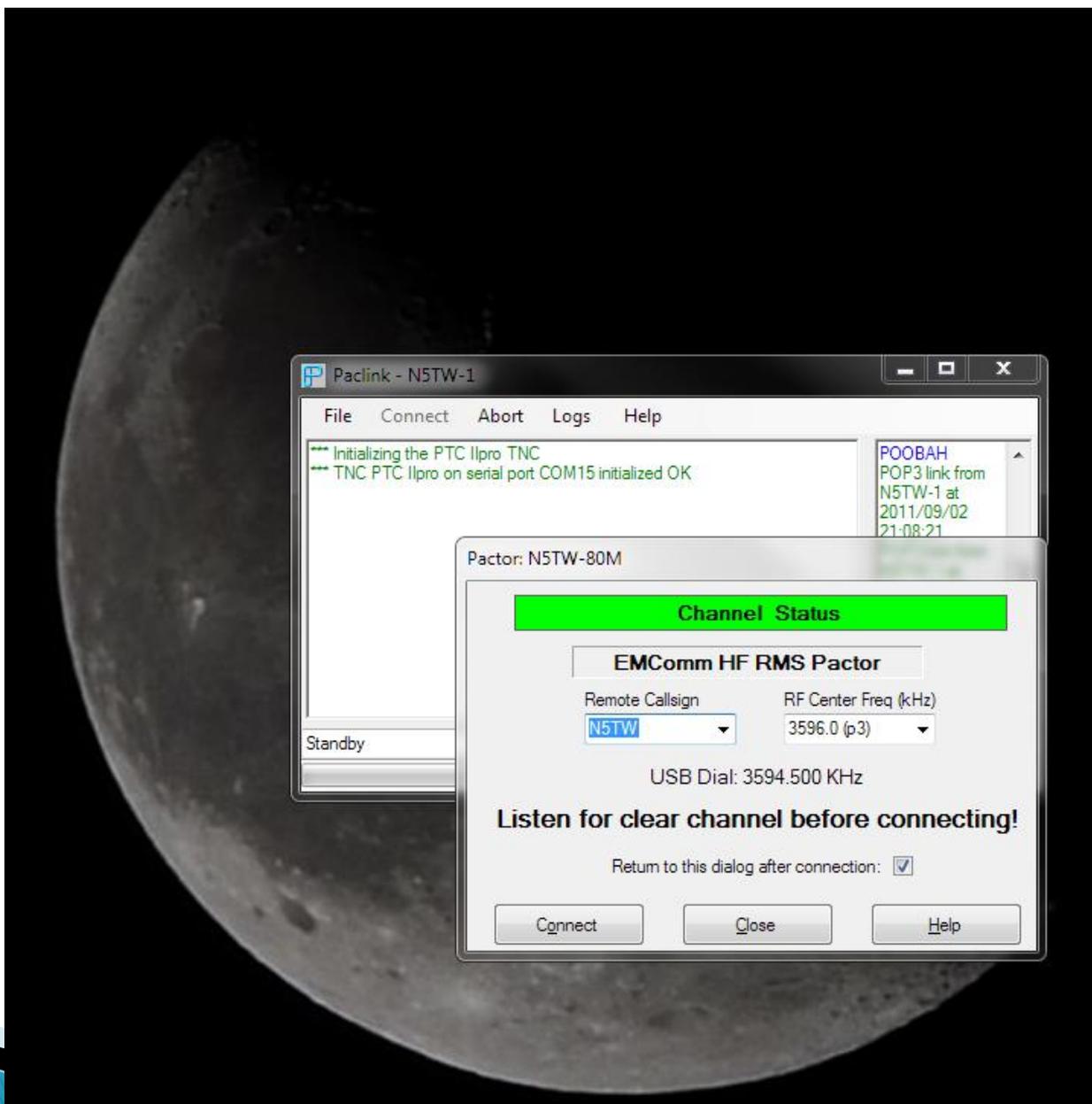
**Paclink:**



# Winlink 2000: User Software



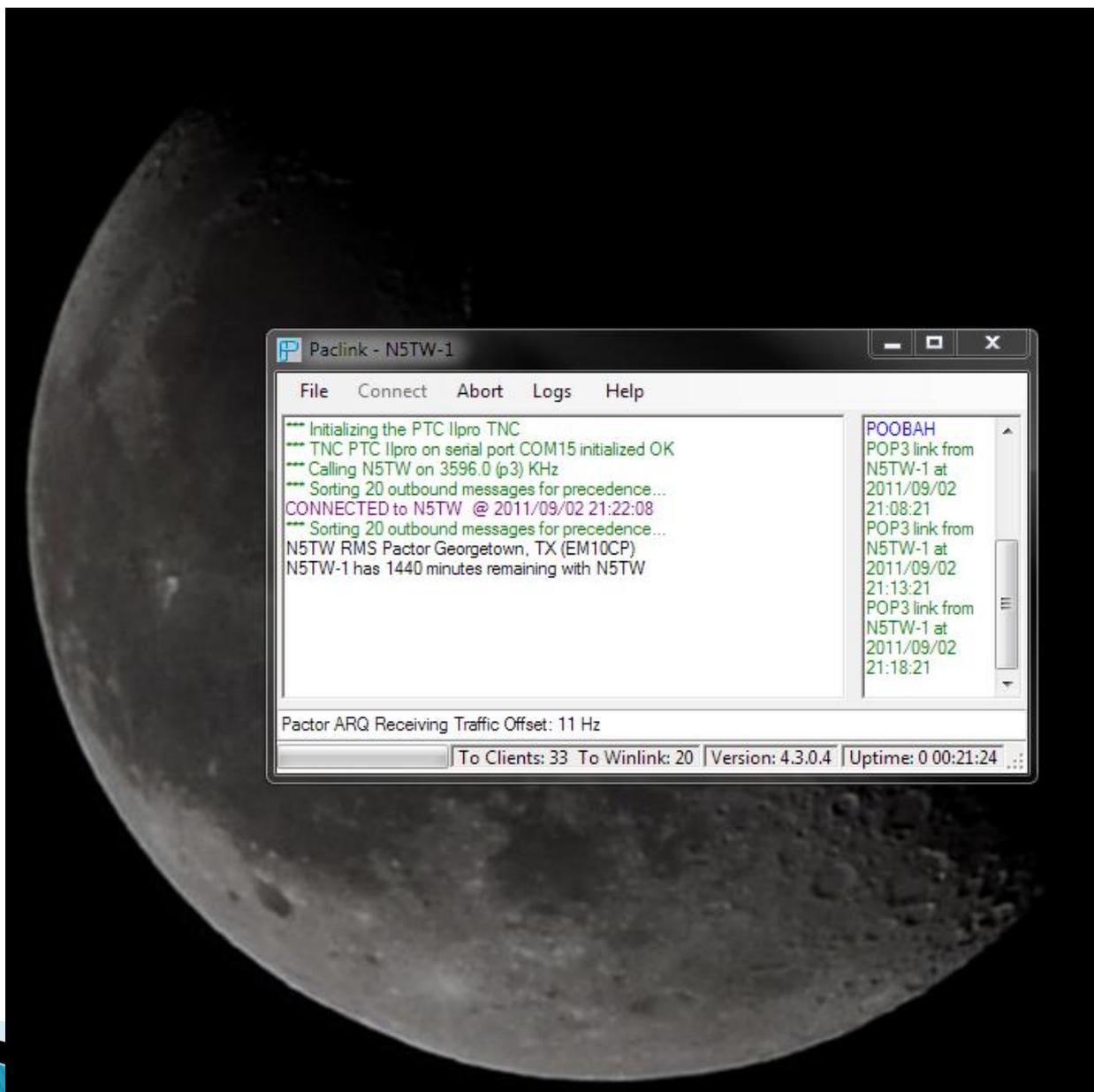
**Paclink:**



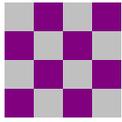
# Winlink 2000: User Software



**Paclink:**



# 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.

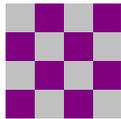
Contains template for over over 700 WX and related products.

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:

RMS Express 1.1.1.3 - N5TW-1

Files Message View Attachments Move To: Saved Items Delete Open Session: Pactor WL2K Logs Help

No active session...

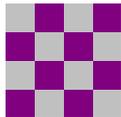
System Folders	Timestamp	MessageId	Size	#	Source	Sender	To:	Subject
Inbox	2011/08/27 20:37	6WSQ7HF0G17C	277		SMTP	SMTP.tomw@ec...	N5TW-1	RE: Work out for WC5EOC-12
Read Items	2011/08/27 20:37	HABNK7UWMM0J	263		SMTP	SMTP.tomw@ec...	N5TW-1	RE: WC5EOC-12 test
Outbox	2011/08/27 20:37	MT2U5PTYJ747	266		SMTP	SMTP.tomw@ec...	N5TW-1	RE: test from airmail 7
Sent Items	2011/08/27 20:36	G33Y1DT9DRVC	243		SMTP	SMTP.tomw@ec...	N5TW-1	RE: Test
Saved Items	2011/08/27 20:36	UVYZV62FNMOD	263		SMTP	SMTP.tomw@ec...	N5TW-1	RE: WC5EOC-12 test
Deleted Items	2011/08/27 20:35	NFL8C4TXZRAK	243		SMTP	SMTP.tomw@ec...	N5TW-1	RE: ---
Drafts								

Personal Folders

Contacts

- KD5URB
- KE5OIZ
- W5TA-1
- tomw@ecpi.com

# Winlink 2000: User Software



## RMS Express:

RMS Express 1.1.1.3 - N5TW-1

Files Message View Attachments Move To: Saved Items Delete Open Session: Pactor WL2K Logs Help

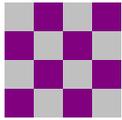
No active messages

Inbox Read Mailbox Outbox Sent Items Saved Items Deleted Items Drafts Personal Folders

Contacts  
KD5URB  
KE5OIZ  
W5TA-1  
tomw@ecpi.com

Time	Msgid	Size	#	Source	Sender	To:	Subject
27 20:37	6WSQ7HF0G17C	277		SMTP	SMTP.tomw@ec...	N5TW-1	RE: Work out for WC5EOC-12
27 20:37	HABNK7UWMM0J	263		SMTP	SMTP.tomw@ec...	N5TW-1	RE: WC5EOC-12 test
27 20:37	MT2U5PTYJ747	266		SMTP	SMTP.tomw@ec...	N5TW-1	RE: test from airmail 7
2011/08/27 20:36	G33Y1DT9DRV	243		SMTP	SMTP.tomw@ec...	N5TW-1	RE: Test
2011/08/27 20:36	UVYZV62FNMOD	263		SMTP	SMTP.tomw@ec...	N5TW-1	RE: WC5EOC-12 test
2011/08/27 20:35	OXNVJG7Y0Z86	243		SMTP	SMTP.tomw@ec...	N5TW-1	RE: ---

# Winlink 2000: User Software



## RMS Express:

RMS Express 1.1.1.3 - N5TW-1

Files Message View Attachments Move

No active session...

System Folders	Timestamp
Inbox	2011/08/27 20:37
Read Items	2011/08/27 20:37
Outbox	2011/08/27 20:37
Sent Items	2011/08/27 20:37
Saved Items	2011/08/27 20:36
Deleted Items	2011/08/27 20:36
Drafts	2011/08/27 20:35

Personal Folders

Contacts
KD5URB
KE5OIZ
W5TA-1
tomw@ecpi.com

Enter a new message

Close Attachments Post to Outbox Save in Drafts Folder

From: N5TW-1  Winlink Message  Peerto-Peer Message

To: tomw@ecpi.com;

Cc:

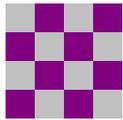
Subject: Greetings from the great beyond...

Attach: ARES Net 18 OCT.xls;

This is a test message

Tom N5TW

# Winlink 2000: User Software



## RMS Express:

RMS Express 1.1.1.3 - N5TW-1

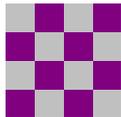
Files Message View Attachments Move To: Saved Items Delete Open Session: Packet WL2K Logs Help

In Packet WL2K session...

System Folders	Timestamp	MessageId	Size	#	Source	Sender	Subject
Inbox	2011/08/27 20:37	6WSQ7HF0G17C	277		SMTP	SMTP.tomw@e...	RE: Work out for WC5EOC-12
Read Items	2011/08/27 20:37	MT2U5PTYJ747	266		SMTP	SMTP.tomw@e...	RE: test from airmail 7
Outbox	2011/08/27 20:37	HABNK7UWMM0J	263		SMTP	SMTP.tomw@e...	RE: WC5EOC-12 test
Sent Items	2011/08/27 20:36	G33Y1DT9DRVC	243		SMTP	SMTP.tomw@e...	RE: Test
Saved Items	2011/08/27 20:36	UVYZV62FNMOD	263		SMTP	SMTP.tomw@e...	RE: WC5EOC-12 test
Deleted Items	2011/08/27 20:35	Z5BWBWUO53C	242		SMTP	SMTP.tomw@ec...	RE: ---
Drafts							
Personal Folders							
Contacts							
AAA6TX							
AAM6TTX							
AAR6JN							
K5HTK-1							

Open Session: Packet WL2K (dropdown menu):  
Telnet WL2K  
Packet WL2K  
Pactor WL2K  
Robust PR WL2K  
Winmor WL2K  
-----  
Packet P2P  
Pactor P2P  
Robust PR P2P  
Winmor P2P

# Winlink 2000: User Software



## RMS Express:

The screenshot displays the RMS Express 1.1.1.3 - N5TW-1 application window. The main interface shows a message list with columns for Timestamp, MessageId, Size, #, Source, Sender, To, and Subject. A VHF Channel Selector dialog box is open, displaying a table of stations found within 160 kilometers of the user's grid square. The table has columns for Callsign, Frequency (MHz), Mode, Grid Square, Distance (Kilometers), and Bearing (Degrees). The row for K5KTF-10 is highlighted in blue.

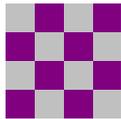
**VHF Channel Selector**

Exit Select Channel Update Table Update Table Via Radio

Stations found within 160 kilometers of your grid square...

Callsign	Frequency (MHz)	Mode	Grid Square	Distance (Kilometers)	Bearing (Degrees)
N5TW-12	145.030	1200	EM10CP	000	000
N5TW-10	145.610	1200	EM10CP	000	000
N5TW-13	144.910	1200	EM10CP	000	000
KD4HNX-10	145.610	1200	em10dp	008	090
KE5RS-10	145.730	1200	EM10BN	013	221
NA5BD-11	145.610	1200	EM10DN	013	143
W2MN-11	145.610	1200	EM10CM	014	180
KD4HNX-11	144.910	1200	EM10DM	016	152
W9BF-10	145.030	1200	EM10AP	016	270
<b>K5KTF-10</b>	<b>145.610</b>	<b>1200</b>	<b>EM10BM</b>	<b>017</b>	<b>211</b>
NA5BD-10	144.910	1200	EM10EN	018	123
KB5TWO-10	145.610	1200	EM10EM	021	133
WC5EOC-10	144.910	1200	EM10CJ	028	180
W5TQ-12	145.070	1200	EM10DH	039	169
W5TQ-10	145.730	1200	EM10DH	039	169

# Winlink 2000: User Software



## RMS Express:

RMS Express 1.1.1.3 - N5TW-1

Files Message View Attachments Move To: Saved Items Delete Open Session: Packet WL2K Logs Help

In Packet WL2K session...

System Folders	Timestamp	MessageId	Size	#	Source	Sender	To:	Subject
Inbox	2011/08/27 20:37	6WSQ7HF0G17C	277		SMTP	SMTP:tomw@ec...	N5TW-1	RE: Work out for WC5EOC-12
Read Items	2011/08/27							RE: test from airmail 7

Packet Winlink 2000 Session

Exit Setup Switch to Peer-to-Peer

Via

\*\*\* Standby...  
\*\*\* Initialization complete

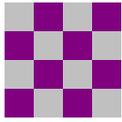
VHF Channel Selector

Exit Select Channel Update Table Update Table Via Radio

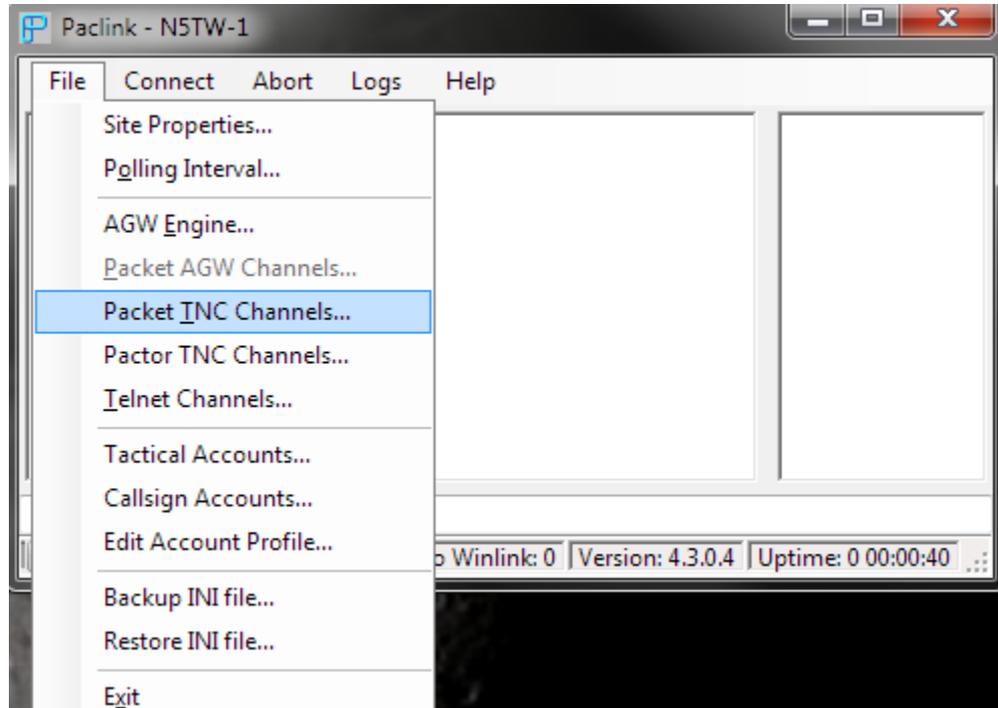
Stations found within 160 kilometers of your grid square...

Callsign	Frequency (MHz)	Mode	Grid Square	Distance (Kilometers)	Bearing (Degrees)
N5TW-12	145.030	1200	EM10CP	000	000
N5TW-10	145.610	1200	EM10CP	000	000
N5TW-13	144.910	1200	EM10CP	000	000
KD4HNX-10	145.610	1200	em10dp	008	090
KE5RS-10	145.730	1200	EM10BN	013	221
NA5BD-11	145.610	1200	EM10DN	013	143
W2MN-11	145.610	1200	EM10CM	014	180
KD4HNX-11	144.910	1200	EM10DM	016	152
W9BF-10	145.030	1200	EM10AP	016	270
K5KTF-10	145.610	1200	EM10BM	017	211
NA5BD-10	144.910	1200	EM10EN	018	123
KB5TWO-10	145.610	1200	EM10EM	021	133
WC5EOC-10	144.910	1200	EM10CJ	028	180
W5TQ-12	145.070	1200	EM10DH	039	169
W5TQ-10	145.730	1200	EM10DH	039	169

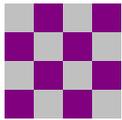
# Winlink 2000: User Software



## RMS Express:



# Winlink 2000: User Software



## RMS Express:

Packet TNC Channels

To create a new channel type a new channel name in the Channel Name text box...

Channel name: N5TW-12 145.03 Georgetown Remote callsign: N5TW-12 Optional connect script:

Channel priority: 3 TNC Type: KPC3+ On-Air Baud Rate: 1200

Do a full TNC configuration only on first use:  Channel enabled:

Serial port: COM10 Baud Rate: Activity timeout (in minutes): 10

TNC Configuration File: C:\Paclink\Data\KPC3+.aps Browse Script inactivity timeout: 60 seconds

Optional VHF/UHF Radio Control

Manual (none) Radio Model: Radio Address (hex): 01

Via PTC II, Ilpro, Ilusb Baud Rate:

PTC Levels to Radio

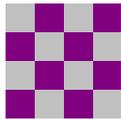
TTL  RS-232 Serial Port: TNC Port: 1

Direct via Serial Port: Channel frequency in MHz:

Add New Channel Remove This Channel Update The Channel Close Help

RMS Express channel setup is MUCH easier than Paclink  
Easier to keep station list current too...

# Winlink 2000: User Software



## RMS Express:

RMS Express 1.1.1.3 - N5TW-1

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

No active session...

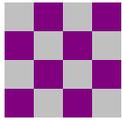
System Folders	Timestamp	MessageId	Size	#	Source	Sender	Subject
Inbox	2011/08/27 20:37	6WSQ7HF0G17C	277		SMTP	SMTP.tomw@e	RE: Work out for WC5EOC-12
Read Items	2011/08/27 20:37	MT2U5PTYJ747	266		SMTP	SMTP.tomw@e	RE: test from airmail 7
Outbox	2011/08/27 20:37	HABNK7UWMM0J	263		SMTP	SMTP.tomw@e	RE: WC5EOC-12 test
Sent Items	2011/08/27 20:36	G33Y1DT9DRVC	243		SMTP	SMTP.tomw@e	RE: Test
Saved Items	2011/08/27 20:36	UVYZV62FNMOD	263		SMTP	SMTP.tomw@e	RE: WC5EOC-12 test
Deleted Items	2011/08/27 20:35	Z5BWBWU053C	242		SMTP	SMTP.tomw@ec... N5TW-1	RE: ---
Drafts							

Personal Folders

Contacts

- AAA6TX
- AAM6TTX
- AAR6JN
- K5HTK-1

# Winlink 2000: User Software



## RMS Express:

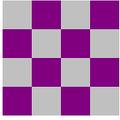
The screenshot displays the Winlink 2000 RMS Express software interface. The main window, titled "WINMOR Sound Card TNC Port:8500", shows connection status as "DISCONNECTED" and includes controls for Receive (Rcv Level, Remote Station Offset, Rcv Frame) and Transmit (Avg ACK Percentage, Xmt Frame). A "Busy Detector" window is also visible, showing "Channel Clear" and "Squelch: 5".

In the foreground, the "HF Channel Selector" window is open, displaying a table of available channels. The table is titled "Winmor channels available at 1700Z, Up to 4000 Kilometers, Q >= 20". The table has the following columns: Callsign, Frequency (kHz), Mode, Grid Square, Distance (Kilometers), Bearing (Degrees), and Path Quality Estimate.

Callsign	Frequency (kHz)	Mode	Grid Square	Distance (Kilometers)	Bearing (Degrees)	Path Quality Estimate
W5SEG-5	7091.500	500	EL19AN	95	190	50
KJ5YN-5	7097.500	500	EM20UJ	240	089	49
N9LOH-5	14106.500	500	EN52RS	1601	028	49
K9BBS-10	14113.500	1600	EM68SR	1387	045	48
KB5OZE-5	10134.500	500	EL49WU	738	093	48
W5HCS-10	10134.500	500	EM12PU	291	020	47
KE7XO-10	14098.000	1600	DM26JG	1740	297	45
KE7XO-10	14108.000	1600	DM26JG	1740	297	45
AC5PW-5	7084.500	500	EM31TI	526	077	44
K9BBS-10	10134.500	1600	EM68SR	1387	045	30
KB8UVN-10	10134.500	500	EN80LD	1717	047	29
W3YXS-10	10134.500	500	EN80UU	1813	046	28
KB3JAJ-5	24927.500	1600	FM19QB	2151	058	27
KE7XO-10	10142.000	1600	DM26JG	1740	297	26
KE7XO-10	10147.000	1600	DM26JG	1740	297	26
KB1TCE-5	14105.700	500	FN54KB	2932	051	25
W1EO-5	14104.200	1600	FN42IM	2707	053	24

Other windows visible include "Winmor Winlink 2000 Session" and a message log window showing a list of messages with fields for "From", "To", and "Subject".

# Winlink 2000: User Software



## RMS Express:

WINMOR Sound Card TNC Port:8500 N5TW-1 / W5SEG-5

Help Hide Send ID

Connection State

IRS

TCP Capture OK

Transmit

0 Avg ACK Percentage 100

Xmt Frame:

Receive

Rcv Level: [Progress Bar]

Remote Station Offset: 4.5 Hz

Rcv Frame: 2 Car 4FSK FEC Data

Busy Detector

Squelch: 5

Waterfall 2 KHz 500 2500 4FSK / 43

Winmor Winlink 2000 Session - N5TW-1

Exit Setup Switch to Peer-to-Peer Session Channel Selection Show/Hide TNC Start Stop Abort

W5SEG-5 Center Frequency (kHz): 7091.500 Dial Frequency (kHz): 7090.000

500 In:0/233 Out:110/0 BPM:138/13 Tune: +5 Connected - In receiving state

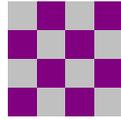
\*\*\* Connected to WL2K RMS: W5SEG-5 @ 2011/09/03 18:05:48 USB Dial: 7090.000  
W5SEG's RMS WINMOR Station in Seguin Texas (active) (EL19AN)  
\*\*\* Statistics so far this month  
Total connects = 49  
Peak throughput (0 on 0 by )  
Total messages = 0  
[WL2K-2.7.0.3-B2FWIHJMS]  
;PQ: 77276152  
Wien CMS via W5SEG-5 >  
[RMS Express-1.1.1.3-B2FHMS]  
;PR: 96596638  
; W5SEG-5 DE N5TW-1 (EM10CJ)  
FC EM EKZ2AJF425D5 26866 7185 0  
F> 26

Sender	To:	Subject
SMTP:tomw@ec...	N5TW-1	RE: Work out for WC5EOC-12
SMTP:tomw@ec...	N5TW-1	RE: test from airmail 7

12 test

12 test

# Winlink 2000: User Software



**RMS Express:**



**Paclink:**

**Modes supported:**

**Telnet**

**Yes**

**Yes**

**Packet**

**Yes**

**Yes**

**PACTOR**

**Yes**

**Yes**

**WINMOR**

**Yes**

**No**

**Point to point :**

**Yes**

**No**

**Wide range of Packet TNCs:**

**Yes**

**Yes**

**AGW Packet Engine support:**

**No**

**Yes**

**E-mail interface:**

**Internal**

**External**

**Networked e-mail client support:**

**No**

**Yes**

**Ease of use:**

**Best**

**Good**

**Stability:**

**Good**

**Best**

# 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: Server Software

## Software for Winlink RMS Sysops

### Joining the WL2K Sysop Team and RMS Station Authorization

Before you inquire to become a WL2K sysop to run a Radio Mail Server (RMS) gateway station, we prefer you to be an active user of radio email in the system. If you are not a current user with a valid @winlink.org address, please see [this page](#). The strength and reliability of the network is based directly upon the quality of service provided by knowledgeable sysops. We endeavor to maintain a high standard for sysops in order to provide a good user experience.

All WL2K RMS programs require your call sign to be in the WL2K user database with an administrator-assigned keycode and password. You will not be able to complete installation and operate sysop programs unless this is first set up by a WL2K administrator.

RMS gateways to Winlink 2000 are authorized to operators who agree to maintain their stations on the network 24x7x365, provide dedicated equipment, and agree to keep their software current. For any other special temporary use by a recognized emergency communications organization, please contact [Steve Waterman, K4CJX](#), the Winlink 2000 administrator. Other than pre-approved portable or temporary stations, RMS stations that remain off-line or do not report to Common Mail Servers within 48 hours, or fail to operate with current software are purged from the network. Agency portable or temporary stations should be tested on a regular basis to maintain their readiness.

For network-wide alerts and sysop support, VHF/UHF sysops should join the "[Winlink\\_Programs\\_Group](#)" at [yahoogroups.com](#). HF sysops should join the "[WINLINK2K](#)" group at [yahoogroups.com](#).

- **To request RMS station authorization for VHF operations** or a KEYCODE for RMS Packet or Linux RMS Gateway software, contact [Lor Kutchins, W3QA](#).
- **To request RMS station authorization for HF operations** or a KEYCODE for RMS Pactor, RMS WINMOR or Linux RMS Gateway software, contact [Steve Waterman, K4CJX](#).
- Provide in your request:
  1. Your call sign.
  2. The call sign of the RMS station.
  3. The name and email address of the club license trustee if the RMS will use a club license.
  4. Whether the station will be an EmComm gateway (will appear only on EmComm frequency lists) or whether it will be listed as a public station.
  5. A reference to confirm your affiliation with an EmComm organization, if you intend to operate the station as a temporary or portable asset.
  6. Your commitment in writing to operate the station 24 hour/day, 7 days/week, 365 days/year and will use dedicated equipment to provide uninterrupted service.

Thanks,

The Winlink Development Team

# Winlink 2000: Server Software



**RMS Packet – VHF/UHF Packet WL2K Internet gateway**



**RMS PACTOR – HF PACTOR WL2K Internet gateway**



**RMS WINMOR – HF WINMOR WL2K Internet gateway**



**LINUX RMS Gateway – VHF/UHF Packet WL2K Internet gateway**



**RMS Relay – (Optional) Added capabilities for Internet outages**

<http://www.winlink.org/SysopSoftware>

# Winlink 2000: Server Software



**RMS Packet – VHF/UHF Packet WL2K Internet gateway**



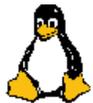
**RMS Pactor – HF Pactor WL2K Internet gateway**



**RMS WINMOR – HF WINMOR WL2K Internet gateway**



**RMS Relay – (Optional) Added capabilities for Internet outages**



**LINUX RMS Gateway – VHF/UHF Packet WL2K Internet gateway**

<http://www.winlink.org/SysopSoftware>

## **RMS Pactor and RMS WINMOR**

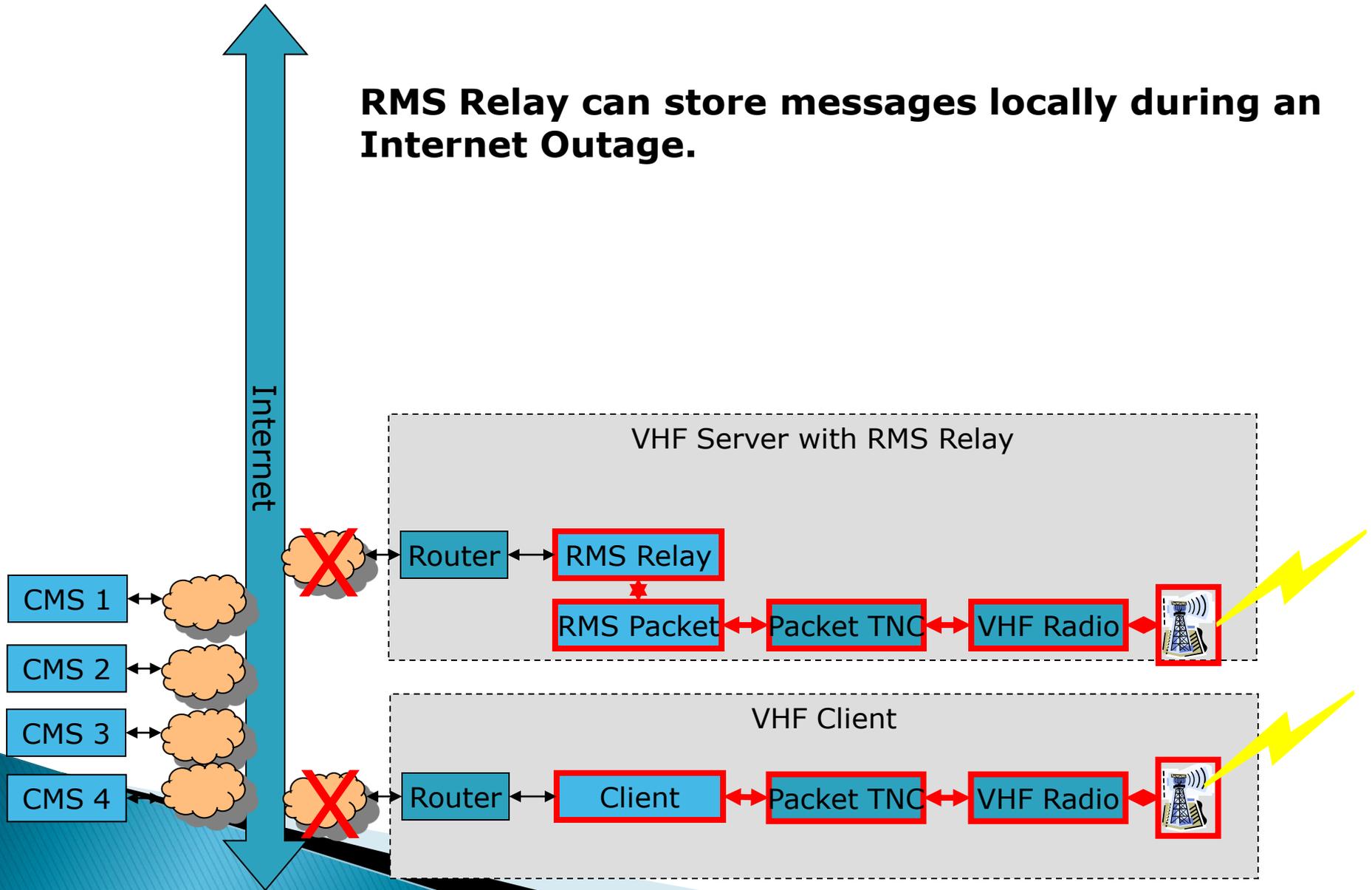


RMS (Radio Mail Server) Pactor) and RMS WINMOR, with their suite of administration programs, is software intended for WL2K sysops who operate High-Frequency stations. This software supports HF Pactor and WINMOR radio gateways to the WL2K system. These RMS stations are part of the controlled and frequency-coordinated global network of WL2K participating stations.

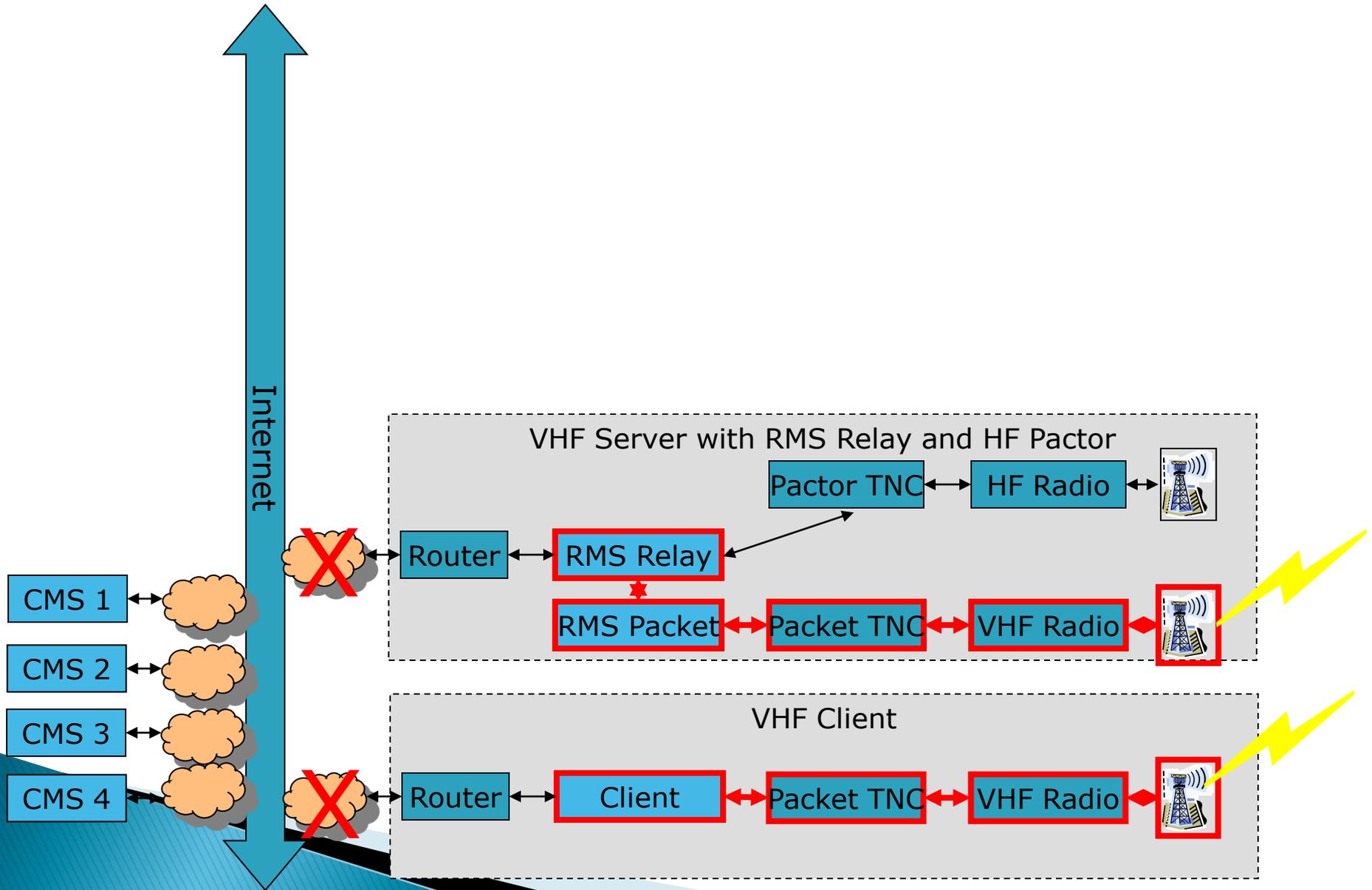
RMS Pactor and RMS WINMOR software authorizations are limited in certain world regions. If you have an interest in operating a public, EmComm or MARS WL2K HF station, please contact *Steve Waterman, K4CJX*.

# Winlink 2000: RMS Relay

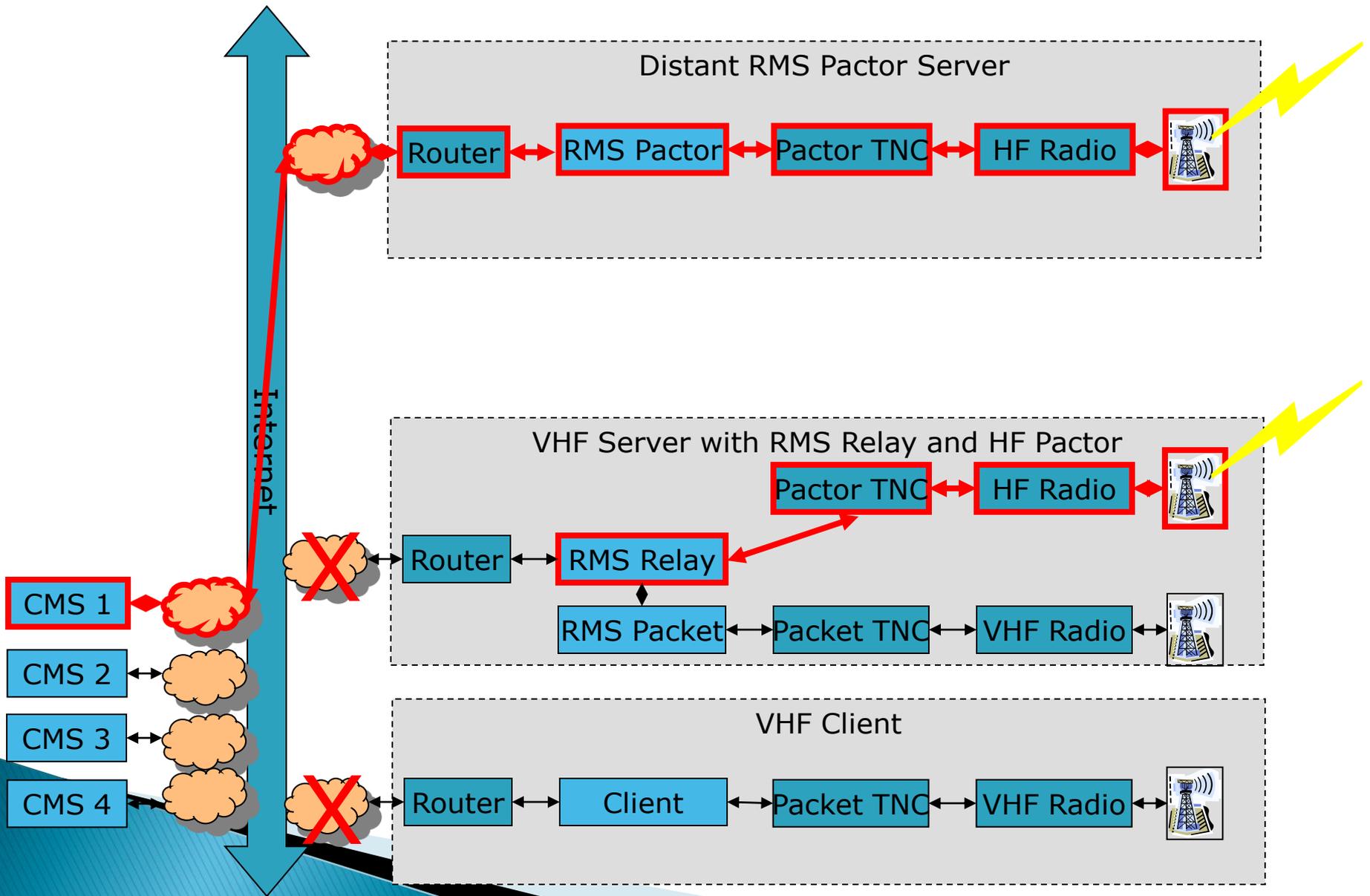
**RMS Relay can store messages locally during an Internet Outage.**



# Winlink 2000: RMS Relay



# Winlink 2000: RMS Relay



# Winlink 2000: RMS Relay

## **RMS Relay Strategy considerations:**

- **Use other RMS Packet stations with Internet connectivity  
(Some groups enable RMS Relay manually.)**
  - **Only have one station in an area running RMS Relay**
  - **Consider adding HF Forwarding to escape local area  
Plan for having an operator to handle forwarding**
  - **HF forwarding routes mail for all users in last 21 days  
This list can be edited to reduce traffic**
  - **HF forwarding does not remove items from local database  
Local users can still pickup all traffic.**
  - **Intended for temporary outages.**
- 

# Winlink 2000: Implementation Strategies

**Case 1: Isolated user**

**Case 2: Small community**

**Case 3. Larger community**

**Case 4. Forward deployed portable assets**

# Winlink 2000: Implementation Strategies

## Case 1: Isolated user

For this case, HF is the answer..

Example: W9ON and KB3MBS doing communications from Haiti



# Winlink 2000: Implementation Strategies

## Case 1: Isolated user

Example: Annual International Health Service Medical mission to Honduras



# Winlink 2000: Implementation Strategies

## Case 1: Isolated user

Example: Annual International Health Service Medical mission to Honduras

**Revised 5 Aug. 2011**  
 Eng = Engineer  
 TL = Team Leader  
 GH = General Helper  
 Intp = Interpreter

**Feb Teams**      **Oct Team**

**La Ceiba Admin**  
 Gary Ernst, **Project Director**  
 Eric Ernst, GH

**La Ceiba Surgery**  
 Ivy Thorne, **Surg**  
 Kathy Adams, CRNA **TL**  
 Marge van der Hagen, PA  
 Bonnie Peterson, RN  
 Luther Peterson, GH

**Tocoa Surgery**  
 Daniel Jaffurs, **Surg**  
 John Craig Gill, CRNA  
 Kris Budke, CRNA  
 Trudy Staubitz, RN & **TL**  
 Ruby Sistas, RN  
 Meredith Johnson, RN  
 Brenda Toftstad, EMT  
 Bill Roussel, Radio **KSTAS**  
 Denis Roussel, **Intp**  
 Henry Novotny, GH

**PLP Eye Team**  
 Matt Gifford, OD  
 Bob Slider, OD  
 Karen Kirckof, Exam, **TL**  
 Cristy Garrido, **Intp**  
 Katherine Aby, GH  
 Susan Aronson, GH  
 Colette Friedenson, GH  
 Brigida "Bridget" Romero, **Intp**  
 Harlan Macklin, **Intp**

**PLP Surgery**  
 Rod Brown, **Surg**  
 Gary Yurina, CRNA  
 Marie Coleman, RN  
 JoAnn Prater, RN & **TL**  
 Judy Lacy, RN  
 She Lan, PA  
 Jim Prater, GH  
 Rick Reiter, **Intp**

**PLP Admin**  
 Drew Matthews, **IHS Pres, TL**  
 Larry Foster, Radio **KCOJON**  
 Grant Hanson, Eng  
 Katherine Coots, GH **KI6YUR**  
 Marianne Serkland, MD

**La Esperanza Medical/Dental Team**  
 Carl Toben, MD  
 Courtney Fleming, PA  
 Elizabeth Reinemann, RN  
 Joshua Favorte, RN  
 Drew Hennessy, RN  
 Andrew Joaquin, RPh  
 Brad Toben, RPh **Stu**  
 Jack Reed, DDS  
 Gina Knight, DDS  
 Jamie Fleming, **Intp**  
 Kimberly DeMoret, **Intp**  
 Alison Shelley, Radio, **KS6Q**  
 Kelley Shelley, Eng **KS6Z**  
 Jennifer Edwards, GH, **TL**  
 Barbara Joe, GH, **Intp**

**Lisangnipura Medical/Dental Team**  
 Joe Tombers, MD  
 Andrea D'Angelo, PA  
 Theresa Tombers, RN  
 Jennifer Sage, RN  
 Dan Walker, Paramedic  
 Greg Shepherd, RPh  
 Arielle Martin, RPh **Stu**  
 Richard O'Day, DDS  
 Kathy Weil, **Dnt Ass't**  
 Steve Williams, Radio, **KI4ZUI**  
 Renee Walters, **Intp**  
 Chris Knoff, Eng  
 Barb Hamilton, GH, **TL**  
 Scott Hamilton, GH  
 Hilario Nixon, **Intp**

**BelAire Medical Clinic**  
 Jim Daniel, MD  
 Jennifer Thompson, MD  
 Marie White, PA  
 Pamela Cooper, RN  
 Shannon Armstrong, RN  
 Elissa Iverson, RN  
 Renee Donnelly, EMT, **Comm, TL**  
 Jim Welch, RPh  
 Shawn Murphy, RPh **Stu**  
 Jenna Kucera, RPh **Stu**  
 Steve Rice, **Intp**  
 John Ellis, **Intp**  
 & **Asst Proj Director**

**Rus Rus Med/Dental Team**  
 Doug Piliam, MD  
 Mary Assenmacher, NP  
 Noreen Reguire, RN  
 Dixie Doyle, RN  
 Amanda Denn, RPh  
 Morgan Tschetter, RPh **Stu**  
 Araldo Lopez, Dentist  
 Luke Musselman, Eye Clinic, **Intp**  
 Troy Mayer, Paramedic  
 Sally Guillet, **Intp**  
 John Kirckof, Eng, **K80UUP TL**  
 Liz Parker, Radio, **G6BOQ**  
 Chris Parker, Eng, **G6BDM**  
 Geraldina Coleman, Nurse  
 Wes Wiles, Pilot, **Intp K60PW**  
 Rachael Wiles, **Intp**  
 Keija Wiles, Eye Clinic, **Intp**  
 Johan Lapoth, **Dnt Ass't**

**Kruta River Feb 2011 Medical/Dental Team**  
 Thomas Ziebarth, MD  
 Teri Houle, RN  
 Jodi Lillemoen, RN  
 Carrie Johnson, LPN  
 Benjamin Cooper, RPh  
 Kyle Heer, RPh **Stu**  
 Kelly Koeppen, DDS  
 Juan Brayman, **Dnt Ass't**  
 Cheryl Schraeder, GH **TL**  
 Jake Howard, Paramedic  
 Meredith Bise, **Intp**  
 Mike Stapp, Radio **K6DWW**  
 Jim Jackson, Eng  
 Buzz Schraeder, GH  
 Tawnya Heer, GH  
 Andres & Andy Martin, **Intp**  
 Edy Morfy, **Intp**, GH  
 Justo Podada, **Intp**, GH

**LaUnion Medical/Dental Team**  
 Frank McKemie, MD  
 Shelley Quinlan, PA  
 Carrie Lynch, RN  
 Marisa Messer, RN  
 Sandra Chang, RPh  
 Amanda Styles, RPh **Stu**  
 Jim Clyde, DDS  
 Jennie McKemie, RN, Dental  
 Brian Coulter, Radio & Eng  
 Adessa Fischer, **Intp**  
 Kathy Lepp, **Intp TL**  
 Bob Quinlan, GH  
 Idalia Maldonado, GH

**Kruta River Oct 2010 Medical/Dental Team**  
 Marianne Serkland, MD **TL**  
 Mary Bianco, MD  
 Nancy Zupan, NP  
 Karen DeMoret, RN  
 Robyn Hanson, RN  
 Melanie Marriot, RN  
 Dale James, RPh  
 Jeanne James, RPh **Helper**  
 Araldo Lopez, Dentist  
 Juan Brayman, **Dnt Ass't**  
 Jack DeMoret, Eng, GH  
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**IHS Mission**  
 Oct 2010 & Feb 2011

# Winlink 2000: Implementation Strategies

## Case 1: Isolated user

**Example: Annual International Health Service Medical mission to Honduras**

This is the only medical care for many for the entire year...



# Winlink 2000: Implementation Strategies

## Case 1: Isolated user

**Example: Annual International Health Service Medical mission to Honduras**



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## Case 1: Isolated user

Example: Annual International Health Service Medical mission to Honduras



# Winlink 2000: Implementation Strategies

## Case 1: Isolated user

**Example: Annual International Health Service Medical mission to Honduras**



# Winlink 2000: Implementation Strategies

## Case 1: Isolated user

Example: Annual International Health Service Medical mission to Honduras

- ▶ *Want to volunteer?*
- ▶ **John Kirckof KBOUUP**
  - ▶ IHS Info & Recruitment Dir.
  - ▶ Ph 320-634-4386 [JMKKEK@Yahoo.com](mailto:JMKKEK@Yahoo.com)
- ▶ Web site: [www.IHSMN.org](http://www.IHSMN.org)

# Winlink 2000: Implementation Strategies

WELCOME TO



## Case 2: Small Community



**Example: Orange, Texas Population 85,000**

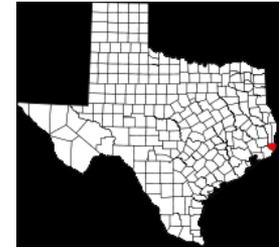


# Winlink 2000: Implementation Strategies

WELCOME TO



## Case 2: Small Community



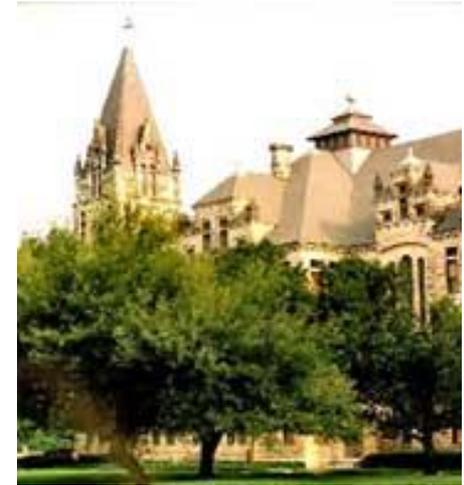
**Example: Orange, Texas Population 85,000**

- **Single local RMS Packet server**
- **Two additional RMS Packet servers in adjacent Jefferson County**
- **Distant backup in Sabine county via high intermediate digipeater**
- **Permanent client installations plus communications trailer and portable gear.**
- **Adding RMS Relay with HF forwarding.**

# Winlink 2000: Implementation Strategies



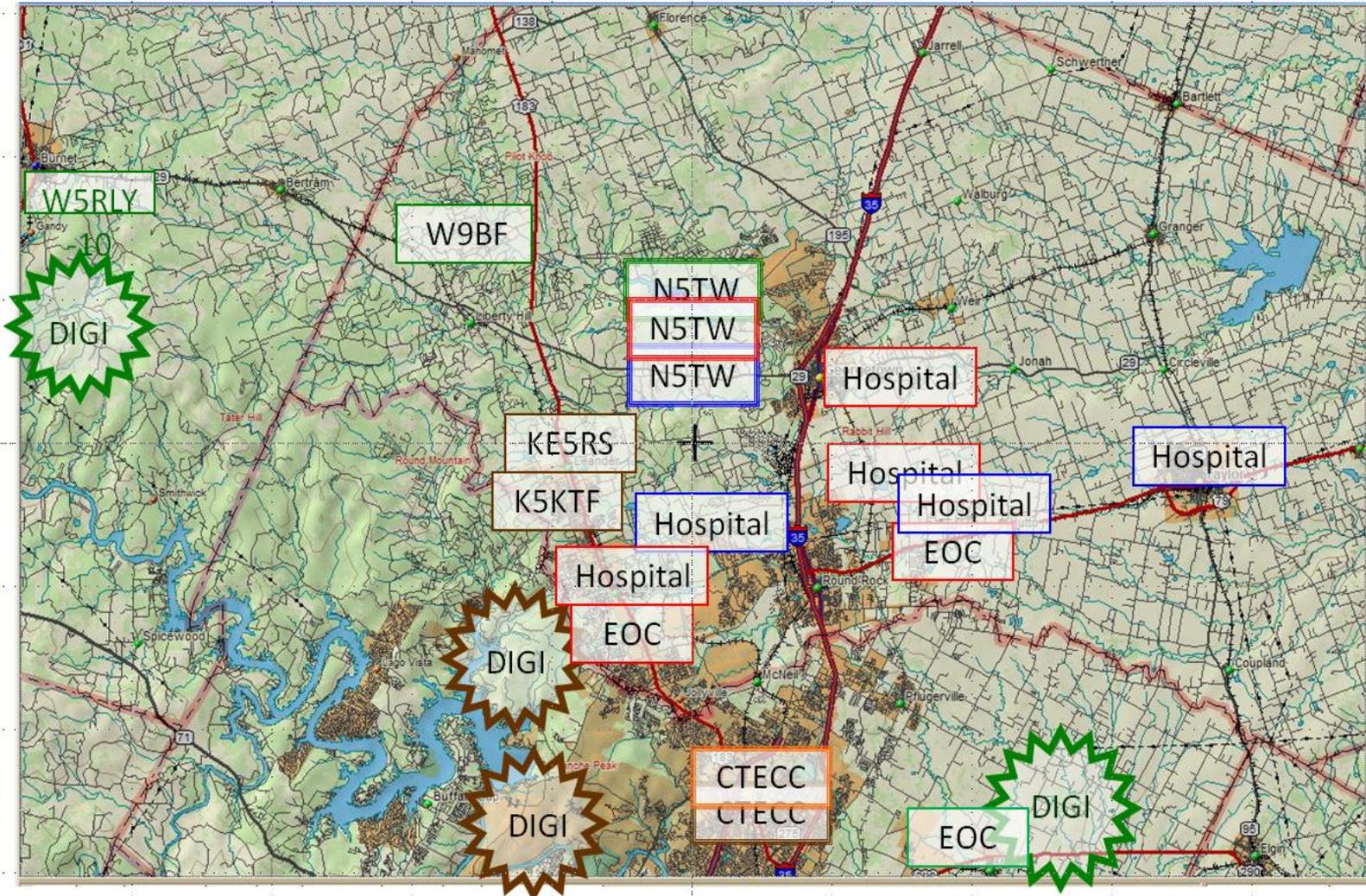
## Case 3: Larger Community Central Texas 1.5 million



# Winlink 2000: Implementation Strategies



## Case 3: Larger Community Central Texas 1.5 million



# Winlink 2000: Implementation

The screenshot displays the Winlink 2000 software interface with several active windows:

- RMS Pactor: N5TW-12**: Shows connection logs for station N0AJP, including 'CONNECTED To Station N0AJP' and 'DISCONNECTED From Station N0AJP'. It also displays beacon port activity.
- RMS Pactor: N5TW**: Shows technical details for Ch1: 3596.0 kHz P1.2.3, including RX and TX rates, and a list of call signs and frequencies.
- RMS Packet: N5TW-10**: Shows connection logs for station N0AJP, including 'CONNECTED To Station N0AJP' and 'DISCONNECTED From Station N0AJP'. It also displays beacon port activity.
- RMS Packet: N5TW-13**: Shows connection logs for station N0AJP, including 'CONNECTED To Station N0AJP' and 'DISCONNECTED From Station N0AJP'. It also displays beacon port activity.
- RMS Relay - N5TW**: Shows a status window with a 'Live Update' button and a message: '1:Fm W9BF-10 To BEACON <UI pid=F0 Len=52 >[12:19:25] W9BF-10 Winlink 2000 RMS Server Liberty Hill, Texas'.

The interface includes a taskbar at the bottom with the Windows Start button and several open application icons. The system tray shows the time as 12:19 PM.

# Winlink 2000: Implementation

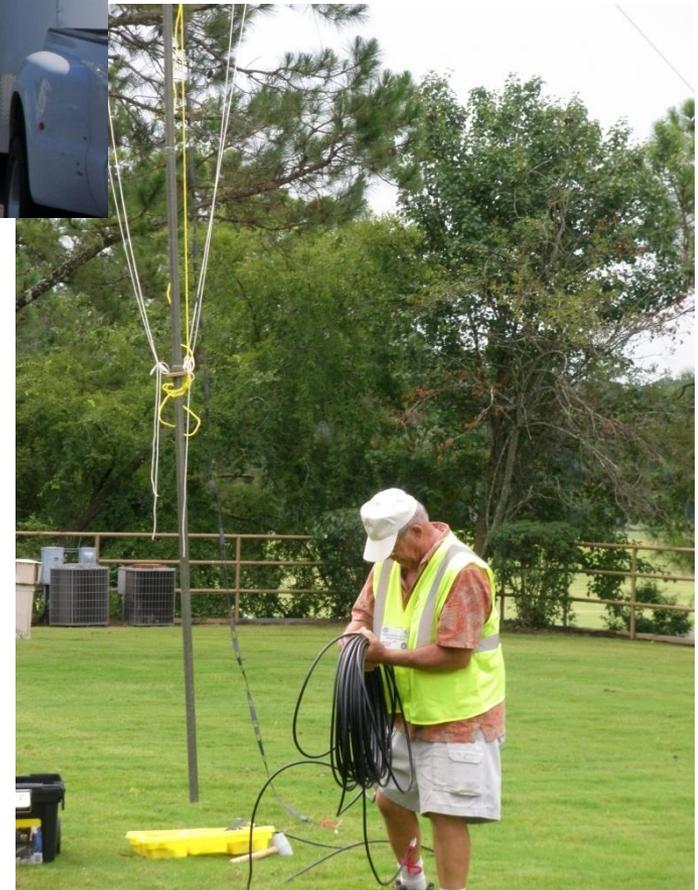
The screenshot displays the Winlink 2000 software interface with several windows open:

- RMS Packet: N5TW-12**: Shows Packet Channel Events and Telnet Channel Events. The Packet Channel Events include connections to station K5HTK-1 and disconnections. The Telnet Channel Events show a session with K5HTK-1, including callsign, password, and various commands like CMSTelnet, [WL2K-2.7.0.6-B2FWIHJMS], and [RMS Express-1.1.3-B2FHMS].
- RMS Packet: N5TW-10**: Shows Packet Channel Events and Telnet Channel Events. The Packet Channel Events include connections to station N0AJP and disconnections. The Telnet Channel Events show a session with N0AJP, including callsign, password, and various commands like [RMS Relay-2.2.3.4-B2F], [PR: 28245506], and [WOMAC DE N5TW (EM10CP)].
- HF Forwarding Session**: Shows session details for WOMAC, including frequency (7101.2), dial (7099.7 kHz), and various commands and data received.
- RMS Relay - N5TW**: Shows user links (0 / 2 / 12) and uptime (006:13:40).

The interface also includes a menu bar (File, Disconnect Link, Logs, Help) and a status bar at the bottom showing the time (12:45 PM) and system tray icons.

# Winlink 2000: Implementation Strategies

## Case 4: Forward deployed portable assets



# Winlink 2000:

## Summary

- Yahoo groups reflector WL2KEmComm:  
General questions, discussion on Winlink topics
- Yahoo groups reflector Winlink\_Programs\_Group.  
Helpful discussions about Winlink user programs.

- [www.Winlink.org](http://www.Winlink.org)



# Winlink 2000:

## Questions?

