

# MADISON COUNTY ARES/RACES

WINLINK2000  
RF EMAIL



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K4TTZ

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N4WGY

# What is Winlink2000?

- **A global messaging service**

From the beginning, **Winlink2000** was designed in a “Simple Mail Transfer Protocol” format so that it could provide direct radio users and Internet third-party users seamless, transparent email services with attachments of reasonable (*small*) size, efficiently and easily.

- Allows any mobile or portable operation to interface into the Internet e-mail system from virtually anywhere in the World over the various separate classes of users - Army MARS or the Amateur Service spectrum.
- Email accessible thru radio to internet gateways on HF, VHF, UHF.
- Peer to Peer messaging mode between client stations.

Common WL2K speeds over radio are 300, 500, 1200, 1600 and 9600 baud...plenty fast for text, not fast for file attachments like pictures. If attachment is necessary, less than 3kb in size works OK.

# What is Winlink2000?

- **Winlink2000** is a worldwide radio messaging system that, to conserve radio spectrum, takes advantage of the Internet where possible. Winlink2000 has been assisting the maritime community, NOAA, the United Nations, the US. Coast Guard and other agencies for over 8 years now. It is gaining attention of the greater emergency communications community due to recent domestic disasters.
- Several years ago, the Department of Homeland Security suggested to the **ARRL** that the Amateur community should design and maintain a national digital network for emergency communications purposes. Winlink2000 was their network of choice. Today, many ARRL Amateur Radio Emergency Service® (ARES) and Radio Amateur Civil Emergency Service (RACES) groups have been deploying Winlink2000 across the country.

# What is Winlink2000?

- **Internet, HF & VHF/UHF components :**

The **Winlink2000** system is a "star" based network containing 5 mirror image, redundant COMMON MESSAGE SERVERS (**CMS**); located in San Diego (USA), Washington DC (USA), Wien (Austria), Halifax (Canada), and Perth (Australia). These ensure that the system will remain in operation should any chunk of the Internet become inoperative.

Traffic goes in and out between the **CMS** and the Internet email recipient, and between the end users and the RADIO MESSAGE SERVER (**RMS**) gateways. Multiple Radio-to-Radio addresses may be mixed with radio-to-internet e-mail addresses, allowing good sender to recipient flexibility.

# Winlink2000 Network

**Winlink2000** appears complex, but each layer is simple. This image will grow as additional layers are added, representing the various Winlink components.

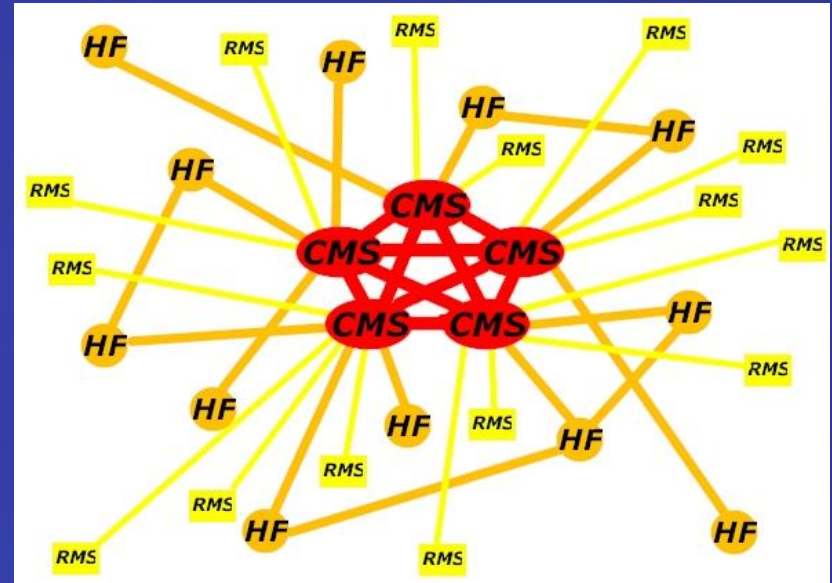
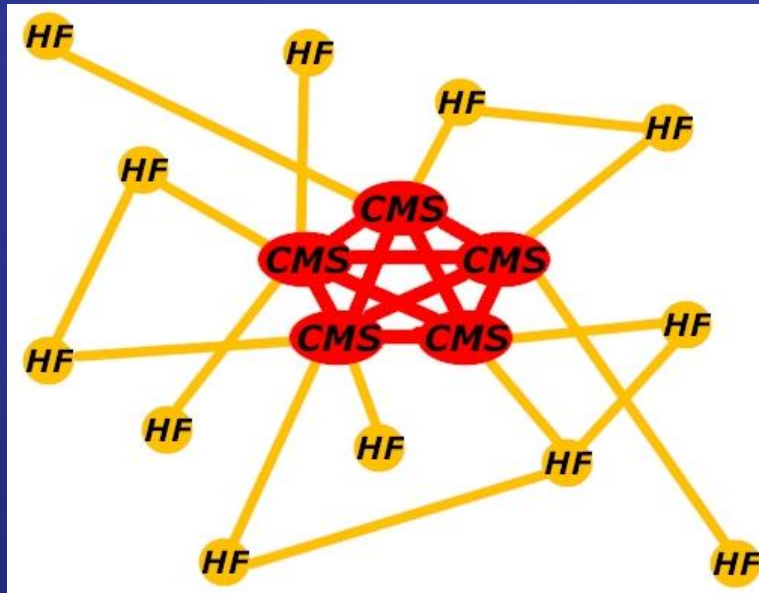


**Start** with 5 well-connected, mirror image, fully-redundant COMMON MESSAGE SERVERS (CMS) for the core; located in San Diego USA, Washington DC USA, Wien Austria, Halifax CA, and Perth Australia.

These connect **Winlink2000** to the Internet and handle regular email Communications for the registered winlink.org users around the world.

# Winlink2000 Network

Next add a series of HF listening stations that are connected to the internet.

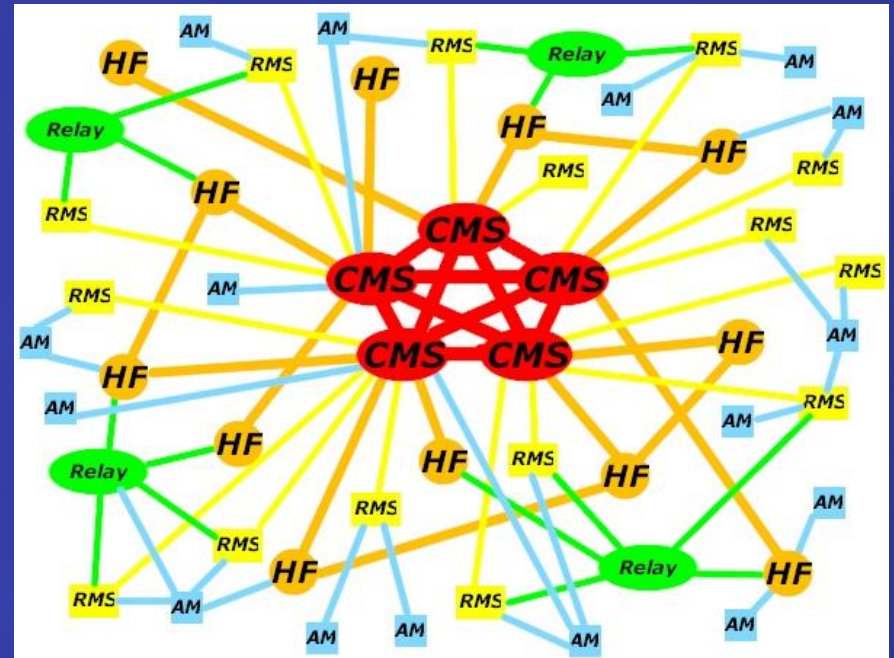
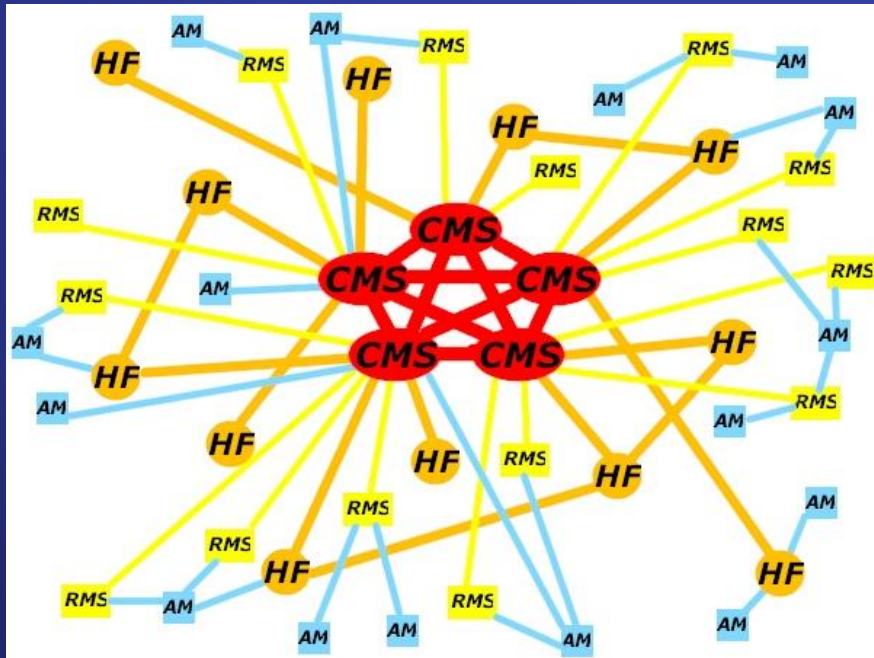


Add VHF and UHF RMS Gateways that listen for local traffic and are connected to the internet.



# Winlink2000 Network

To this expanding topology, we add your station, EOCs, my station, Emergency Management Agencies, and additional “Failover relays”.



Dstar repeaters and numerous other linking stations make up a very robust and efficient network to move your email traffic whenever it's needed

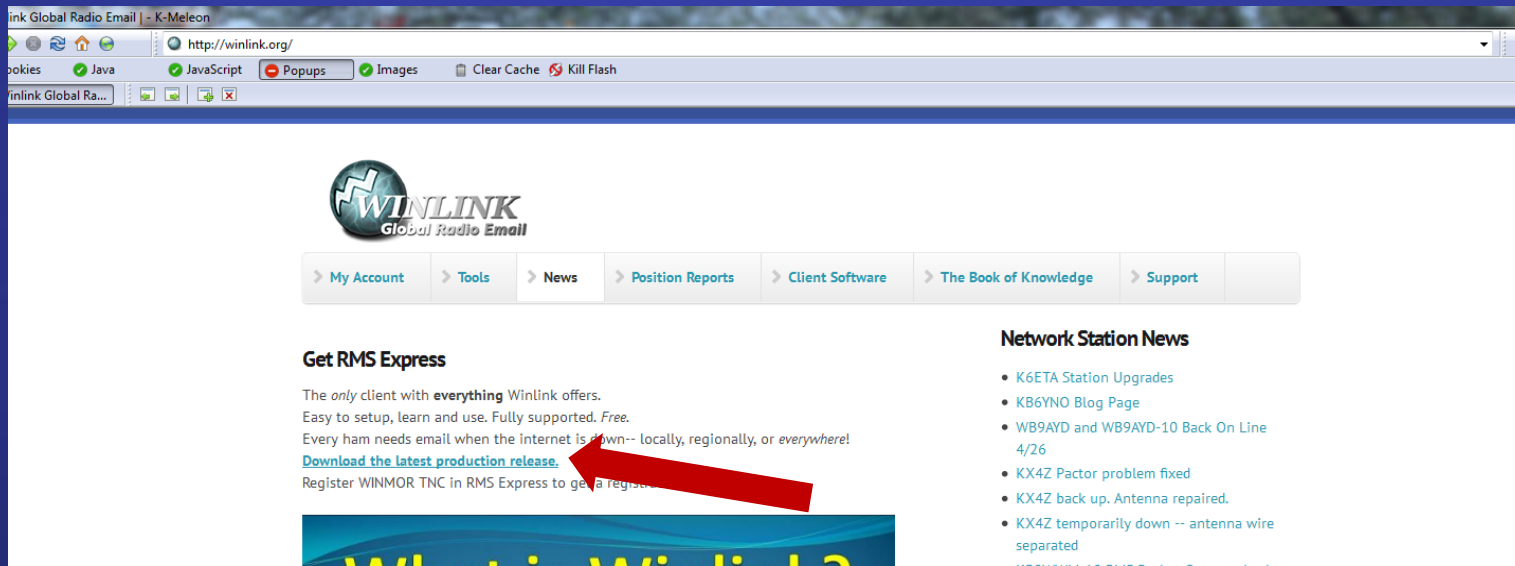
# WL2K Relays and Gateways

- The basic idea is to get your (email) message to the internet, and allow retrieval of messages sent to you.
- Access thru various gateways on HF, VHF, D-Star, and even APRS.
- A 'Relay' program allows a gateway station to hold the messages during an outage for relay later, or by way of an alternate HF station... The relay software can even allow local traffic to deliver locally.
- Currently, there are more than 15,000 radio users on all the classes of users and approximately 100,000 Internet recipients. Monthly traffic averages over 150,000 messages. The system is in place, and is working!!!



# Winlink.org

- The Winlink software packages are available at: <http://winlink.org> and at the top of that page you should see: “Download Latest Release”.



Download the “zip” file to a known folder, extract, and install. Once installed, open the program and go to “Files > RMSEExpress Setup” and fill out the information, Callsign, Aux Email, and Grid Square locator are essential. Leave password blank for the first time.

# RMS Express Setup

**RMS Express Properties**

**Call Signs**

My Callsign:  My Password:

Require password on connections. (Enable Secure Login.)  Show password

Callsign suffix (optional):  (Used for country code)

Password recovery e-mail:   
(Non-Winlink e-mail address where lost password will be sent when requested)

**Auxiliary Callsigns and Tactical Addresses**

My Grid Square:

RMS Express registration key:

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.

**Contact Information (Optional)**

Name:

Street address 1:

Street address 2:

City:

State/Province:

Country:

Postal code:

Web Site URL (optional):

Phone number:

Non-Winlink e-mail:

Additional information (optional):

Recalculate HF path quality if SFI changes more than:

Keep logs for  weeks. Keep deleted messages for  days.

Display list of pending incoming messages prior to download

Warn about connections to stations holding messages

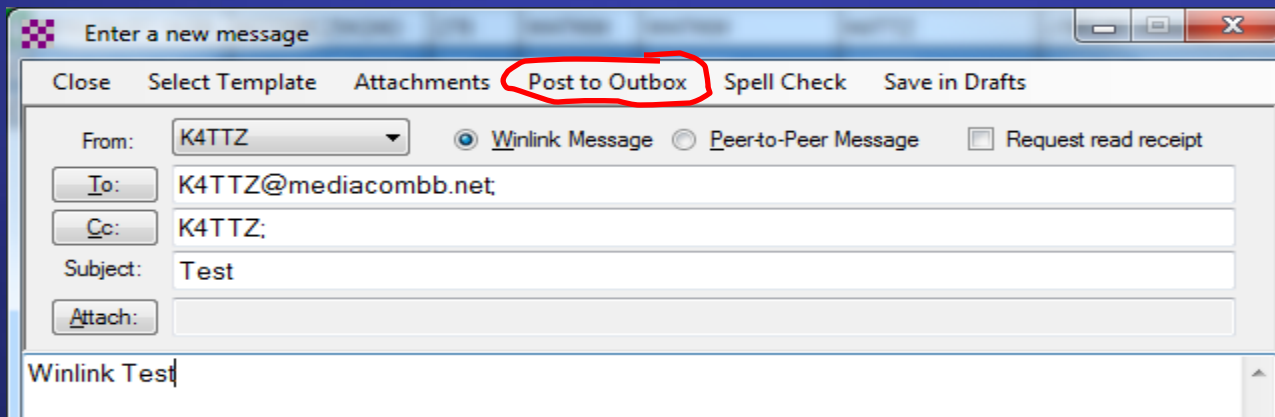
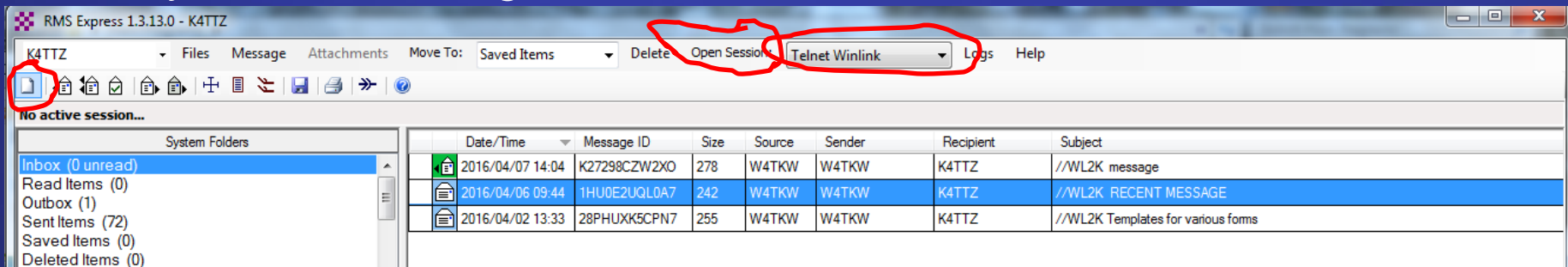
Disable Peer-To-Peer Message Transfer

Allow diagnostic information to be sent to the Winlink Development Team

Automatically install field-test (beta) versions of RMS Express

# RMS Express Setup

- Now that you have installed and setup RMS Express, go to the upper left and choose “new message”. Create a message with your Aux email address in the “To” box and your callsign in the “CC” box. The subject is Test. Add something like Test in the body of the message.



# RMS Express Setup

- Once your message is complete, click on “Post to Outbox” and it will show in the upper left of your screen in the Outbox(1),
- Select Winlink Telnet and then “Open Session”
- Once the open session window comes up, click on “Start”.
- You will see the handshake between you and the CMS server and the message will be sent. The “Outbox” will now be empty.
- Now return to Winlink.org and choose “My Account” at the top left.
- Go to “Password Recovery, fill in your Callsign and click “Send Password”.
- A new Winlink password will be sent to your **AUX email account**.
- Return to My Account, and enter it in the upper password area.
- Your account is now activated and you can change your password to something you like.

The screenshot shows the Winlink.org user account page. The browser address bar shows 'winlink.org/user'. The page content includes a list of requirements for an account, a 'Log in' button, and a 'Password Assignments & Recovery' section. The 'Password Assignments & Recovery' section has a 'Forgot your password? Never had one?' link and a 'Send my password' button. The 'Callsign (Username)' field is highlighted with a red circle, and the 'Password' field is also highlighted with a red circle. The 'Send my password' button is also highlighted with a red circle.

winlink.org/user

- A valid amateur radio license, or
- a license from a participating government service or agency.

Ship station or marine licenses do not qualify.

Log in

### How To Get an Account

1. Download, install and configure any [client software](#). We suggest [RMS Express](#). Study its help about installation and use.
2. Using RMS Express, follow the account creation instructions presented by the program, *and ignore what follows*. RMS Express makes the process very easy. If you use another client, proceed...
3. Connect with the system (send a message) to create your account. *Do not use a password on your first connection*. Your radio email address is `YOURCALL@winlink.org`. A message containing your password will be

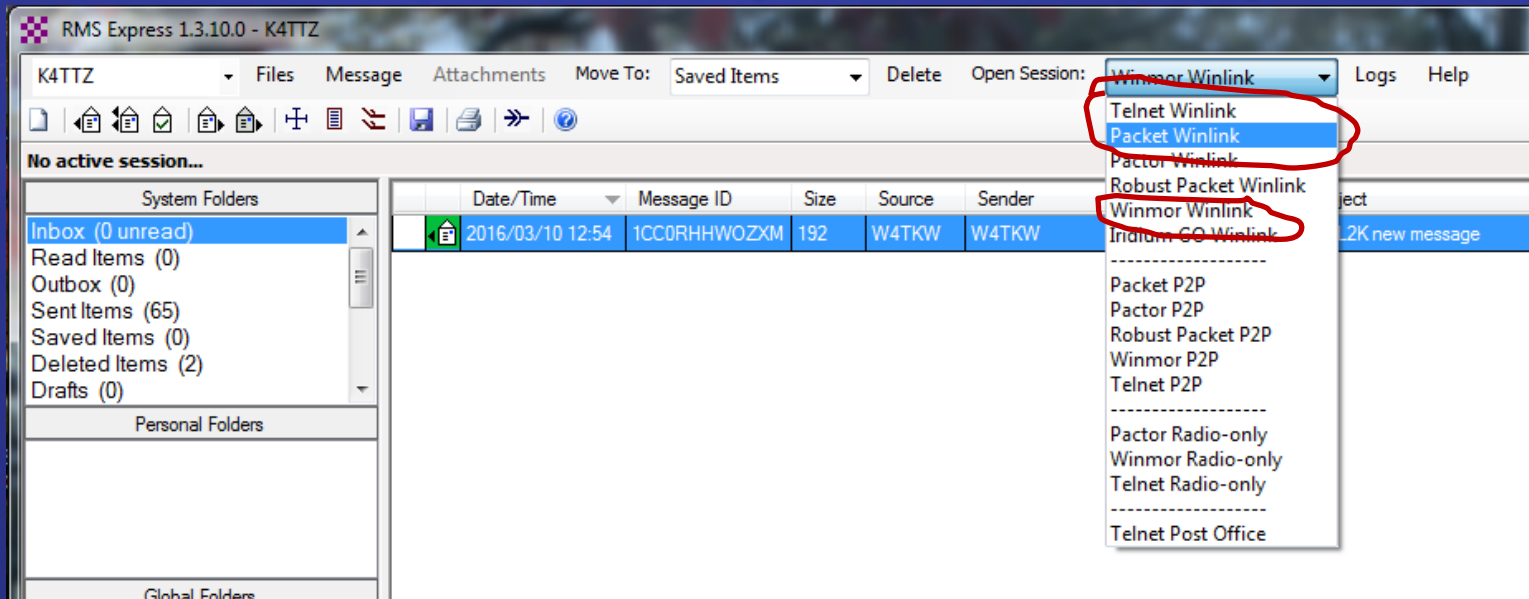
### Password Assignments & Recovery

Forgot your password? Never had one?  
We will send yours to you, or if you are without we will send a fresh one.  
We always send it to your `@winlink.org` address or wherever you have it forwarded.

Enter the password that accompanies your username.

Send my password

# RMS Express Setup

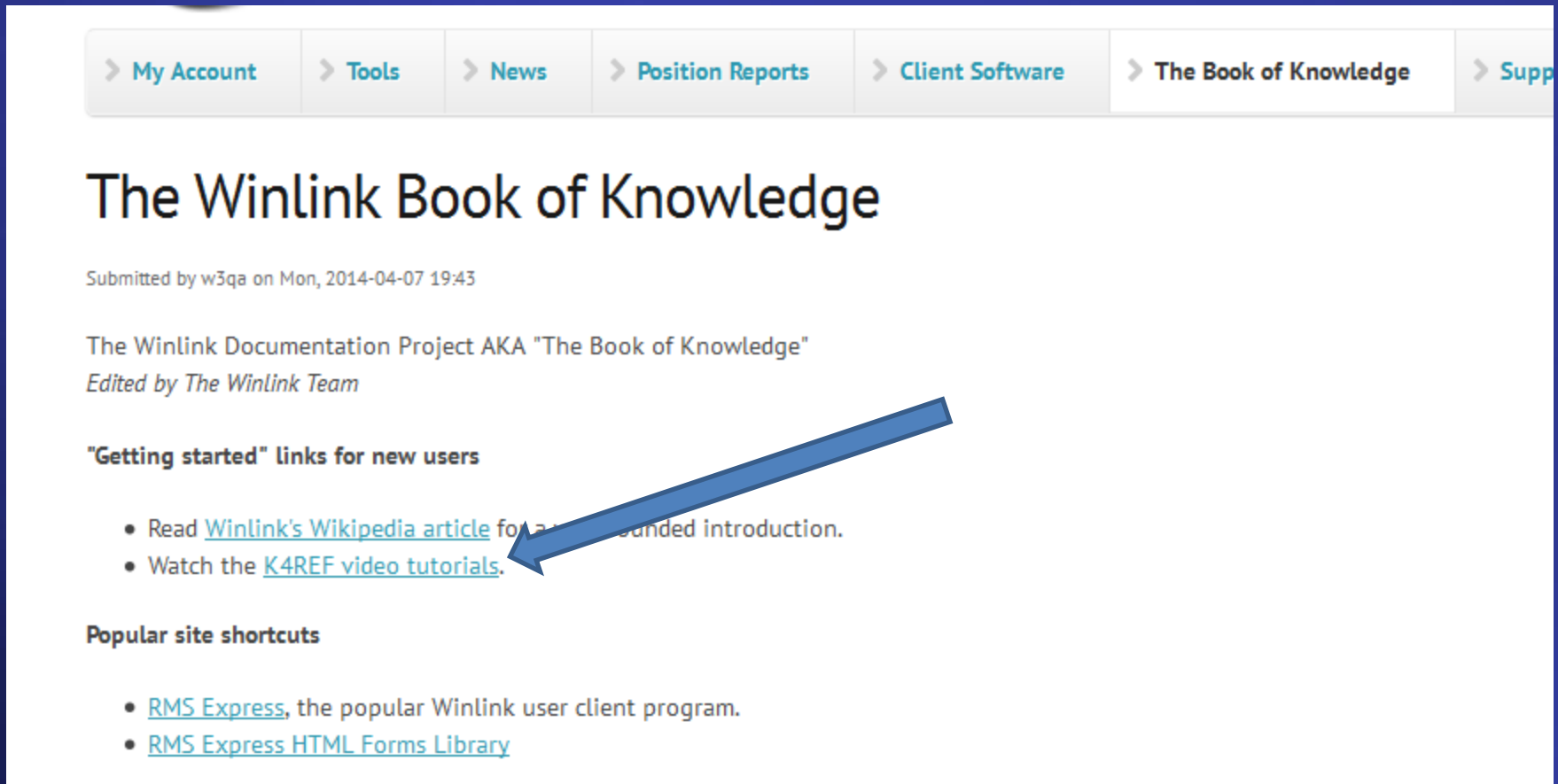


Once installed, it has the “look and feel” of a normal email program. We will normally use only three of the session options. Telnet Winlink=internet, Packet Winlink= 2 M VHF (N4WGY’s Redstone Gateway normally), and Winmor Winlink=HF.



# RMS Express Setup

Complete video setup instructions are under “The Book of Knowledge” tab on the Winlink.org page



> [My Account](#) > [Tools](#) > [News](#) > [Position Reports](#) > [Client Software](#) > [The Book of Knowledge](#) > [Supp](#)

## The Winlink Book of Knowledge

Submitted by w3qa on Mon, 2014-04-07 19:43

The Winlink Documentation Project AKA "The Book of Knowledge"  
*Edited by The Winlink Team*

**"Getting started" links for new users**

- Read [Winlink's Wikipedia article](#) for a brief, rounded introduction.
- Watch the [K4REF video tutorials](#).

**Popular site shortcuts**

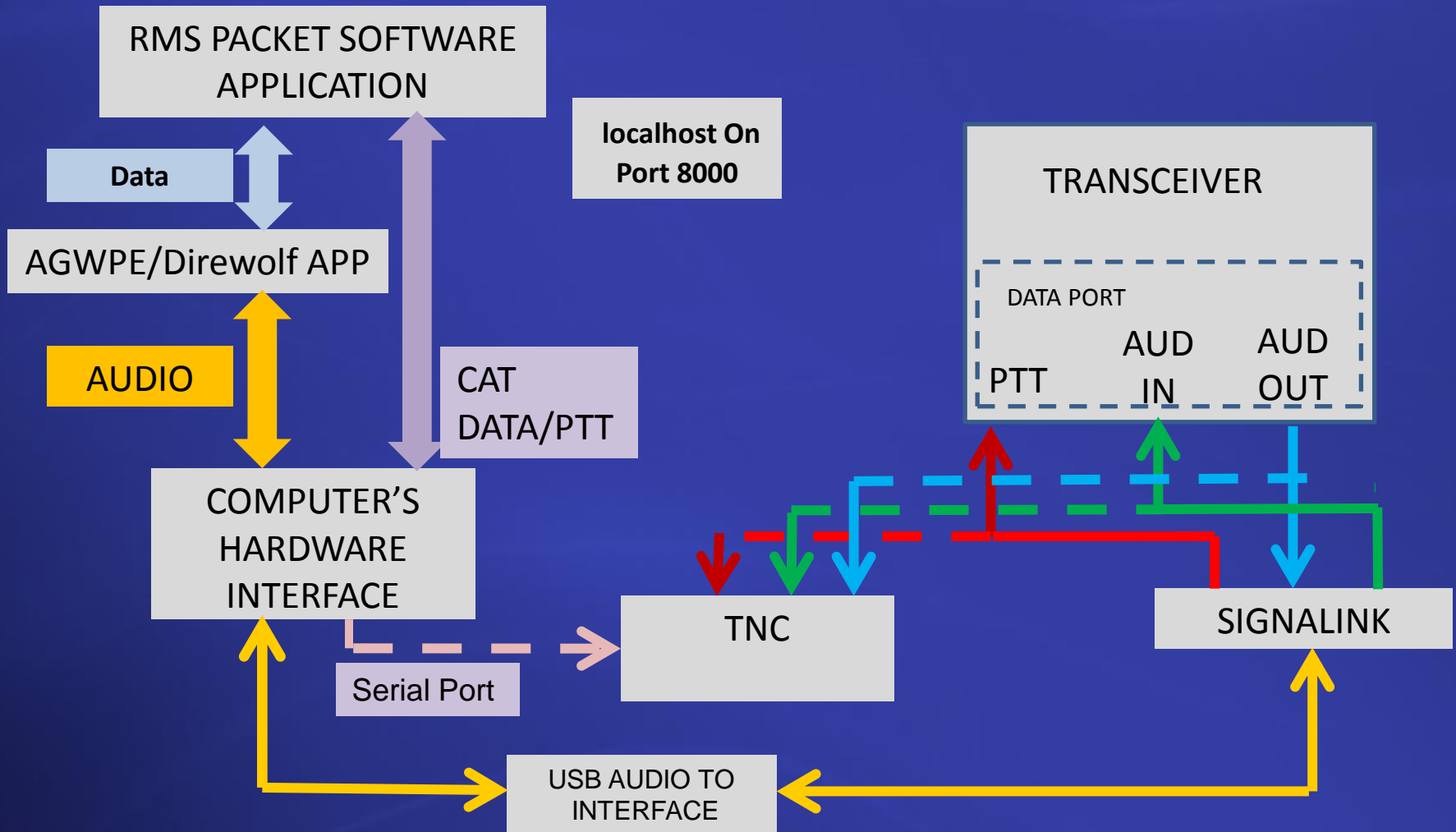
- [RMS Express](#), the popular Winlink user client program.
- [RMS Express HTML Forms Library](#)

# RMS Express Hardware

- Winlink “Telnet” session only requires the RMS Express software on a computer with an internet connection.
- Winlink “Packet” session requires a UHF/VHF radio, a TNC (Terminal Node Controller) or Audio interface, interconnect cables, and a computer with RMS Express installed. If you use an audio interface, you will need additional software such as AGW Packet Engine, Direwolf or AGW Express Interface.
- Winlink “Winmor” HF session requires an operational HF radio with multi-band capabilities (depends on band conditions), an audio interface, appropriate cabling, and RMS Express software on a computer.

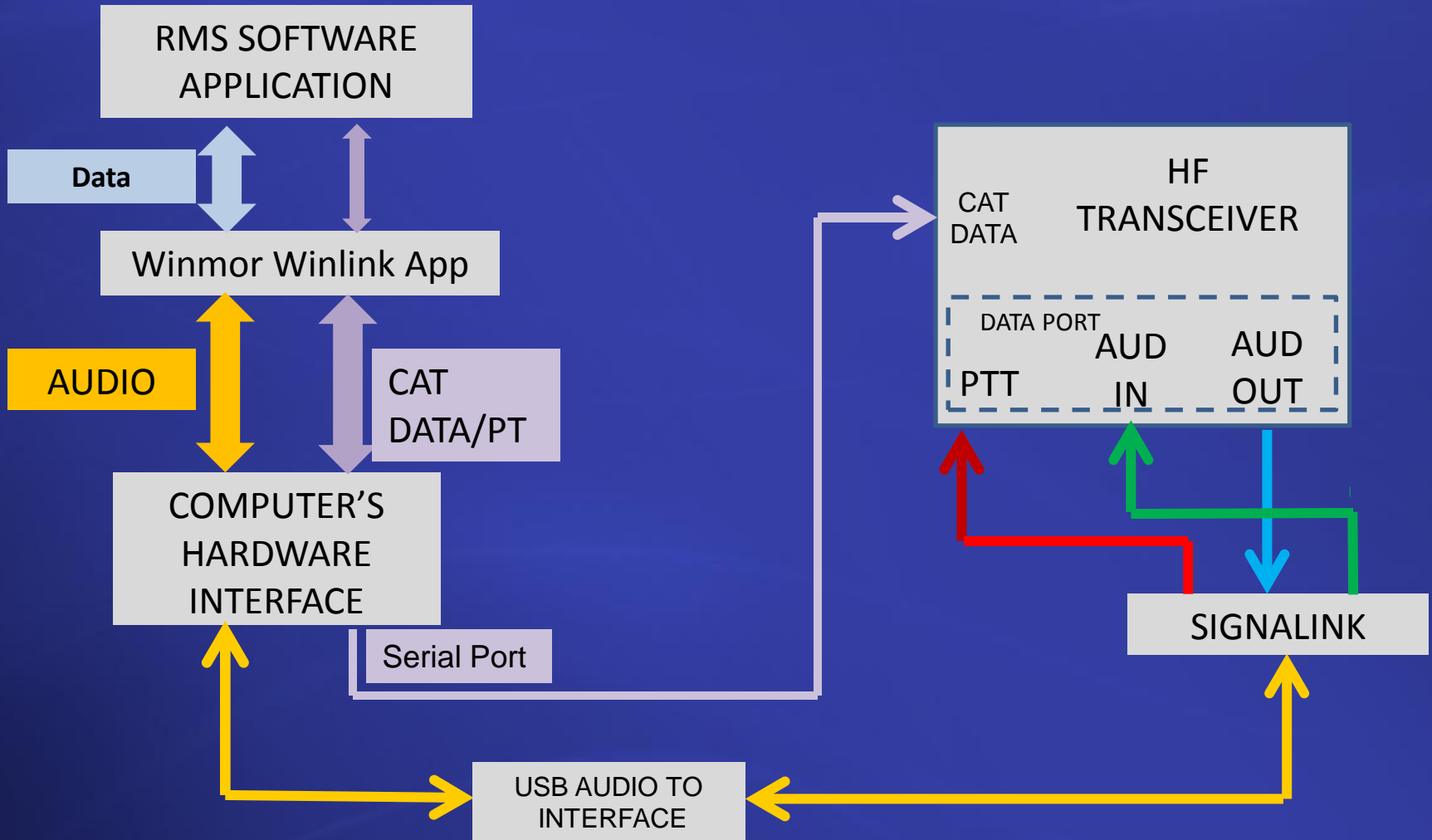
# RMS Express Hardware

## RMS Express Packet



# RMS Express Hardware

## RMS Express Winmor HF



# RMS Express Software

RMS Express 1.3.13.0 - K4TTZ

K4TTZ Files Message Attachments Move To: Saved Items Delete Open Session: Packet Winlink Logs Help

No active session...

System Folders

- Inbox (0 unread)
- Read Items (0)
- Outbox (1)
- Sent Items (72)
- Saved Items (0)
- Deleted Items (0)
- Drafts (0)

Personal Folders

Global Folders

Contacts

- dennisape@enrgies.com
- K4TTZ
- k4ttz.hmc@gmail.com
- k4ttz@mediacombb.net
- k4ttz@meidaacombb.net
- KK5H
- KM4CJ
- n1vfu@myfairpoint.net
- N4MIU
- N4WGY
- W4TKW
- waynereed@enrgies.com
- WB5RMB
- WX4AL
- wx4al@winlink2000.org

Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
2016/04/07 14:04	K27298CZW2X0	278	W4TKW	W4TKW	K4TTZ	//WL2K message
2016/04/06 09:44	1HU0E2UQL0A7	242	W4TKW			
2016/04/02 13:33	28PHUXK5CPN7	255	W4TKW			

Message ID: 1HU0E2UQL0A7  
Date: 2016/04/06 09:44  
From: W4TKW  
To: K4TTZ  
Source: W4TKW  
Downloaded-from: RMS:N4WGY-10  
Subject: //WL2K RECENT MESSAGE

Wayne did you get a message from me regard

Enter a new message

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

From: K4TTZ  Winlink Message  Peerto-Peer Message  Request read receipt

To:

Cc:

Subject:

Attach:



# RMS Express Software

## RMS Express Packet

**1** Open Session: Packet Winlink

**2** Open Session: Packet Winlink

**3** Start

**4** Setup

**5** Packet Winlink/P2P Setup

**6** Start

**Choose then close**

**Choose then update**

Packet Channel Selector

Callsign	Frequency (MHz)	Baud	Grid Square	Distance	Bearing (degrees)
N4WGY-10	145.090	1200	EM64QQ		180
WC4EOC-9	440.950	9600	EM65PW		357
W8JFP-10	145.090	1200	EM65MX		347
N8QB-10	145.010	1200	EM63OQ		187
W4PHS-7	441.000	9600	EM66NA		350
AB4WL-10	145.030	1200	EM63OO	PUBLIC	087 186
W4GHD-9	145.070	9600	EM66OD	PUBLIC	090 354
WB4TNH-10	440.975	1200	EM66OD	PUBLIC	090 354
KJ4JX-10	145.750	1200	EM74LN	PUBLIC	093 102
WE4HOE-10	145.050	1200	EM63OL	PUBLIC	095 186

# RMS Express Software

The screenshot displays the RMS Express 1.3.12.0 software interface. The title bar reads "RMS Express 1.3.12.0 - K4TTZ". The menu bar includes "K4TTZ", "Files", "Message", "Attachments", "Move To: Saved Items", "Delete", "Open Session: Packet Winlink", "Logs", and "Help". A yellow circle highlights the "Logs" menu item. The main window is divided into three sections: a left sidebar for folders and contacts, a central message list, and a bottom message details pane.

**System Folders:**

- Inbox (0 unread)
- Read Items (0)
- Outbox (1)
- Sent Items (70)
- Saved Items (0)
- Deleted Items (10)
- Drafts (0)

**Personal Folders:**

**Global Folders:**

**Contacts:**

- dennisape@enrgies.com
- K4TTZ
- k4ttz.hmc@gmail.com
- k4ttz@mediacombb.net
- k4ttz@meidaacombb.net
- KK5H
- KM4CJ
- n1vfu@myfairpoint.net
- N4MIU
- N4WGY
- W4TKW
- waynereed@enrgies.com
- WB5RMB
- WX4AL
- wx4al@winlink2000.org

**Message List:**

Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
2016/04/09 00:34	YYKZSU3YWD6C	251	K4TTZ	K4TTZ	W4TKW	TEST

**Message Details:**

Message ID: YYKZSU3YWD6C  
Date: 2016/04/09 00:34  
From: K4TTZ  
To: W4TKW  
Source: K4TTZ  
Subject: TEST

Hi Tom,

# RMS Express Hardware

## RMS Express Winmor HF

3

Winmor Winlink Session -

Exit Setup Switch to Peer-to-Peer

WINMOR TNC Setup

Radio Setup

Transmit Level Test

DSP Speed Test

Best channel setup...

AJ4GU Center

Favorites:

Channel Free In: 0/0 Out: 0/0

Ready

2

Winmor Winlink

Delete Open Session Winmor Winlink

Source	Sender	Recipient	Subject
W4TKW	W4TKW	K4TTZ	//WL2K new message

1

Winmor Winlink Settings

Radio Selection

Select Radio Model: Yaesu FT-950

Antenna: Default

Icom Address: 00

USB  USB Digital

Use Internal Tuner

Radio Control Port

Serial Port to Use: COM5

Baud: 9600

Enable RTS  Enable DTR  TTL

PTT Port (Optional)

Serial Port to Use: External

Baud: 9600

Enable RTS  Enable DTR

Update Close

4

WINMOR Sound Card TNC Ver:1.5.8.0 Port:8000

Help Hide Send ID

Connection State

DISCONNECTED

TCP Capture OK

Receive

Rcv Level: [Progress Bar]

Remote Station Offset: 0 Hz

Rcv Frame: [Text Box]

Busy Detector: Channel Clear

Squelch: 5

Transmit

0 Avg ACK Percentage 100

Xmt Frame: [Text Box]

Waterfall Spectrum Disable

Waterfall 2KHz

Constellation

k4tz@mediacombb.net

k4tz@mediacombb.net

KK5H

KM4CJ

n1vfu@myfairpoint.net

N4MIU

N4WGY

W4TKW

Wayne let me know if you get this message tom

# RMS Express Hardware

## RMS Express Winmor HF

The image shows a screenshot of the Winmor Winlink software interface. A large number '5' is overlaid on the 'Setup' menu item in the top-left window. A second large number '6' is overlaid on the 'Update' button in the 'WINMOR Setup' dialog box. The 'WINMOR Setup' dialog box is the central focus, with a red circle around its title bar and content area. It contains the following fields and controls:

- Identify with Morse Code:
- WINMOR Capture Device: Microphone (USB Audio CODEC )-a9
- WINMOR Playback Device: Speakers (USB Audio CODEC )-a4
- Virtual TNC host address/name: 127.0.0.1
- Virtual TNC Command Port: 8000
- Data Port: 001
- Inbound Session Bandwidth (Hz): 500
- Drive: 90
- Buttons: Update, Cancel

Other visible interface elements include:

- Top window: 'WINMOR TNC Setup' menu, 'Radio Setup', 'Transmit Level Test', 'DSP Speed Test', 'Best channel setup...'
- Frequency display: 7088.000 (kHz), Bearing: 121
- Message list: Recipient (K4TTZ), Subject (//WL2K new message)
- Bottom window: 'Transmit' section with 'Avg ACK Percentage' (0 to 100) and 'Xmt Frame' field.
- Bottom-right window: 'Receive' section with 'Rcv Level' bar, 'Remote Station Offset: 0 Hz', 'Busy Detector' (Channel Clear), 'Squelch: 5', and a 'Waterfall 2KHz' display.



# RMS Express Hardware

## RMS Express Winmor HF

**7** Channel Selection Forecast Best chan. Next chan. Hide TNC **Start**

Exit Setup Switch to  
AJ4GU Ce (kHz): 7089.500 Dial Freq. (kHz): 7088.000 Bearing: 121

Favorites: Select Add to favorites Remove from favorites

Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected

\*\*\* Ready

**8**

**9** nor Winlink Logs Help

Recipient Subject

**HF Channel Selector**

Exit Select Update Table Via Internet Update Table Via Radio Forecast SFI All RMS

Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (mi)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
WB9FHP-5	7075.500	500	EM68SM	13-02	PUBLIC	254	002	75	47
K9BBS-5	7080.000	500	EM68SR	00-23	PUBLIC	268	002	75	47
<b>AJ4GU</b>	<b>7089.500</b>	<b>500</b>	<b>EM83AL</b>	<b>00-23</b>	<b>PUBLIC</b>	<b>180</b>	<b>121</b>	<b>74</b>	<b>46</b>
KB5OZE-5	10134.500	500	EL49WU	00-23	PUBLIC	401	212	63	45
N0MTH-10	7104.400	1600	EM48UM	00-23	PUBLIC	324	322	70	45
KB5OZE	10134.500	500	EL49WU	00-23	PUBLIC	401	212	63	45
WA6UVV	14117.500	500						44	44
K9ANF-5	7072.000	500						44	44
N0IA	10146.000	1600						44	44
N0IA	10141.000	1600						44	44
KI4WPI	14096.100	1600						44	44
K9ANF-5	7101.000	1600						44	44
AD5XJ	10136.500	500						44	44
N9LOH-5	10134.500	500						43	43
W5SEG	14098.000	500	EL19AN	00-23	PUBLIC	755	244	59	43
XE1SVT	21102.500	1600	EK09VA	00-23	PUBLIC	1302	216	56	42
XE1CRG	21102.500	1600	DL90HQ	00-23	PUBLIC	1326	226	54	41

**Choose the closest station with the best propagation for given band conditions then double click. This will set your transceiver to the proper center freq.**

K4TTZ  
k4ttz.hmc@gmail.com  
k4ttz@mediacombb.net  
k4ttz@meidacombb.net  
KK5H  
KM4CJ  
n1vfu@myfairpoint.net  
N4MIU  
N4WGY  
W4TKW



# RMS Express Software

RMS Express 1.3.10.0 - K4TTZ

K4TTZ Files Message Attachments Move To: Saved Items Delete Open Session: Telnet Winlink Logs Help

No active session...

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2016/03/22 00:07	TBU8SH05EQUX	205	K4TTZ	K4TTZ	W4TKW	//WL2K Test Email

**System Folders**

- Inbox (0 unread)
- Read Items (0)
- Outbox (1)
- Sent Items (67)
- Saved Items (0)
- Deleted Items (9)
- Drafts (0)

**Personal Folders**

**Global Folders**

**Contacts**

- dennisape@enrgies.com
- K4TTZ
- k4ttz.hmc@gmail.com
- k4ttz@mediacombb.net
- k4ttz@meidaacombb.net
- KK5H
- KM4CJ
- n1vfu@myfairpoint.net
- N4MIU
- N4WGY
- W4TKW
- waynereed@enrgies.com
- WB5RMB
- WX4AL
- wx4al@winlink2000.org

Message ID: TBU8SH05EQUX  
Date: 2016/03/22 00:07  
From: K4TTZ  
To: W4TKW  
Source: K4TTZ  
Subject: //WL2K Test Email

This is a test email for a presentation next month.

Wayne  
K4TTZ

# RMS Express Software

## RMS Express Winmor HF

- This demonstration uses transceiver CAT control
- If Radio is not automatically controlled, then the operator must set the dial and center TX frequencies manually.
- Once set on the gateway frequency from the list, all that is needed is PTT, Audio-in, and Audio-out.
- If using a Signalink, PTT is handled by the device.
- RMS Express can use most standard ICS and HICA forms. At [Winlink.org](http://Winlink.org) >"Book of Knowledge"> Forms Library. Watch the recommended videos on Use of Forms.

**NOW LET'S WATCH A FULL TRANSMISSION!**

# RMS Express Software

## RMS Express Winmor HF

The image displays the RMS Express Winmor HF software interface, which emulates a Yaesu FT-950 HF transceiver. The main window, titled "PCC for FT-950", features a menu bar (File, Setup, Option, Prmtrc, Help) and a control panel with various knobs, buttons, and a digital display. The display shows the frequency 7.088.000 and a mode of "BUSY".

Below the radio interface, two smaller windows are visible:

- Winmor Winlink Session - K4TTZ**: This window shows session details for station AJ4GU. It includes fields for Center Freq. (kHz) at 7089.500, Dial Freq. (kHz) at 7088.000, and Bearing at 121. The status is "Disconnected".
- WINMOR Sound Card TNC Ver:1.5.8.0 Port:8000**: This window displays connection status as "DISCONNECTED" and "TCP". It includes a "Receive" section with a "Rcv Level" bar and a "Remote Station Offset" of 0 Hz. The "Transmit" section shows an "Avg ACK Percentage" of 100. A "Waterfall 2KHz" display is visible, showing a spectrum of activity between 500 and 2500 kHz.

The desktop background shows various icons, including "Microsoft Outlook 2010", "Microsoft Word 2010", and "Microsoft Publish...". The taskbar at the bottom includes icons for "putty", "RMS Express", "WSPR", "APRSIS32 - Shortcut", "direwolf - Shortcut", "Fldigi 3.22.13fldmsg 2.0.5", "Flarq 4.3.5", and "flamp 2.2.0".

# RMS Express Software

Thanks for Watching!  
QUESTIONS????