



# Getting Started with *Winlink 2000*

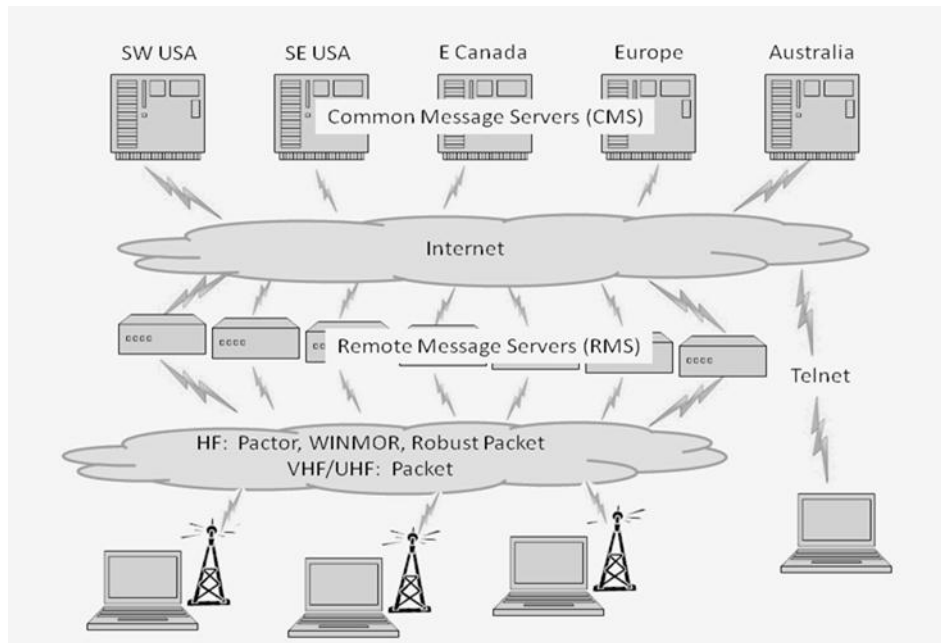


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## Introduction to Winlink:

*Winlink 2000*<sup>™</sup> ([www.Winlink.org](http://www.Winlink.org)) is a worldwide system for sending and receiving e-mail over radio. Since the connection from the client computer to the Winlink server does not depend on the Internet, Winlink is widely used by mariners, RV campers, missionaries, and various agencies who need to communicate when the Internet is not available.



The Winlink system consists of a group of Common Message Servers (CMS) placed at various locations around the world. These servers connect via the Internet to Radio Message Servers (RMS) in many geographic locations to form a star network configuration. The Radio Message Servers are the VHF, UHF, or HF RF gateway into the Winlink system. The final component is the client computer (i.e., your computer) which runs software to send/receive messages through your radio.

Like regular e-mail, Winlink messages are sent to a specific address, and they may contain file attachments such as pictures, weather maps, spreadsheets, ICS forms, etc. E-mails can be sent between Winlink stations and normal SMTP/POP3 e-mail servers such as gmail.com.

The ability of Winlink to transfer messages between system with different capabilities (VHF/UHF, HF, and standard e-mail) greatly increases interoperability in an emergency system. Also, since Winlink is a store-and-forward system, stations do not have to make simultaneous connections; this removes time constraints on communication.

Winlink is heavily used by the U.S. and other governments, and many of the Radio Message Servers are restricted to non-amateur operations since they operate on non-amateur frequencies.

It is also possible to make direct, **peer-to-peer**, connections between two client computers (radio stations) that are within radio propagation range without going through a RMS. There are several situations where peer-to-peer connections are useful: (1) in a major emergency operation, traffic through the Winlink system may be very heavy, so a direct connection between two stations reduces the load on RMS and the Winlink system; (2) a station equipped only with VHF/UHF could make a peer-to-peer connection to a station with VHF/UHF and HF capability, and the second station could then forward the message into the Winlink system using HF.

Remember that e-mails sent through Winlink on the ham bands must follow the usual rules for amateur radio communication, and thus, may not be used for commercial operations, they may not be encrypted, and third-party traffic rules apply. Winlink messages are monitored by Winlink administrators.

You can visit this site to check the current status of RMS servers:

<http://www.Winlink.org/RMSHFStatus>

## **Winlink Connection Modes**

There are four pathways for client computers to connect to the Winlink system:

- Via HF radio to one of the RMS hubs.
- Via VHF/UHF radio to a local RMS hub.
- Via the Telnet protocol over the Internet.
- Via Winlink WEBMAIL over the Internet.

Telnet connections are useful for testing the Winlink client software, but since the connection operates over the Internet, there isn't much advantage over using a regular e-mail service other than being good practice while learning to use the various Winlink client programs, or to keep from cluttering up the amateur spectrum, needlessly, during an emergency. The RMS Express program that is described in this paper works with all connection modes.

## VHF/UHF Winlink Operation

Local area connections to a Winlink RMS server can be made over VHF/UHF connections if you have a local RMS hub. This type of connection uses the AX.25 packet protocol, which is different from HF transmissions, and it requires a specific type of modem. If you wish to connect to Winlink through a VHF/UHF packet system, a 1200 or 9600 baud packet modem is required; the modem speed must match the capabilities of the local RMS node. The Kantronics KPC-9612+ (<http://www.kantronics.com/products/kpc9612.html>) modem is recommended for 9600 baud; it costs about \$400. The Byonics TinyTrack4 (<http://www.byonics.com/tinytrak4/>) is recommended for 1200 baud; it costs about \$100 including cable. Because VHF/UHF Winlink connections depend on having the local radio system and local Internet infrastructure operational, they are less well suited for emergency communications than Winlink via HF. The focus of this paper will be on Winlink operations over HF rather than VHF/UHF.

## HF Winlink Operation

Using HF radio frequencies, it is possible to connect into the Winlink system over long distances. In fact, one of the most popular uses is by mariners who need weather information, and who wish to contact family and friends via e-mail while cruising the high seas. HF Winlink provides a means of sending and receiving e-mails even if the Internet is unavailable or the local infrastructure is down. Thus, HF radio e-mail is a valuable resource for emergency situations.

As with all digital modes, certain protocols are used to encode data into a form that can be transmitted over the radio. This encoding process converts data bits into modulated sound signals that are then transmitted over radio waves. Two protocols are used for sending Winlink messages over HF:

- **Pactor 3** – Pactor 3 is a superior protocol that has proven itself by reliably sending data over long distances even with weak signals over extremely noisy conditions. Pactor 3 is becoming the standard used by most sailors and emergency organizations for HF contingency communications. Unfortunately, Pactor 3 is a proprietary protocol that requires a specific modem that costs about \$1,400. If you can afford an ocean-going sailboat, or have a provided budget for a radio system, the price of the modem is not bad, but it's out of the budget for most ordinary hams who really don't "need" it for their communications.
- **Pactor 4** – The new P4Dragon (DR-7400 and DR-7800) Pactor modems from SCS (<http://www.p4dragon.com/en/Home.html>) provides the Pactor 4 protocol which is twice as fast as Pactor 3. However, the P4Dragon modem is even more expensive than the Pactor 3 modem, and, due to archaic FCC rules, it is not allowed to operator Pactor 4 on ham bands in the USA.
- **WINMOR** – WINMOR was developed by the Winlink Development Team as a low cost alternative to Pactor 3. WINMOR is an open (not proprietary) protocol, and it operates through low cost sound interface equipment such as the Signalink USB™. The tradeoff is that WINMOR is not as reliable or as fast as Pactor 3, but it beats anything else available to the amateur operator.

Both Pactor and WINMOR include error correction and retransmission capabilities as well as data compression. Here is a comparison of the Pactor modes, and WINMOR showing (1) the protocol, (2) the maximum bits/second transfer rate under ideal conditions, (3) the bandwidth (Hz) used by the transmission, and (4) the approximate cost of the equipment. A Signalink external soundcard is recommended for Winmor; it costs about \$100. Note: some modern radios like the Icom 7200 and 7600 include built-in USB soundcards that work well with Winmor, so no additional hardware is required.

| Modem         | Rate bits/sec (max) | Bandwidth                               | Cost (approx)                       |
|---------------|---------------------|-----------------------------------------|-------------------------------------|
| Pactor I      | 200 (1)             | 300 hz (2)                              | \$50-\$150                          |
| Pactor II     | 700 (1)             | 450 hz (3)                              | \$1,000-\$1,500                     |
| Pactor III    | 2722 (1)            | 2200-2400 hz max<br>(1) can be narrower | \$1,150-\$1,650                     |
| WINMOR<br>(4) | 329                 | 500 hz                                  | Windows computer<br>with sound card |
| WINMOR<br>(4) | 1314                | 1600 hz                                 | Windows computer<br>with sound card |

## What you need to access Winlink over HF using WINMOR

The requirements to use Winlink over HF are modest:

- A computer running Windows XP through Windows 7 with at least a Pentium II processor and one GB RAM. The Microsoft .NET foundation library is required.
- The RMS Express client software and the associated ITSHF propagation prediction program.
- A Signalink USB sound interface to go between the computer and the radio.
- A HF radio and associated antennas.

## Putting the Hardware Together

If you already have a Signalink USB sound interface installed, you can skip this step.

The great thing about WINMOR is that you can use the inexpensive and popular Signalink USB sound interface. While it is possible to use your computer sound card with a connection like RigBlaster for popular digital modes such as PSK-31, it is necessary to use a secondary soundcard for WINMOR that is *not* controlled by the Windows™ operating system. The

Signalink, which is the interface that was used when the WINMOR protocol was developed, is a soundcard interface that has been shown to work reliably with WINMOR. The Signalink, which is external to the computer, also works great with other digital modes such as PSK-31, RTTY, and SSTV. In fact, it will work *much* more robustly than a soundcard shared by the Windows operating system.

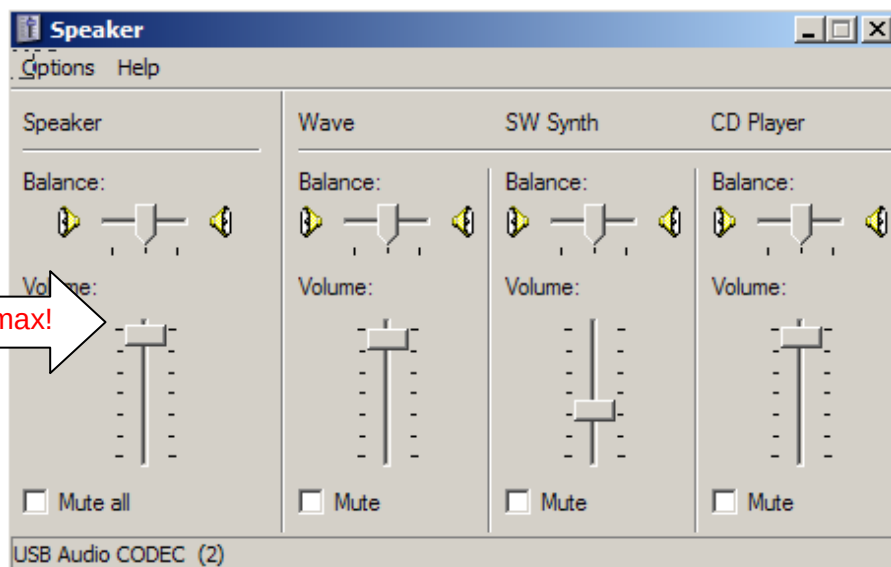
The Signalink USB sound interface is made by Tigertronics, and it costs about \$100. When you order it, you must select the appropriate cable to connect to your radio. The Signalink connects to your computer via USB, and it is powered by the USB, so you don't have to have another wall transformer.

Once you receive your Signalink, you have to open it and install jumpers to configure it for the type of radio you're using. This process takes about five minutes. We recommend that you do *not* purchase the pre-configured jumper blocks sold by Tigertronics. Several of us have been shipped the wrong version of the headers, and it is very confusing to figure out what the problem is. Installing the jumpers manually is very easy.

Set the RX and TX knobs on the Signalink to the halfway position (straight up), and set the DLY knob to full counterclockwise (minimum delay). You may have to adjust the receive and transmit levels later (see below for details).

It is recommended that ferrite beads (RF chokes) be placed on both ends of the Signalink cables. It's also a good idea to use a Radio Works choke on your antenna feed line to keep RF out of your shack.

After you connect the Signalink to your computer, you will see a new soundcard listed in your hardware. Be certain to follow the Signalink set up for the Windows operating system by following the manual that describes the procedure. It is critical that you set certain Windows volume levels, which are specifically described, to a maximum volume in order to trigger the VOX in the Signalink, and allow transmission. Even if your radio does not use the Signalink VOX, such maximum levels are necessary.



## Installing the Software

The RMS Express Client program is what you will use to compose and read messages. It is very similar to other e-mail programs. Use this link to download the installation program for RMS Express:

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

You also need to install the ITSHF propagation program that keeps track of available RMS frequencies:

<http://www.greg-hand.com/hfwin32.html>

When you see the purple ITSHF Icon on your desktop, just delete it; it has no function.

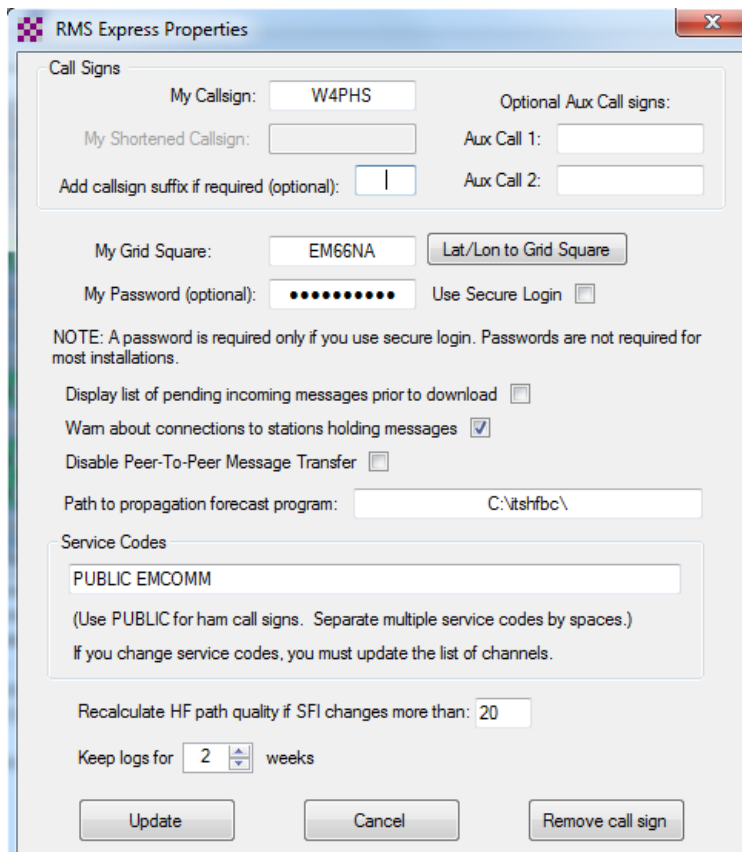
The RMS Express installation procedure will *not* put an icon for RMS Express on your desktop. However, you can manually create one by using this procedure:

1. Use Windows Explorer to browse the folder C:\RMS Express\
2. Right click on the entry for "RMS Express.exe" and select from the popup menu "Send To...\Desktop (create shortcut)".

Note: The WINMOR TNC.exe program is installed automatically with RMS Express. RMS Express runs the WINMOR TNC.exe program under its control when you open a Winmor session (described below), and it closes the WINMOR TNC program when you stop the Winmor session. The WINMOR TNC program can function only under control of RMS Express; you should not try to run it independently.

## Starting and Configuring RMS Express

When you start RMS Express, it should display a configuration screen that looks like this. (If it doesn't, then click Files/RMS Express Setup.)



The screenshot shows the 'RMS Express Properties' dialog box. It has a title bar with a close button. The main area is divided into several sections. The 'Call Signs' section at the top has fields for 'My Callsign' (containing 'W4PHS'), 'Optional Aux Call signs' (with 'Aux Call 1' and 'Aux Call 2' fields), 'My Shortened Callsign', and 'Add callsign suffix if required (optional)' (containing a single character). Below this is the 'My Grid Square' field (containing 'EM66NA') and a 'Lat/Lon to Grid Square' button. The 'My Password (optional)' field is filled with dots, and there is a 'Use Secure Login' checkbox. A note states: 'NOTE: A password is required only if you use secure login. Passwords are not required for most installations.' Below the note are three checkboxes: 'Display list of pending incoming messages prior to download', 'Warn about connections to stations holding messages' (checked), and 'Disable Peer-To-Peer Message Transfer'. The 'Path to propagation forecast program' field contains 'C:\tshfbc\'. The 'Service Codes' section has a text box containing 'PUBLIC EMCOMM' and a note: '(Use PUBLIC for ham call signs. Separate multiple service codes by spaces.) If you change service codes, you must update the list of channels.' Below this is a field for 'Recalculate HF path quality if SFI changes more than:' with the value '20'. The 'Keep logs for' field is set to '2' weeks. At the bottom are three buttons: 'Update', 'Cancel', and 'Remove call sign'.

You need to fill in your call sign and your grid square. Do not enter a password, and do **not** check “Use secure login”. Enter PUBLIC EMCOMM in the Service Code field, then click the Update button to save the settings and exit the screen.

## Setting up RMS Express for use with MARS

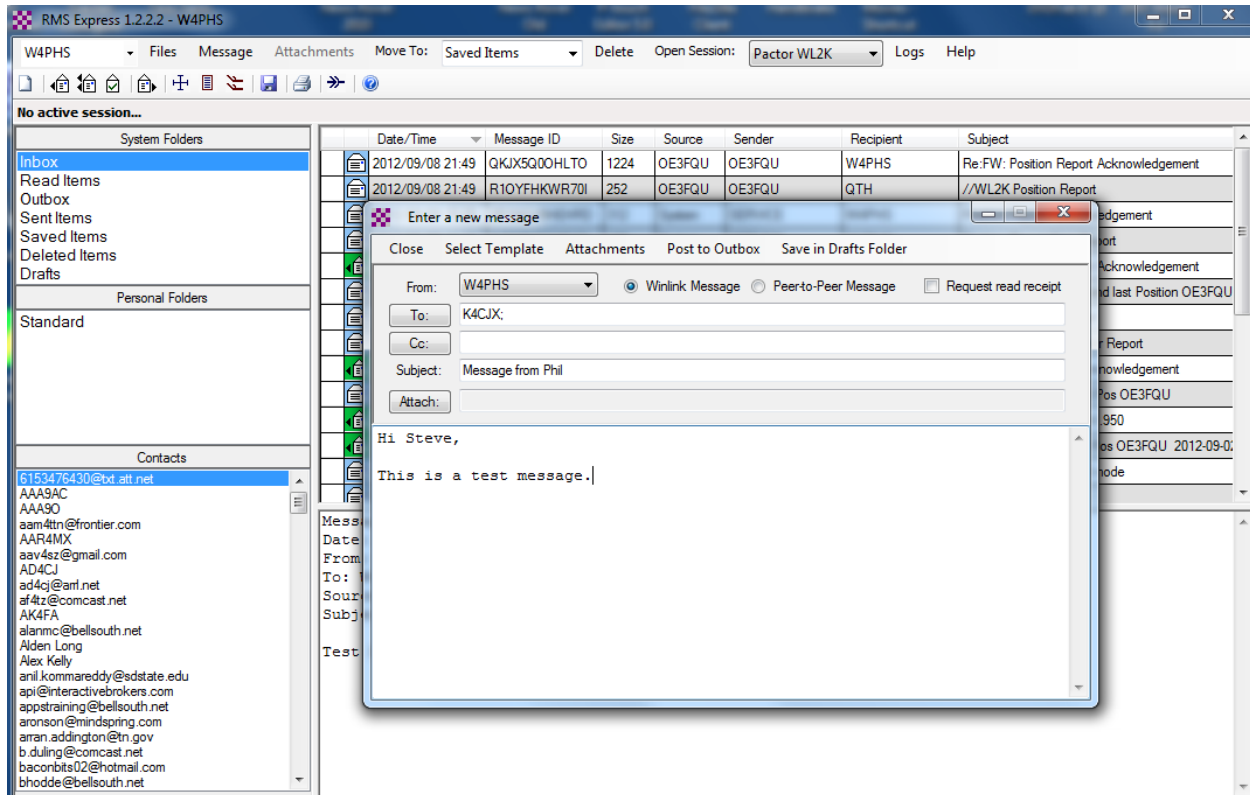
If you are a member of MARS, you can add your MARS call sign as an additional call sign. You must use the FOUO MARS service code. To add an additional call sign, open the drop-down list shown at the top of the menu bar on the main screen and select “(Add call sign)” from the drop down list.



## Sending a Message

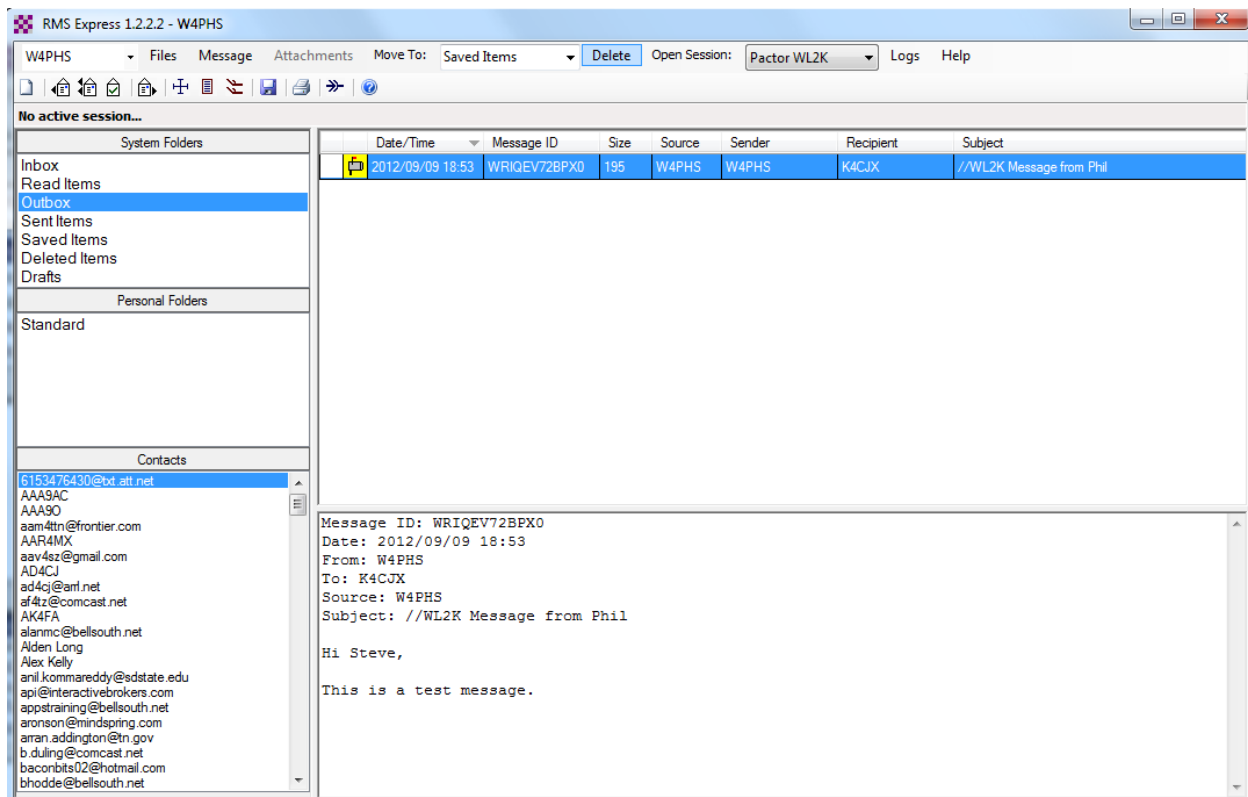
OK, we're finally ready to have some fun.

The next step is to try to send a message to your normal (not Winlink) e-mail address. To do that, click the left-most icon on the toolbar. A popup screen will appear where you can enter the destination address, the subject, and the body of the message.



Once you finish entering the message, click "Post to outbox".

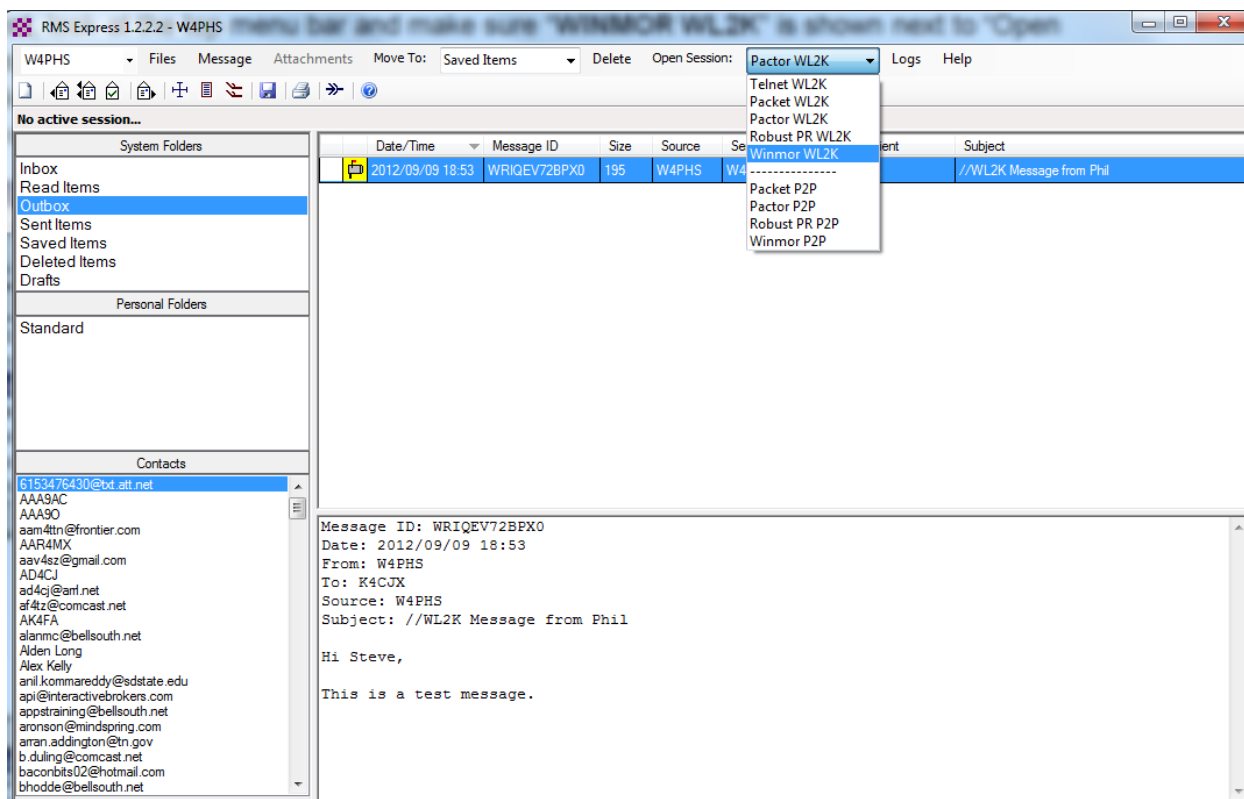
If you select "Outbox" in the left panel, you can see the pending message.



Note: When sending a message from an external e-mail system such as Gmail, Yahoo or Comcast **to** a Winlink address, you should put “**//WL2K**” at the front of the subject. This is required to keep the Winlink system from blocking the message as spam. For MARS operation, put “**//MARS**” at the front of the subject and include the appropriate MARS message priority code. You do not have to use this when sending messages through Winlink to external addresses.

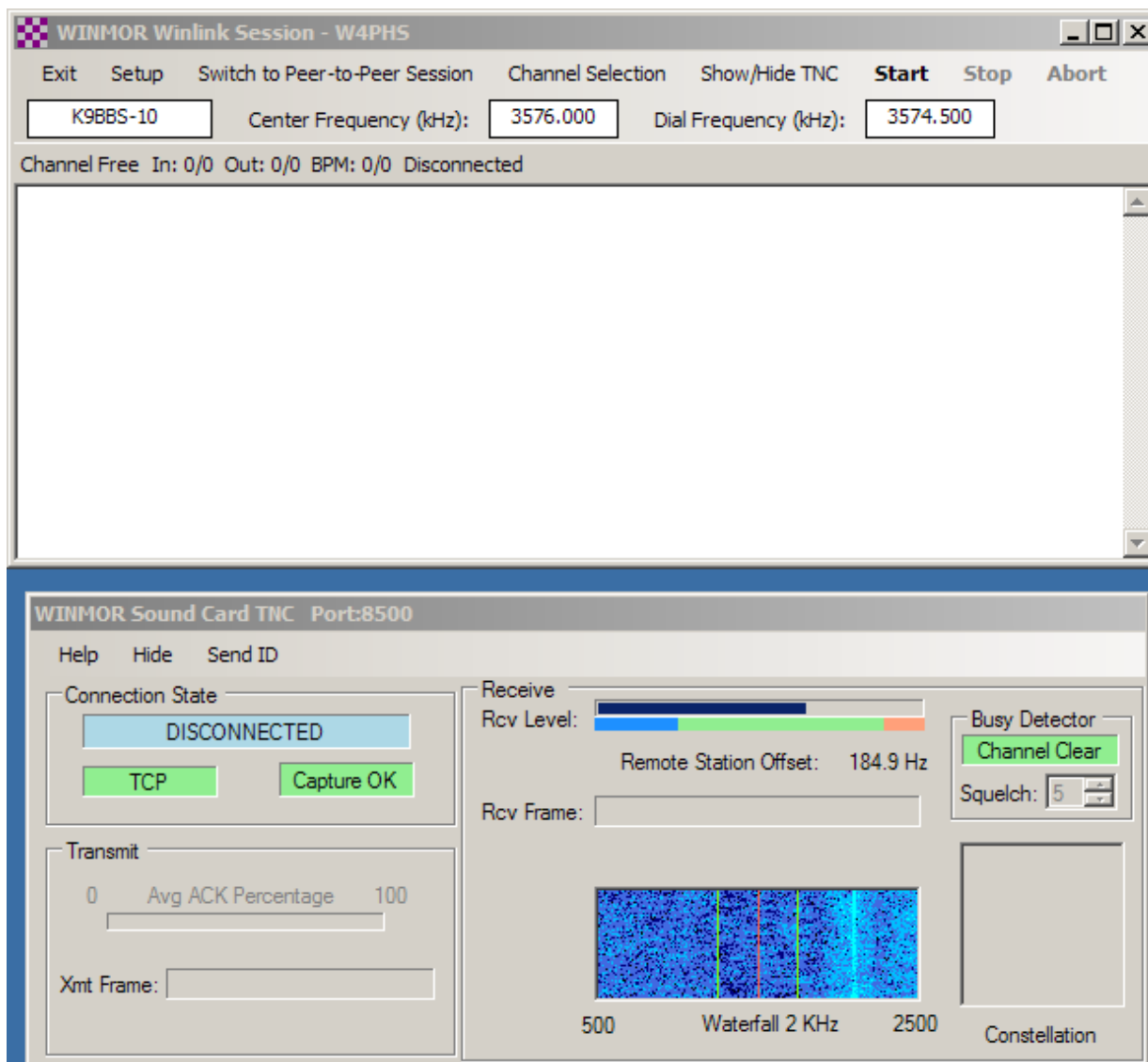
## Opening a WINMOR session

Next, look at the top menu bar and make sure “**WINMOR WL2K**” is shown next to “Open session:”. If it isn’t, open the drop-down list and select it. Note: This is the list where you could select other modes such as Telnet, VHF/UHF packet, Pactor, and peer-to-peer (direct station-to-station) connections.



Make sure no other radio control program like Ham Radio Deluxe is running, and then click the “Open session” menu button. Two screens should appear. One is the session control screen (shown above in the following image), and the second is the WINMOR TNC monitor screen.

Note: RMS Express runs the WINMOR TNC.exe program under its control when you open a Winmor session, and it closes the WINMOR TNC program when you stop the Winmor session. The WINMOR TNC program can function only under control of RMS Express; you should not try to run it independently.



## WINMOR TNC Registration

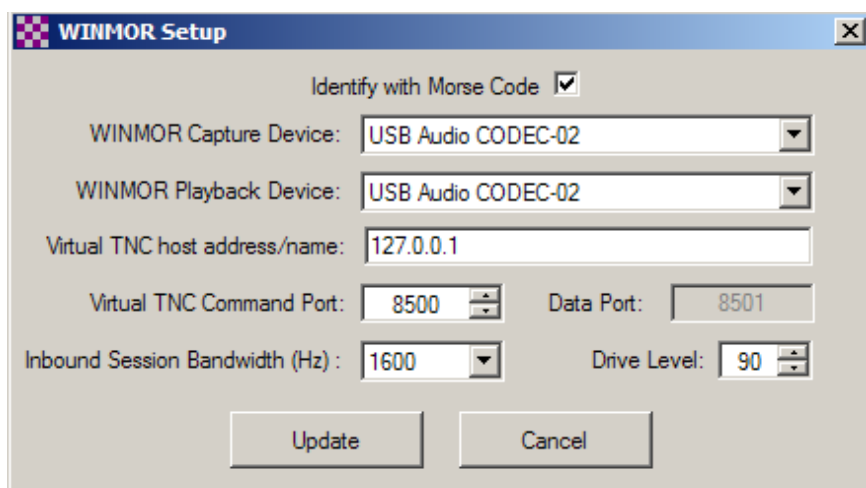
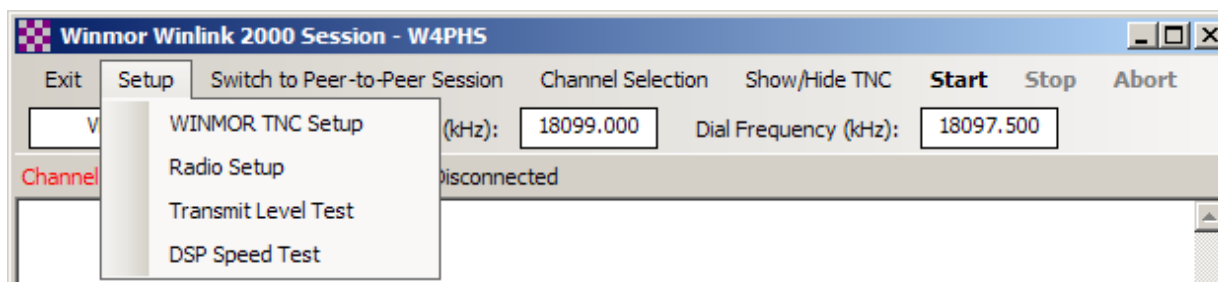
Each time you start a session, you will see a reminder screen that looks like this:



This is a reminder that you should register your copy of the WINMOR TNC. It is not necessary to register to use WINMOR; just click the "Remind me later" button, and you can proceed. However, it is well worth a \$39 donation to the Amateur Radio Safety Foundation to support that organization and obtain a registration key for WINMOR that will suppress this screen.

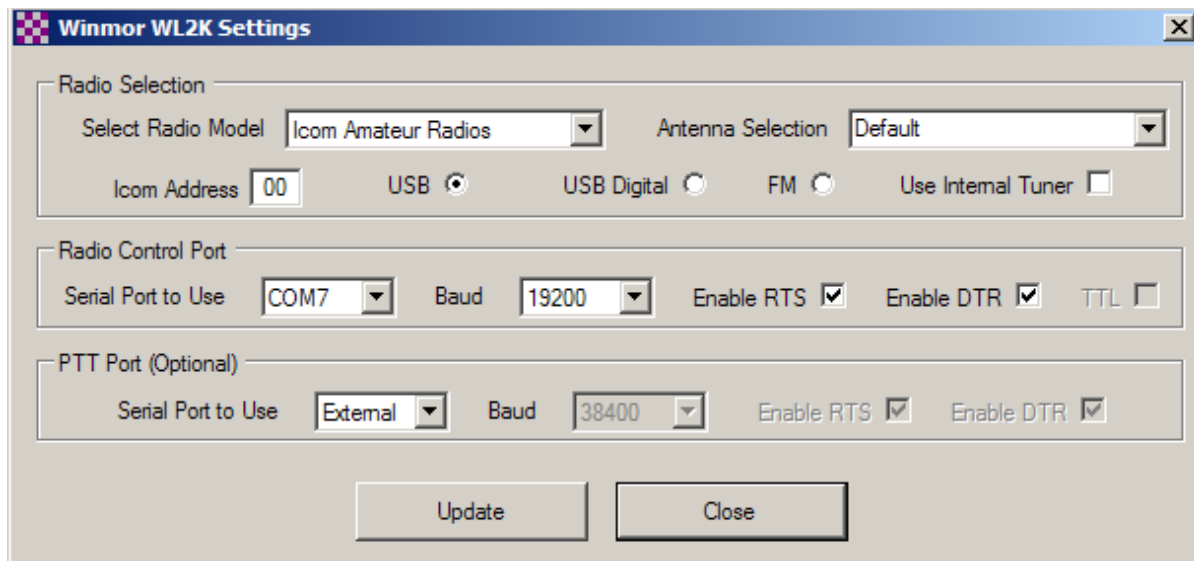
## Setting up the WINMOR Session Control

Click “Setup” on the session control screen and select “WINMOR TNC Setup” from the drop-down list to open the setup screen.



Select the sound card entry corresponding to the Signalink in the WINMOR Capture and Playback fields; it will be labeled “USB Audio CODEC”, but the number at the end may be different. For ham operation, check the box “Identify with Morse Code”. Leave this box unchecked for MARS operation. After you finish filling in the soundcard information, click the “Update” button to save the information and close the screen.

Next, click “Setup” on the session control screen and select “Radio Setup” from the drop-down menu to display the radio setup screen:



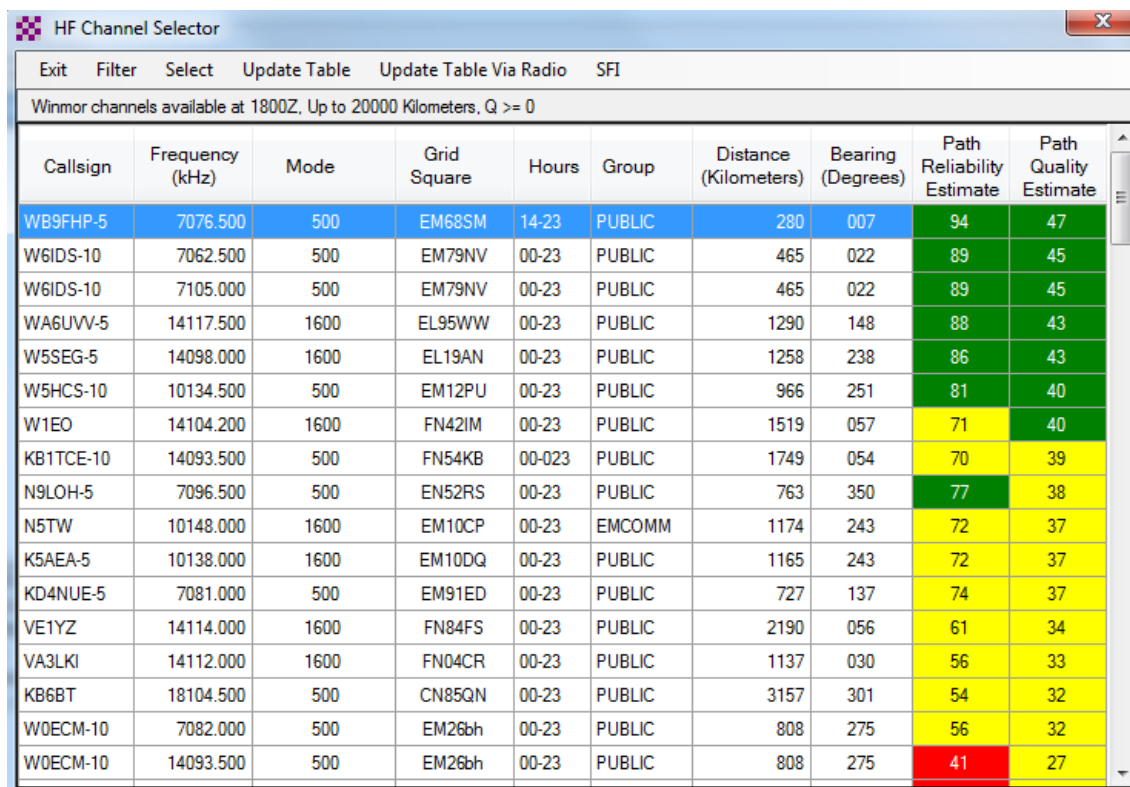
The image shows a Windows-style dialog box titled "Winmor WL2K Settings". It contains three main sections: "Radio Selection", "Radio Control Port", and "PTT Port (Optional)".

- Radio Selection:** Includes a "Select Radio Model" dropdown menu set to "Icom Amateur Radios", an "Antenna Selection" dropdown menu set to "Default", an "Icom Address" text field with "00", and four radio buttons: "USB" (selected), "USB Digital", "FM", and "Use Internal Tuner" (unchecked).
- Radio Control Port:** Includes a "Serial Port to Use" dropdown menu set to "COM7", a "Baud" dropdown menu set to "19200", and three checkboxes: "Enable RTS" (checked), "Enable DTR" (checked), and "TTL" (unchecked).
- PTT Port (Optional):** Includes a "Serial Port to Use" dropdown menu set to "External", a "Baud" dropdown menu set to "38400", and two checkboxes: "Enable RTS" (checked) and "Enable DTR" (checked).

At the bottom of the dialog are two buttons: "Update" and "Close".

Open the “Select Radio Model” list and select the entry that is closest to the type of radio you have. Set the Radio Control Port fields to match the COM port and baud rate of your radio control interface. Set the PTT Port option to “External”. If you don’t have the ability to automatically control your radio, you can still use RMS Express. Just manually tune to the “dial frequency,” and set USB SSB mode. Click Update to close the setup screen.

Next, you need to select the RMS station that you are going to use. Click “Channel Selection” on the session control screen to open the list of available RMS gateway stations:



| Callsign  | Frequency (kHz) | Mode | Grid Square | Hours  | Group  | Distance (Kilometers) | Bearing (Degrees) | Path Reliability Estimate | Path Quality Estimate |
|-----------|-----------------|------|-------------|--------|--------|-----------------------|-------------------|---------------------------|-----------------------|
| WB9FHP-5  | 7076.500        | 500  | EM68SM      | 14-23  | PUBLIC | 280                   | 007               | 94                        | 47                    |
| W6IDS-10  | 7062.500        | 500  | EM79NV      | 00-23  | PUBLIC | 465                   | 022               | 89                        | 45                    |
| W6IDS-10  | 7105.000        | 500  | EM79NV      | 00-23  | PUBLIC | 465                   | 022               | 89                        | 45                    |
| WA6UVV-5  | 14117.500       | 1600 | EL95WW      | 00-23  | PUBLIC | 1290                  | 148               | 88                        | 43                    |
| W5SEG-5   | 14098.000       | 1600 | EL19AN      | 00-23  | PUBLIC | 1258                  | 238               | 86                        | 43                    |
| W5HCS-10  | 10134.500       | 500  | EM12PU      | 00-23  | PUBLIC | 966                   | 251               | 81                        | 40                    |
| W1EO      | 14104.200       | 1600 | FN42IM      | 00-23  | PUBLIC | 1519                  | 057               | 71                        | 40                    |
| KB1TCE-10 | 14093.500       | 500  | FN54KB      | 00-023 | PUBLIC | 1749                  | 054               | 70                        | 39                    |
| N9LOH-5   | 7096.500        | 500  | EN52RS      | 00-23  | PUBLIC | 763                   | 350               | 77                        | 38                    |
| N5TW      | 10148.000       | 1600 | EM10CP      | 00-23  | EMCOMM | 1174                  | 243               | 72                        | 37                    |
| K5AEA-5   | 10138.000       | 1600 | EM10DQ      | 00-23  | PUBLIC | 1165                  | 243               | 72                        | 37                    |
| KD4NUE-5  | 7081.000        | 500  | EM91ED      | 00-23  | PUBLIC | 727                   | 137               | 74                        | 37                    |
| VE1YZ     | 14114.000       | 1600 | FN84FS      | 00-23  | PUBLIC | 2190                  | 056               | 61                        | 34                    |
| VA3LKI    | 14112.000       | 1600 | FN04CR      | 00-23  | PUBLIC | 1137                  | 030               | 56                        | 33                    |
| KB6BT     | 18104.500       | 500  | CN85QN      | 00-23  | PUBLIC | 3157                  | 301               | 54                        | 32                    |
| W0ECM-10  | 7082.000        | 500  | EM26bh      | 00-23  | PUBLIC | 808                   | 275               | 56                        | 32                    |
| W0ECM-10  | 14093.500       | 500  | EM26bh      | 00-23  | PUBLIC | 808                   | 275               | 41                        | 27                    |

## Updating the List of Available RMS Stations

Using the ITSHF propagation program, RMS Express can show you which RMS stations are available, recommend which ones are most likely to be accessible, and set your radio to the right frequency. In order to accomplish this, the current list of stations must be downloaded to your computer. The list of stations is updated regularly, so it's a good idea to refresh the list every week. To update the list, click “Update Table” on the HF Channel Selector screen (see above). If you have RMS Express set up and working, you can click “Update Table via Radio” to download propagation information through a radio connection. Initially, you should select “Update Table”, and let it download the initial list of RMS stations via the Internet.

## RMS Channel Selection and Propagation Estimates

The “Path Quality Estimate” and “Path reliability estimates” provide a rough estimate of how good the signal path is likely to be between your QTH and the RMS hub. My experience has been that these estimates are not very accurate, and some stations down the list may work better than those near the top. With experience, you will find stations that usually work best for you.

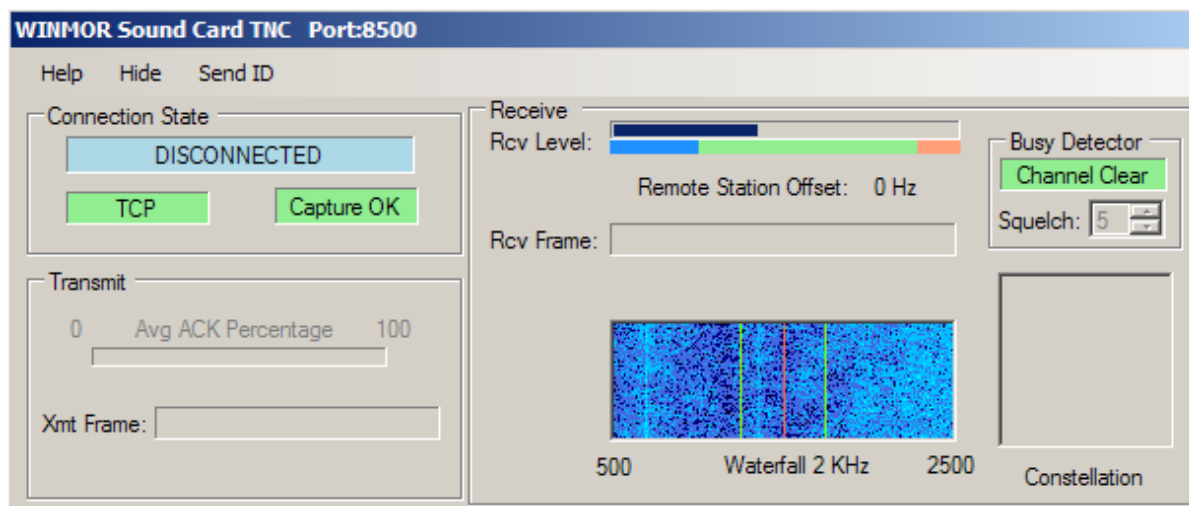
Double click an entry in the station list to select the station and tune your radio to that frequency. *Your radio must be in USB (upper side band) SSB mode regardless of the band you're using.*



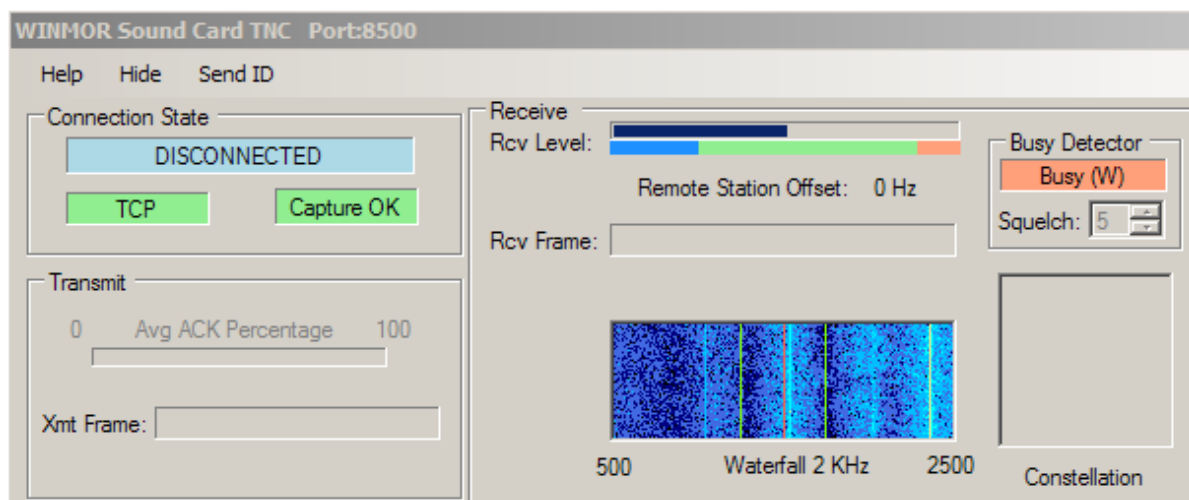
Turn off voice compression and any notch filter, and make sure you select a bandwidth filter of at least 2.3k. Some people recommend turning off DSP noise reduction, but I've had good success with it on.

Next, check the TNC interface screen to see if the channel you've selected is clear or busy.

Here is an example of a clear channel:

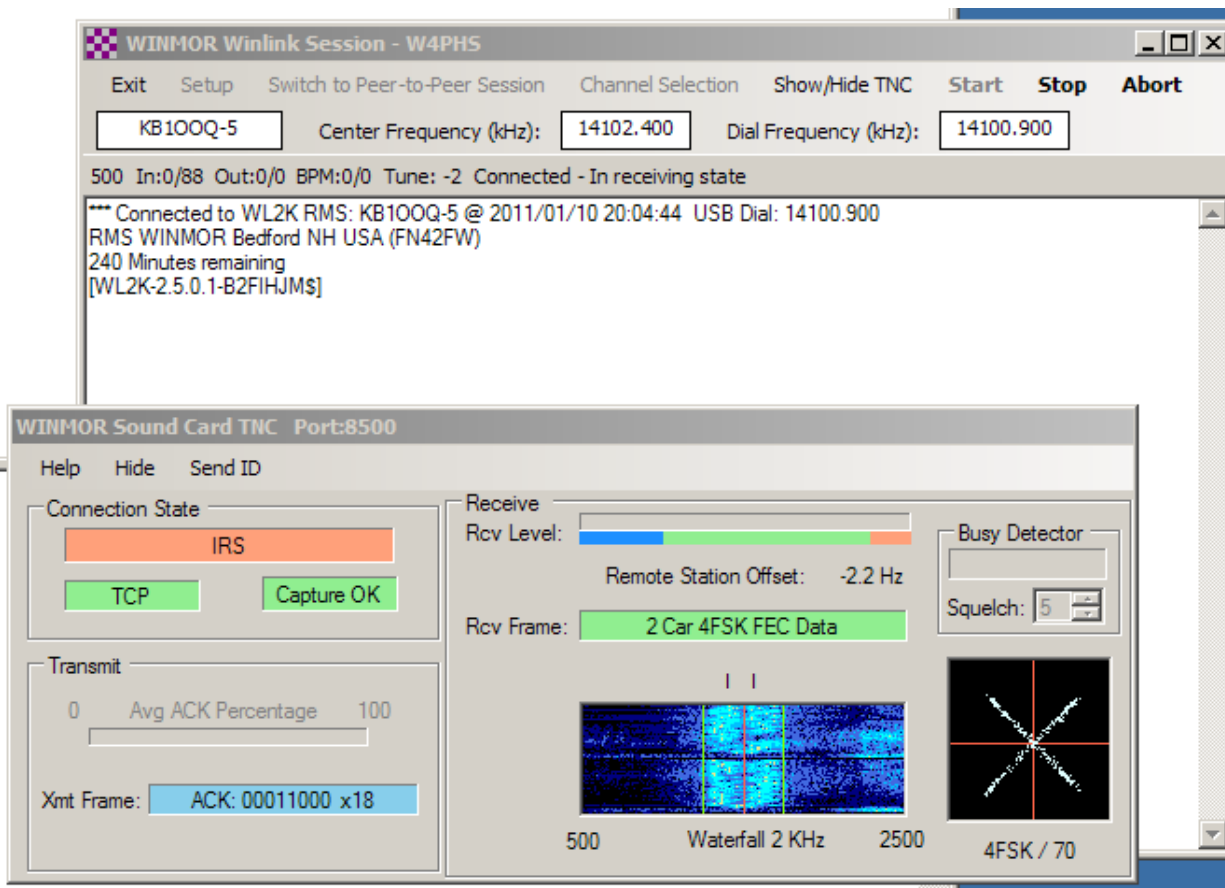


And here is an example of a busy channel:



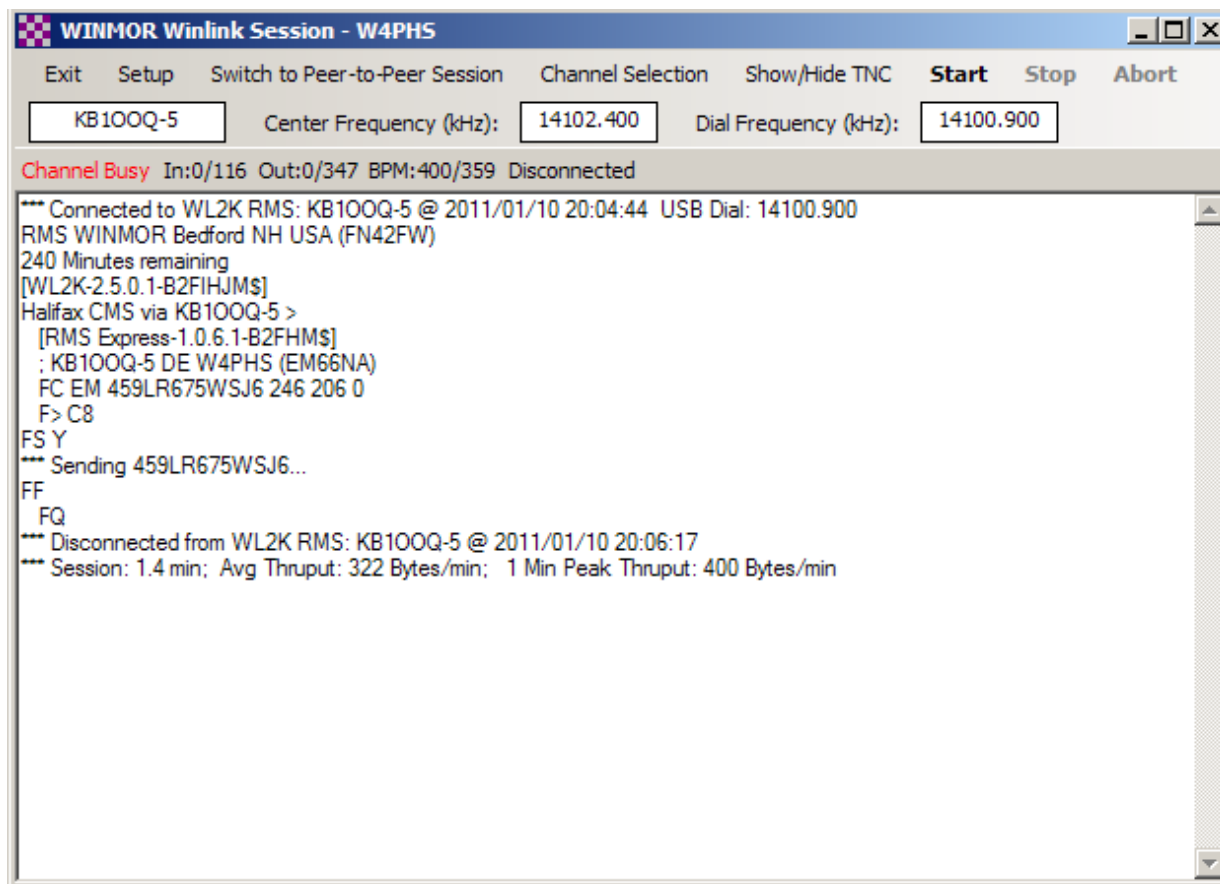
The "Busy Detector" on the TNC display should tell you if the channel is busy or clear, but it is often confused by noise, so it's best to look at the waterfall display to see if a signal is visible. If the channel is busy, either wait for the other station to finish or select a different channel.

Once the channel is clear, click the "Start" button on the session control screen to try to connect to the RMS hub. If a connection is made, you should see screens looking like this:



If you can't connect, try a different channel. If you do connect, watch the "Rcv Level" bar at the top of the TNC screen to make sure your received audio signal level is in the green zone. If it isn't, adjust the "RX" knob on the SignalLink to get it in the green region.

If the connection is successful, everything should happen automatically: RMS Express will logon to the RMS server, it will send any pending messages in your outbox, and it will pull down any incoming messages and put them in your inbox. The session control screen will log what's happening:



You can then close the session control screen by clicking “Exit” to return to the RMS Express message screen where you can browse your inbox.

Once you successfully send your first e-mail via WINMOR, you will have an assigned e-mail address in the Winlink system. Your e-mail is [callsign@Winlink.org](mailto:callsign@Winlink.org). Where *callsign* is your call sign. You can then send yourself a test message from your external e-mail system. Remember to put “//WL2K” at the front of the subject of messages going to Winlink e-mail addresses. After you send the message, run RMS Express, and connect to a RMS hub to pull down the incoming mail.

You can also register for web access to your Winlink messages. To do that, go to the Winlink home site which is <http://www.Winlink.org>

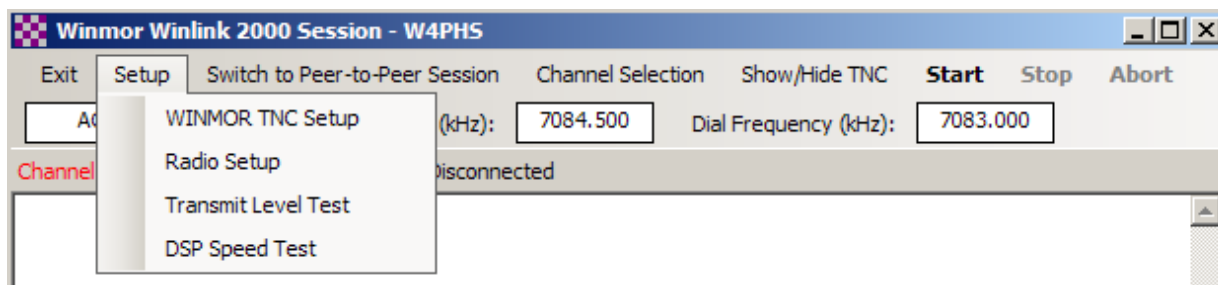
## Adjusting Transmit and Receive Audio Levels

For the most reliable connections, it is a good idea to adjust the transmit and receive (TX/RX) controls on the Signalink to achieve optimal audio levels.

**Receive audio setting** – As described above, when you are connected to an RMS server and receiving incoming packets, the “Rcv Level” bar on the WINMOR TNC screen shows the level of

the received audio signal. You should adjust the RX control on the Signalink so that the audio level is approximately centered above the green portion of the bar.

**Transmit audio setting** – The transmit audio setting is measured using the ALC (Automatic Level Control) screen in your radio. The Signalink TX control should be set so that the automatic gain control (AGC) in your radio's menus shows about 25% from the bottom. Make sure you turn off audio compression in your radio. Basically, you want TX set as low as possible but high enough that your radio can deliver its full power. Once you find the ALC screen in your radio, you can click "Setup" on the RMS session control screen and select "Transmit Level Test" from the drop-down menu to start a 4 second transmission. Make sure you aren't transmitting on a busy channel when you do this test.



## Receiving E-mail Messages via Winlink

Each time you connect to an RMS hub using RMS Express, it checks automatically to see if you have any incoming mail, downloads it, and places it in the RMS Express Inbox. So, to check if you having incoming mail, just click “Open Session” on the RMS Express main menu and connect to an RMS hub. Remember that any message sent to you through Winlink from an external e-mail system must have “//WL2K” at the front of the subject unless the sender’s address is in your Contacts list.

The screenshot shows the RMS Express 1.2.2.2 - W4PHS application window. The interface includes a menu bar (W4PHS, Files, Message, Attachments, Move To, Saved Items, Delete, Open Session, Winmor WL2K, Logs, Help) and a toolbar. The main area is divided into three panes: System Folders, Personal Folders, and Contacts. The System Folders pane shows 'Inbox' selected. The Personal Folders pane shows 'Standard'. The Contacts pane shows a list of contacts, with '6153476430@tdt.att.net' selected. The main pane displays a list of email messages with columns for Date/Time, Message ID, Size, Source, Sender, Recipient, and Subject. The selected message (Message ID: 3R1NGV9HEHRD) is displayed in the bottom pane.

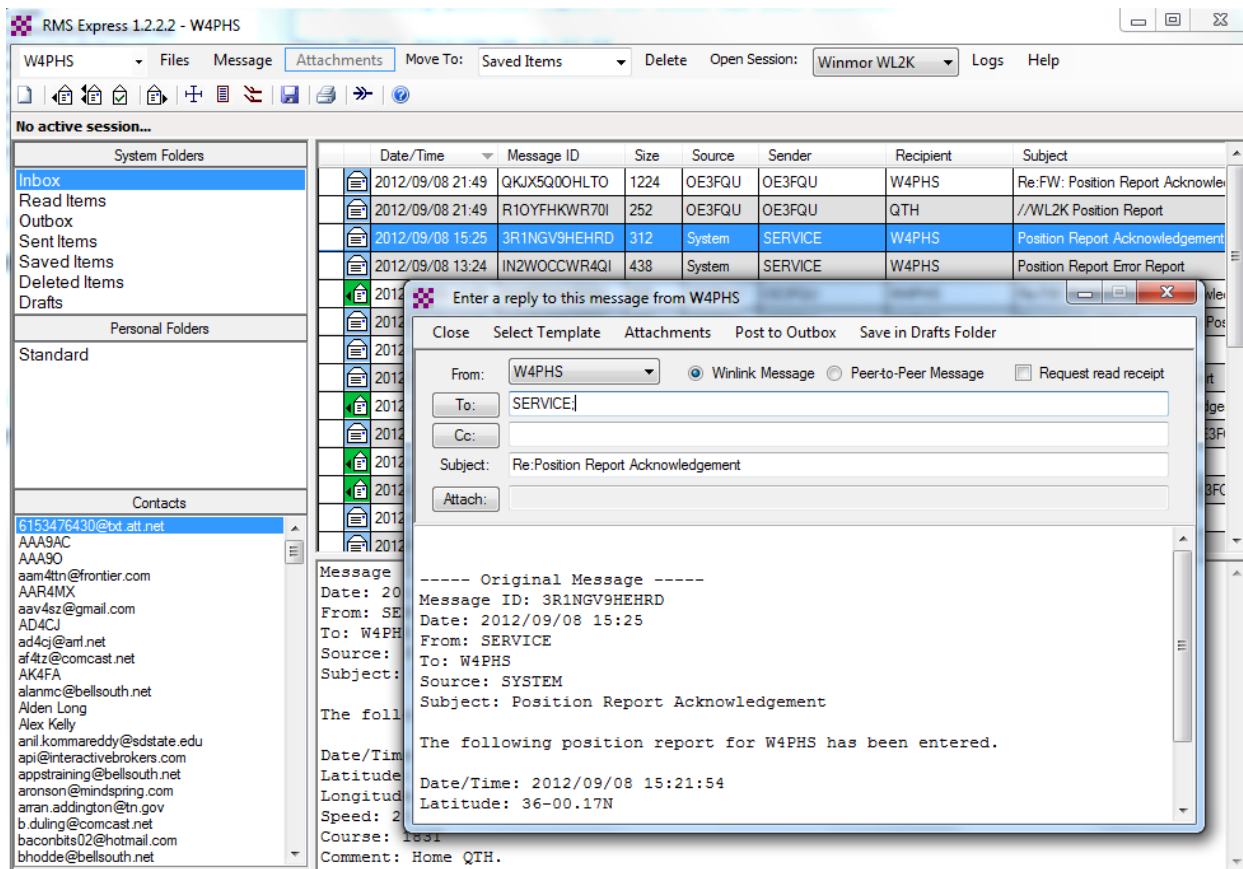
| Date/Time        | Message ID   | Size | Source | Sender  | Recipient | Subject                                |
|------------------|--------------|------|--------|---------|-----------|----------------------------------------|
| 2012/09/08 21:49 | QKJX5Q0OHLTO | 1224 | OE3FQU | OE3FQU  | W4PHS     | Re:FW: Position Report Acknowledgement |
| 2012/09/08 21:49 | R1OYFHKW70I  | 252  | OE3FQU | OE3FQU  | QTH       | //WL2K Position Report                 |
| 2012/09/08 15:25 | 3R1NGV9HEHRD | 312  | System | SERVICE | W4PHS     | Position Report Acknowledgement        |
| 2012/09/08 13:24 | IN2WOCCWR4QI | 438  | System | SERVICE | W4PHS     | Position Report Error Report           |
| 2012/09/08 10:56 | 8V45FOAU3Q0H | 809  | OE3FQU | OE3FQU  | W4PHS     | Re:FW: Position Report Acknowledgement |
| 2012/09/08 10:56 | GP2TYE8F7OF3 | 458  | OE3FQU | OE3FQU  | W4PHS     | Template for GPS Pos and last Pos      |
| 2012/09/08 10:56 | CF1J3WKU6YFP | 258  | OE3FQU | OE3FQU  | QTH       | //WL2K Position Report                 |
| 2012/09/07 23:48 | SNMOSBQ9Q3C6 | 1069 | OE3FQU | OE3FQU  | W4PHS     | FW: Position Report Error Report       |
| 2012/09/07 23:48 | TDDUT8DLN3NT | 473  | OE3FQU | OE3FQU  | W4PHS     | FW: Position Report Acknowledgement    |
| 2012/09/07 23:48 | SAJ4V2MQ3HMT | 262  | OE3FQU | OE3FQU  | W4PHS     | Test: Template for GPS Pos OE3FQU      |
| 2012/09/05 23:12 | 03LGP25DLPZV | 422  | K1KY   | K1KY    | W4PHS     | MARS Winlink node 143.950              |
| 2012/09/05 23:12 | 6VPY5SYQ4OD8 | 273  | OE3FQU | OE3FQU  | W4PHS     | Test Template for GPS Pos OE3FQU       |
| 2012/09/05 23:12 | XTZ7G9C32TX  | 246  | K1KY   | K1KY    | W4PHS     | Williamson Co -9 MARS node             |
| 2012/08/28 00:10 | 7E8UP5ZOCZOI | 396  | K4IDK  | K4IDK   | W4PHS     | Computer Problem                       |

Message ID: 3R1NGV9HEHRD  
Date: 2012/09/08 15:25  
From: SERVICE  
To: W4PHS  
Source: SYSTEM  
Subject: Position Report Acknowledgement

The following position report for W4PHS has been entered.

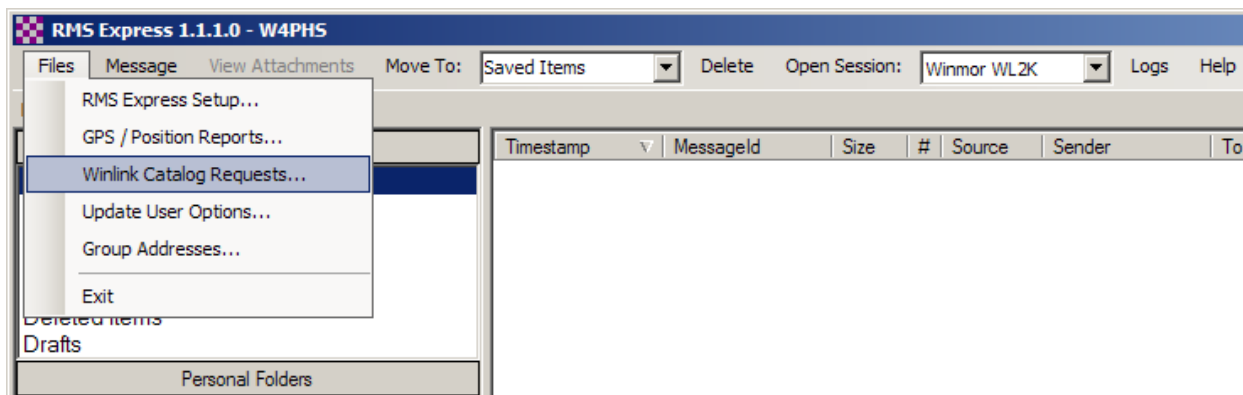
Date/Time: 2012/09/08 15:21:54  
Latitude: 36-00.17N  
Longitude: 086-50.70W  
Speed: 20.6  
Course: 183T  
Comment: Home QTH.

To reply to an e-mail, select the e-mail entry and then click the second icon on the toolbar for “Reply” or the third icon for “Reply-all”.

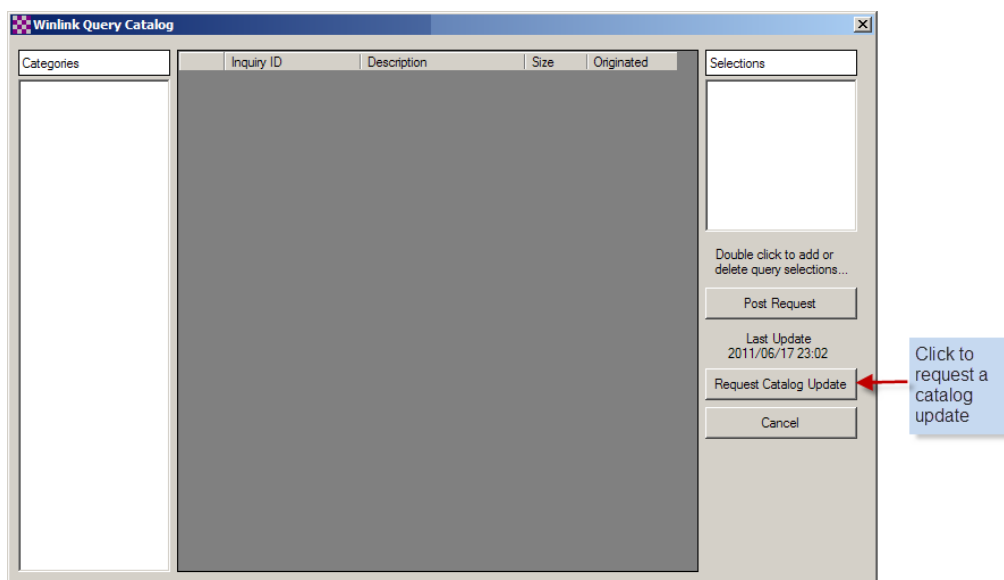


## Requesting Weather Maps, Forecasts, and Other Information

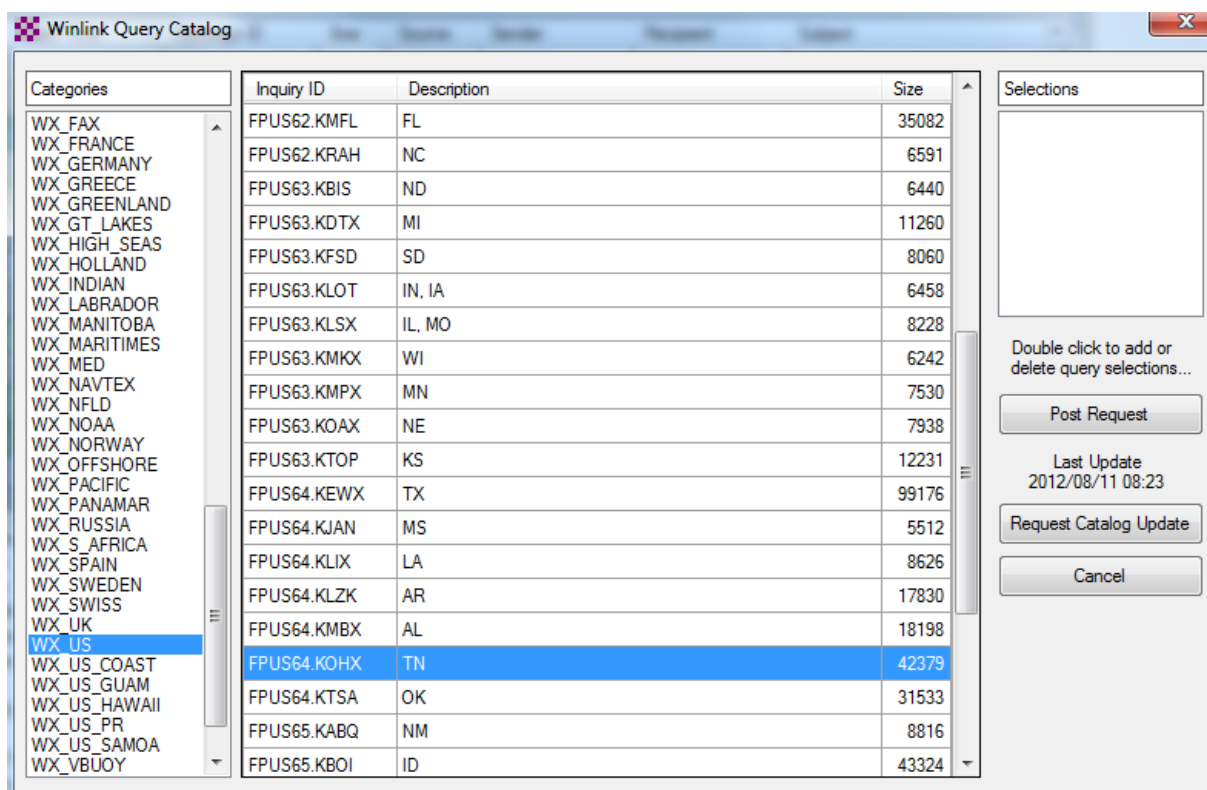
In addition to sending/receiving regular e-mails, you can send a request to the Winlink system to get weather maps, forecasts, and other information. To do this, click “Files” on the main RMS Express menu bar, and select “Winlink Catalog Requests...” from the drop-down menu list:



RMS Express will then display an item-selection screen, but it will be empty initially:



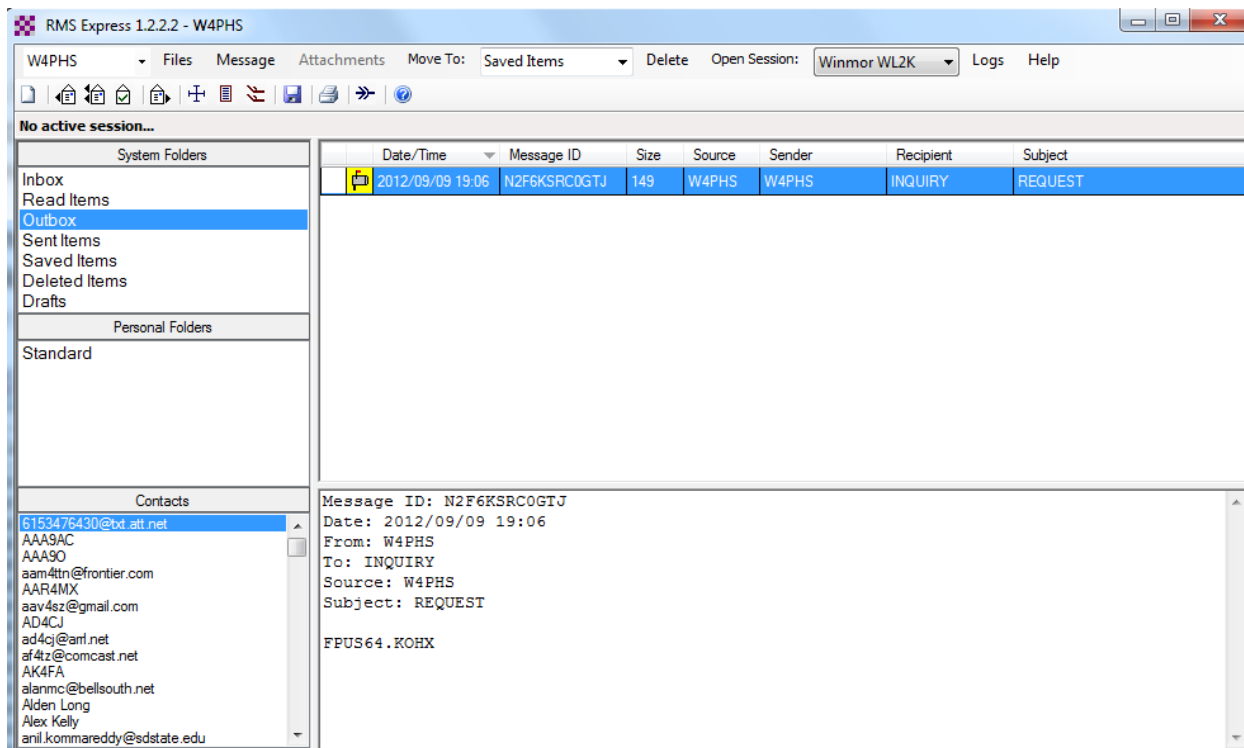
Click the button labeled “Request Catalog Update” to download a list of the available items. Once the update finishes, the screen will display query categories and items:



Select a category from the left list, and the corresponding items associated with that category will be displayed in the center list. In the example above, WX\_US (U.S. weather) was selected

as the category, and FPUS64.KOHX (Tennessee weather) was selected as the item. Double click an item to add a request for it. The upper right list labeled “Selections” shows which items have been requested. You may continue double clicking items to add them to the request list.

Once you finish selecting all of the items you want, click the “Post Request” button in the right column. If you look in the Outbox, you will see a specially formatted request message waiting to be sent:

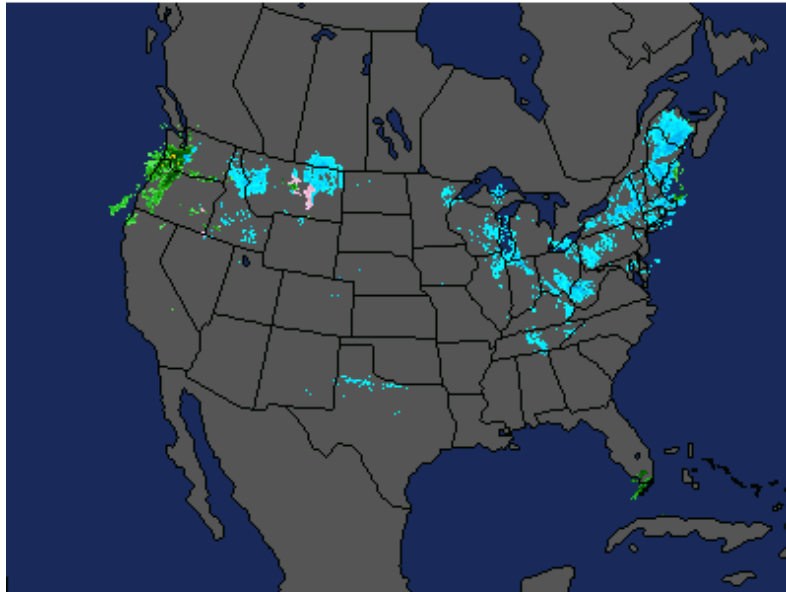


Next, open a session and connect to an RMS server to send the query request. After a few minutes, the Winlink system will process your request and post a reply message that you can receive by connecting to an RMS server and receiving incoming messages.



Here is a radar map sent to us from Winlink:

6:45PM EST 12-JAN-11



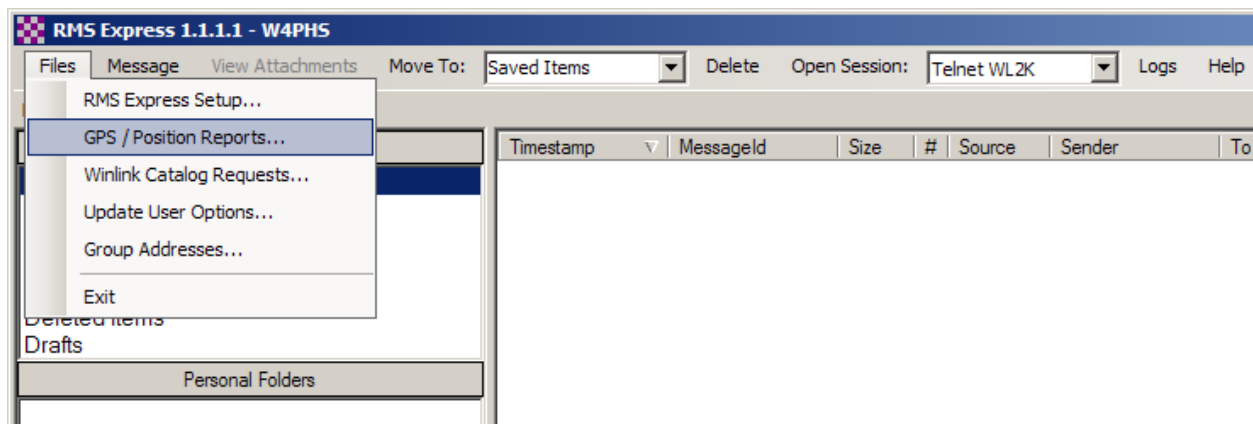
©2011 AccuWeather.com

## GPS Position Reports

If you have a GPS receiver connected to your computer through a COM port, RMS Express can read this information and send messages with position reports. The GPS receiver must send its data through the COM port using the standard NMEA protocol.

If you don't have a connected GPS receiver, you can send position reports by manually entering the position.

To get into the GPS screen, click "Files" on the main RMS Express menu and select "GPS/Position reports" from the drop-down menu:



RMS Express will display the GPS / Position report screen:

**GPS / Position Report**

GPS Serial Port

GPS Serial Port:  GPS Baud Rate:

No connection to the GPS - Last good GPS fix at 0000/00/00 00:00 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

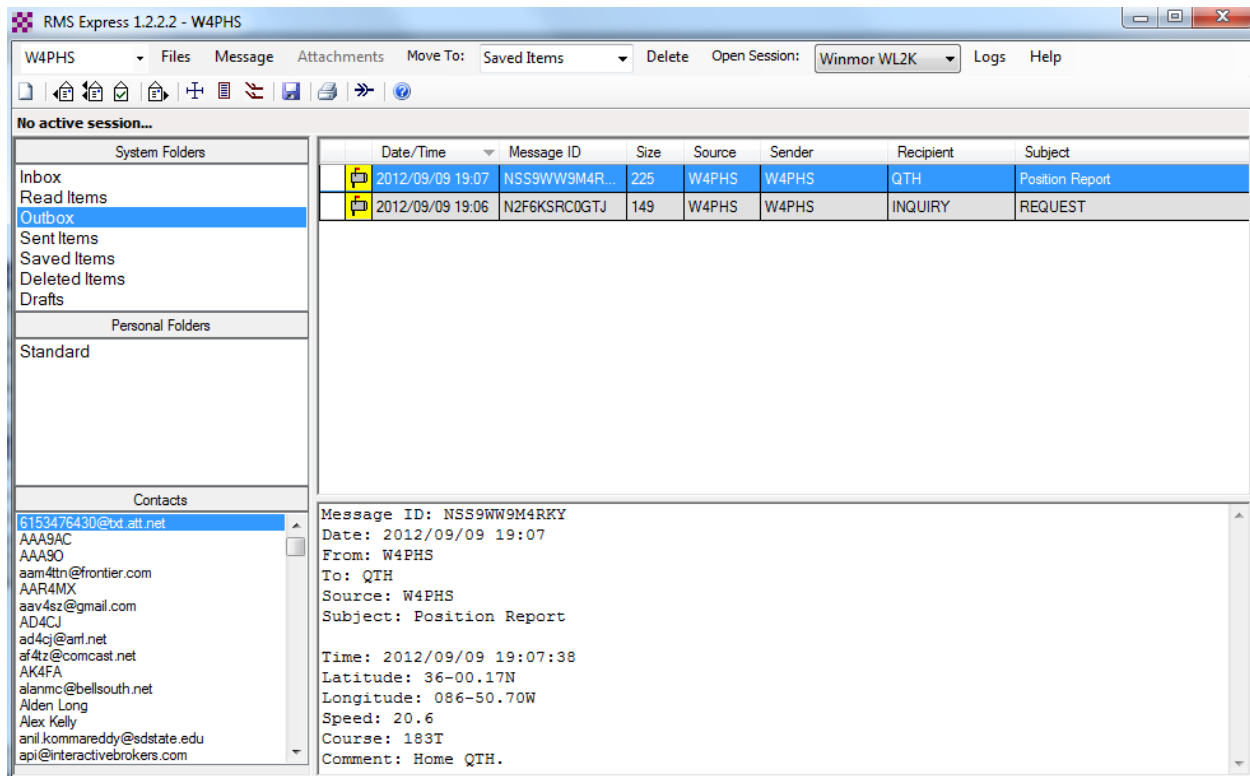
Comment - 148 Characters Maximum:

Select the COM port that your GPS unit is connected to in the “GPS serial port” list, and select the baud rate. The standard baud rate is 4800 baud.

If you have a valid GPS connection, your current position, speed, and course information will be displayed in the fields at the top of the screen. Click the “Copy GPS Data” button to copy the GPS information to the reporting fields in the lower section. Click the “Use Current Time” button to fill the report date/time with the current time.

If you do not have a GPS receiver connected, you can manually enter the latitude, longitude, speed, and course information. The latitude must be in the format *dd-mm.mmN/S* where *dd* is degrees, *mm.mm* is minutes and decimal portions of a minute, and *N/S* is either “N” for north latitudes or “S” for south latitudes. The longitude is entered in a similar format, *ddd-mm.mmEW*.

To post a position report, click the “Post Report” button. If you examine the Outbox, you will see a specially formatted message with your position report:

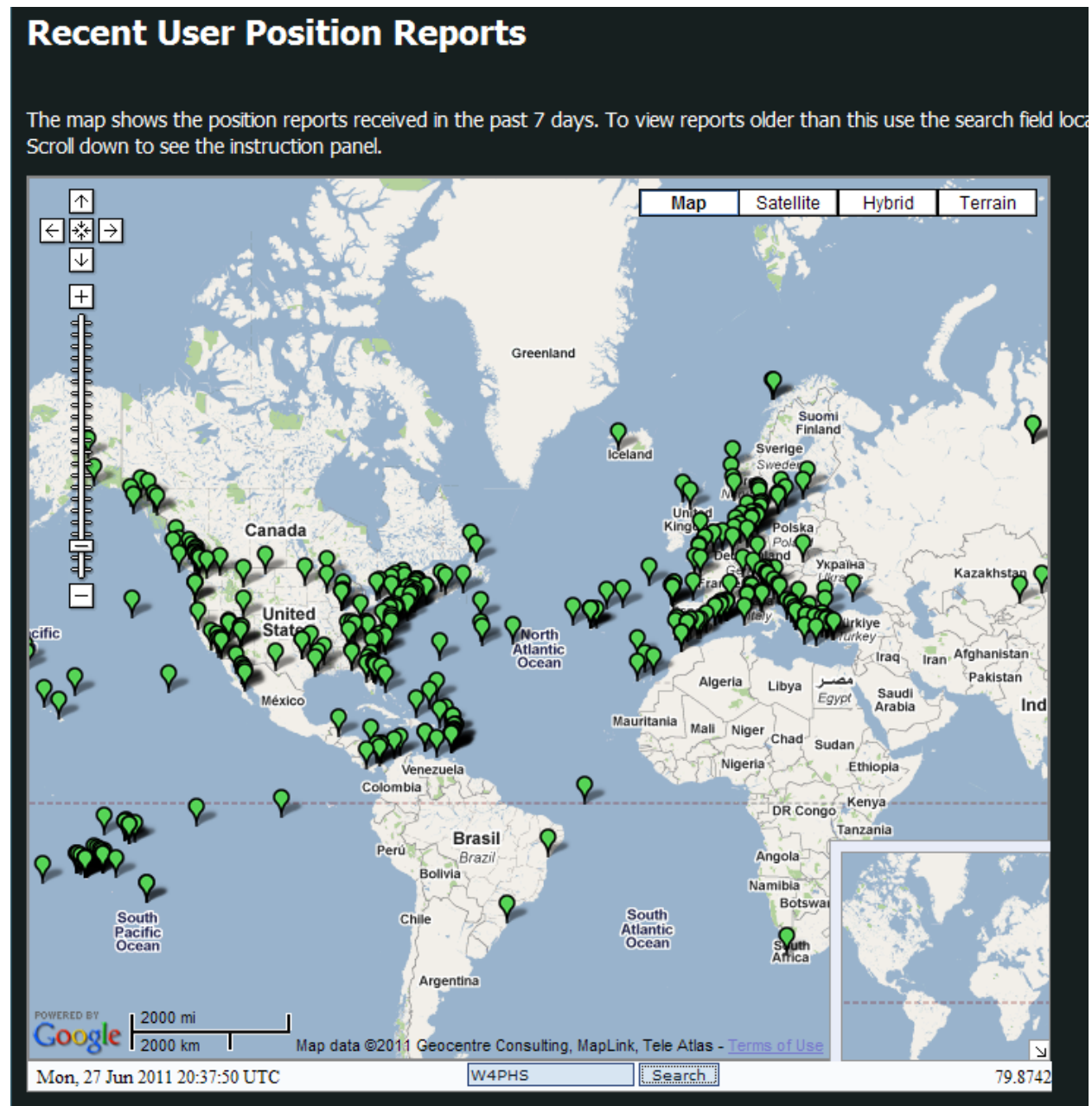


The recipient of the report is the special name "QTH". To post the position report, open a session, and do a mail send/receive in the normal fashion.

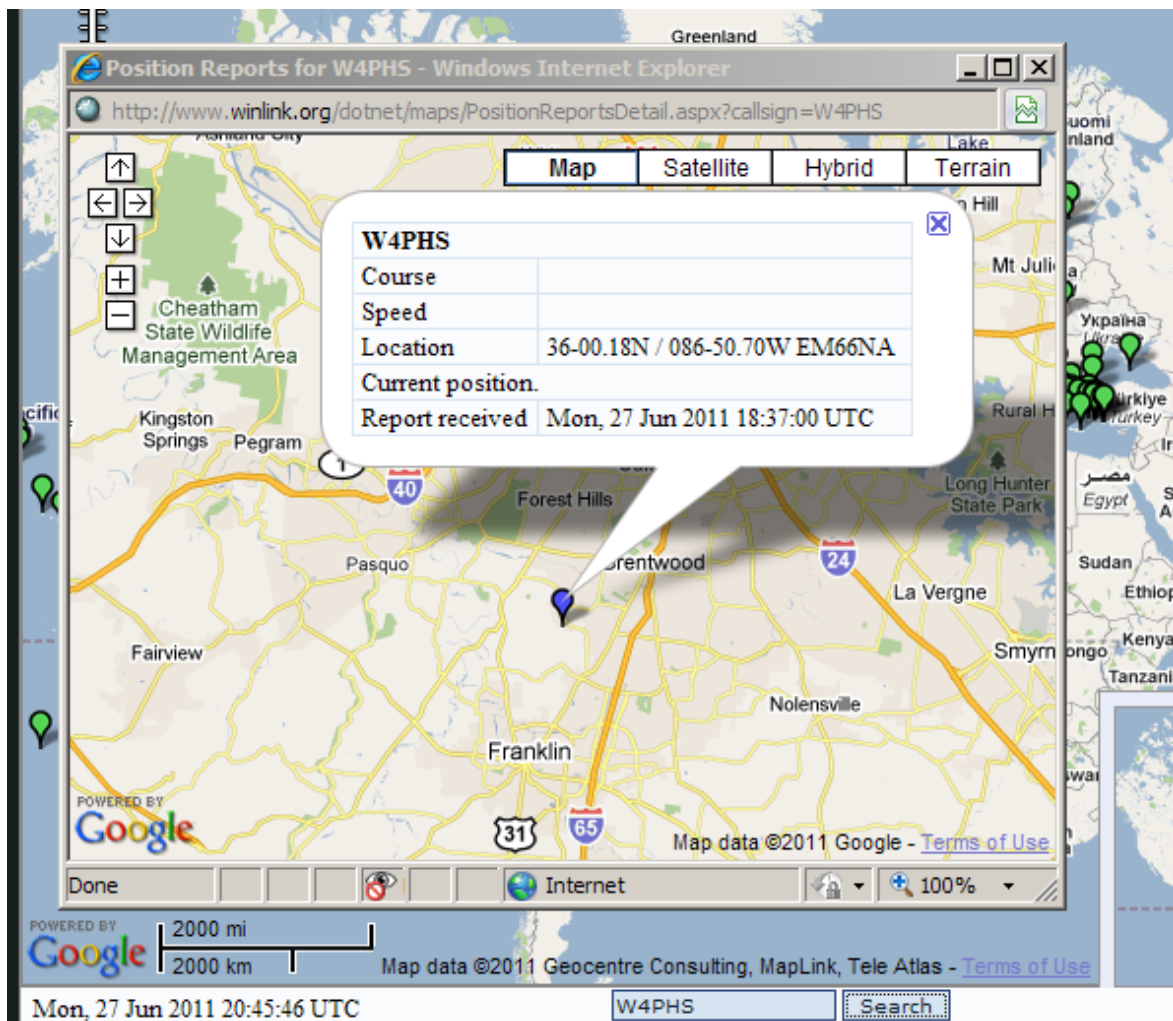
## Viewing the Position of Stations

To view the positions of Winlink stations that have been posted, go to the web site:

<http://www.winlink.org/userPositions> It displays a map with a pin for each Winlink position report:



You can enter a specific call sign in the search field at the bottom of the screen and click "Search" to find and display the position of the station. You can click on a position marker pin to get information about the position report:



## Common problems

- **The radio frequency does not change when I select a RMS channel** – Check the COM port number and baud rate settings in the session control setup screen. If you are able to use other programs like Ham Radio Deluxe to control your radio, check how you have them configured.
- **I see noise on the TNC waterfall, but I can't connect to any RMS server** – Make sure your radio is in **USB** SSB mode (even for 40 and 80 meters), and make sure it is tuned to the “dial frequency” shown in the session control screen. There is a 1500 Hz difference between the actual, Center (assigned) frequency and the USB dial frequency shown on your radio dial. Thus, the “dial” frequency shown on your radio is different than the actual frequency. Also, with the Signalink USB, insure that the Delay is set to minimum.
- **I can see a signal on the TNC interface screen, but the Signalink and radio do not transmit when I try to connect** – Check the Windows volume settings for the Signalink sound device. Set them all to maximum volume. If you've done this and it still won't transmit, open the Signalink and install the JP4 jumper that increases its sensitivity to sound.
- **I can successfully send myself a message to an external e-mail address, but I can't receive incoming messages** – Make sure you specify “//WL2K” as a prefix to the subject of any messages sent to a Winlink address.
- **The “Channel selection” feature on the session control screen does not work** – You need to install (or reinstall) the ITSHF propagation program that keeps track of available RMS frequencies. You may not have downloaded the list of RMS stations. Click “Files” on the RMS Express menu bar and then select “Update HF channels data” to download the list via the Internet.
- **I see many retries being done** – Check to make sure the receive signal level is in the green section at the top of the TNC interface screen. Adjust the “RX” knob on the Signalink to get the sound level right. If the receive level is correct, try adjusting the “TX” knob to set the transmit audio level. Make sure speech compression is turned off and a wide bandwidth filter is selected. Try some other RMS stations.

## What's Next?

You can find much more information about Winlink, WINMOR, and RMS Express on the Winlink web page: <http://www.Winlink.org>

There is a Yahoo discussion group specifically for WINMOR and RMS Express:  
<http://groups.yahoo.com/group/WINMOR/>

OK, it's time to experiment. Get the hardware set up and the software installed and try to send yourself a message. Good luck!

73

Phil, W4PHS