

# Frequently Asked Questions (FAQ) about Winlink 2000 (Revised July 20, 2020)

Mixture of an Instruction Manual, Fact Book, Help desk  
Material from various Winlink 2000 User Groups, and others  
Please send new and revised material to donK7BFL at gmail dot com

*[use the "Find" feature of Adobe Acrobat to locate needed information]*

## Changes in this FAQ, compared to the FAQ of June 24, 2020

**Changed:** 100 103 107 112 170 500 920 940 2560 1000 11050 11400 11695 20200

**New:** 830 3557 11260 10600 11280 11697 20400

**Removed:** 11090 11210 11550

## Renumbered:

### **Q** How is this FAQ group organized?

- A**
- 100 General Questions about Winlink 2000
  - 1000 AirMail – Setup - General
  - 1500 AirMail – Use - General
  - 2000 AirMail – Setup (HF Pactor)
  - 2505 AirMail – Use (HF Pactor)
  - 3000 AirMail – Setup (VHF/UHF Packet)
  - 3500 AirMail – Use (VHF/UHF Packet)
  - 4000 AirMail – Setup (Telnet via internet connection)
  - 4500 AirMail – Use (Telnet via internet connection)
  - 5000 AirMail – Peer-to-Peer - Setup
  - 5500 AirMail – Peer-to-Peer - Use
  - 7000 Paclink – Setup – General
  - 7500 Paclink – Use (VHF/UHF Packet)
  - 7700 Paclink – Use (Telnet via internet connection)
  - 8000 Keyboard Access – Setup
  - 8500 Keyboard Access – Use

- 9000 RMS Packet Station – Setup
- 9500 RMS Packet Station – Use
- 10000 RMS Relay – Setup
- 10500 RMS Relay – Use
- 11000 Winlink Express and Sound Card Devices – Setup
- 11520 Winlink Express and Sound Card Devices – Use
- 20000 Emergency Communications Networks

## General Questions about Winlink 2000

- Q100**      **How do you suggest that I learn about Winlink 2000; and solve setup and operating problems that arise?**
- A100
1. View an excellent series of video lessons about Winlink on YouTube. Rick Frost (K4REF) is the producer. Start with this video:  
<https://www.youtube.com/watch?v=qGhUfW8pjY8>
  2. Use the most recent version of software to access the Winlink 2000 system (Winlink Express , AirMail, Paclink, Paclink, etc.). Read the Installation, Operation, and Help instructions for the software.
  3. Read the installation and operation instructions for your radio and modem equipment.
  4. Read (or Search; using "Find") the remainder of this list of FAQs'. See Q950.
  5. Review the "Book of Knowledge" in the Winlink 2000 web page <https://www.winlink.org>
  6. Search the messages in the Winlink 2000 user discussion groups. See Q920.
  7. See the Catalog ... WL2K Help ... DIDUNO. It has many Tips you perhaps did not know.
  8. Use an internet search engine to find relevant information on the web.
  9. Ask other people for Help, in the following order. They are volunteers. WL2K does not have a paid Help desk staff.  
Provide information (as appropriate) to assist others to learn about you and your situation.  
  
Your User Call Sign:  
Commercial email address:  
Phone Number:  
Computer or Tablet make, model, Operating System, version:  
User Client software and version (Winlink Express, AirMail, etc.):  
Protocol you are using (pactor, VARA, packet, Telnet, etc.)  
Third Party software and version:  
Hardware interface (sound card device) make, model:  
Radio make, model, output power:  
Cabling from computer to interface:  
Cabling from interface to radio:  
Antenna type, location (outside or outside of a building or vehicle), distance from radio:  
Antenna coax length and type:
- a) Ask a local WL2K guru for assistance. Check with a local radio club.
  - b) Send your question to an appropriate Discussion Group. See Q920.
  - c) Ask a local RMS Gateway station operator for assistance. See <https://winlink.org/RMSChannels>.
  - d) Email donk7bfl at gmail.com or text to 509 290 2472
  - e) Ask a member of the Winlink 2000 Development Team for assistance.

(f) Contact the Winlink 2000 System Administrator: Steve Waterman, [k4cix@comcast.net](mailto:k4cix@comcast.net)  
Home: 615-665-0952, Cell: 615-300-5296

**Q102 All these new words: AirMail, Winlink, Paclink, Telpac, Telnet, RMS, etc. get me confused. Is there a beginner's publication about Winlink??**

A102 There is a short "Winlink made Simple" publication available at: <http://www.felge.us/WL2KSimp.pdf>

See the video by Rick Frost mentioned in Q110.

**Q103 Is there a Glossary of Winlink terms available?**

A103 Yes, see the Winlink web site at <https://www.winlink.org/glossary> for an official description of many terms. Following is an "alternative" version of several common terms.

**Winlink 2000** - ("Winlink" or "WL2K"). A system of email servers, radio stations, and associated software. A private email system which supports Amateur Radio, MARS, and SHARES users. It interacts with other email servers.

**WDT – Winlink Development Team.** The group of persons responsible for creating and administering the Winlink 2000 System (WL2K). That takes a LOT of time, all volunteered. Thank you to each of them, past and present!

**CMS** – Common Message Server. An email server associated with the Winlink system. Redundant locations hosted by Amazon Web Services (beginning October 31, 2017).

**Telnet** - A "non-radio" [using the internet] alternative method for Winlink Express, AirMail, and Paclink users to function without using a radio path to connect to a RMS station. It enables Winlink users to connect directly to the Winlink email server (CMS).

**Peer-to-Peer** -- A method for Winlink Express and AirMail users to exchange messages via radio with each other "directly", without using the internet. This is "one-on-one"; no "nets", no :cc. Winlink Express and AirMail stations can interact with each other, using packet or pactor (both must be using the same protocol). Sometimes labeled as ptp, PTP, or P2P.

**RMS** -- A "gateway" station, which bridges Winlink user radios to the email part of the internet. Sometimes incorrectly referred to as a Node. See Q3555.

**RMS VHF** - A RMS station which operates on VHF or UHF bands.

**RMS HF** - A RMS station which operates on the HF bands.

**RMS Packet** – "SysOp" software which enables a "Windows" RMS VHF/UHF station to function.

**RMS Trimode** – "SysOp" software which is used by a RMS HF station. It enables the station to accept Connects from other stations using the pactor, WINMOR, ARDOP, VARA HF, and "Robust Packet HF" protocols. Each Sys Op has the option to enable his station to use any or all of these "protocols". **This software is not used or needed by WL2K Users.** WINMOR will be phased out, beginning July 10, 2020.

**RMS Relay** - Optional "SysOp" software used with RMS Packet or RMS Trimode to "relay" messages if "the internet" is not working, or to configure the RMS as Hub, independent of the internet.

**Hub** - A configuration of RMS Relay which enables Users to exchange messages with each other without using the internet. See Q10020.

**RMS Gateway** – "SysOp" software which enables a "Linux" RMS VHF station to function.

**Winlink Express** - Software used by Winlink users to interact with RMS stations; or to interact with other user stations exchanging messages in the "peer to peer" fashion. Previously named "RMS Express".

**AirMail** – The oldest cousin of Winlink Express; does most of the same functions. SQ500.

**Paclink** - An older cousin of Winlink Express, younger than AirMail. It uses your "normal" email client program (Outlook, Thunderbird, etc.) as the message index interface. It uses pactor and packet, but not WINMOR, ARDOP, VARA HF and VARA FM. It doesn't do peer-to-peer.

**WINMOR - WINlink Message Over Radio.** A cousin of packet, pactor, and Robust Packet. If you are using WINMOR, consider changing to ARDOP or VARA. The equipment and Setup are similar; Throughput is much quicker, therefore some RMS have discontinued offering WINMOR services. See Q170. WINMOR will be phased out, beginning July 10, 2020.

**Pactor** - A cousin of packet, ARDOP, VARA, and Robust Packet. Siblings are Pactor 1 (slowest), Pactor 2, Pactor 3, Pactor 4 (fastest).

**ARDOP - Amateur Radio Digital Open Protocol.** The successor to WINMOR. [See info here.](#) A cousin of packet, pactor, and Robust Packet. It uses a "Sound Card" interface between your computer and your radio, as does WINMOR.

**VARA** - Successor to VARA 2 and VARA 3. The latest version of VARA is not "backward compatible with earlier versions. Vara 4 will be available to use on June 30, 2020. It uses a "Sound Card" interface between your computer and your radio, as does WINMOR and ARDOP. Faster than WINMOR, Pactor 2, and ARDOP. Several speeds are available. Free for the lowest speed; a Lifetime license is available for access to higher speeds. See <https://rosmodem.wordpress.com/>

**VARA FM** - It uses a "Sound Card" interface between your computer and your radio, as does VARA, WINMOR and ARDOP. 3x as fast as 1200 baud packet. The latest version (3.08) is compatible with earlier versions. See <https://rosmodem.wordpress.com/>

**Throughput** – The successful rate of transfer of information (bytes/minute).

**SHARES** - The SHARed RESources (SHARES) High Frequency (HF) Radio program provides an additional means for users with a national security and emergency preparedness mission to communicate when landline and cellular communications are unavailable. SHARES members use existing HF radio resources to coordinate and transmit messages needed to perform critical functions, including those areas related to leadership, safety, maintenance of law and order, finance, and public health. It is administered by the USA Federal government. The digital messaging capability of SHARES is supplemented by WL2K. SHARES uses frequencies, rules, and regulations which are different than those used by USA amateur radio. See Q20100. See <https://www.cisa.gov/shared-resources-shares-high-frequency-hf-radio-program>

**MARS** - The Military Auxiliary Radio System (MARS) is a United States Department of Defense sponsored program, established as a separately managed and operated program by the United States Army, and the United States Air Force. The digital messaging capability of MARS is supplemented by WL2K. MARS uses frequencies, rules, and regulations which are different than those used by USA amateur radio.

**Winlink Hybrid Network** - A voluntary subset of RMS HF and RMS VHF/UHF stations which can exchange messages (on behalf of others) between each other using "radio", in addition to performing their normal WL2K functions. The goal of this function is to enable Winlink users to function during an "internet outage", without using the "peer-to-peer" method. See Q164.

**MPS** – Message Pickup Station. The Hybrid Network RMS you would use to send and receive messages (using only packet, pactor 3, pactor 4, or VARA) during a unique "internet outage". See Q164.

**BPQ32** – “SysOp” software which enables a RMS station to function, if using the "BPQ" software. "RMS Packet", "RMS Gateway", and "BPQ32" all perform the same function. Note: BPQ32 can perform many other functions, in addition to this WL2K function.

**Q104 What is a “PMBO”?**

A104 This is an amateur radio station which functions as a port to the rest of the Winlink 2000 infrastructure. It is a “bridge” between radio stations and the e-mail part of the internet. A PMBO performed the same function as a RMS Pactor station. Use of the PMBO software was discontinued early in 2008. See Q107.

**Q107 What is a “RMS”?**

A107 “RMS” is a Radio Message Server. It is a direct radio port or gateway to the CMS.

Early in 2008 software relating to PMBO and Telpac was replaced by software relating to RMS. PMBO software was replaced by RMS Pactor software. Telpac software was replaced by RMS Packet software. RMS Pactor software has since been replaced by RMS Trimode software.

A benefit to WL2K users of these changes is a reduction in the “latency” of messages, as they move between the user and the Common Message Server (CMS). See Q4010.

A “RMS HF” station is a gateway station to the WL2K system for HF users. For information regarding WINMOR, see Q930 and Q940.

The connecting procedure for users does not change, even though the names have changed.

**Q108 What are the changes to WL2K associated with the CMS change on October 31, 2017?**

A108 The Winlink Team (WDT) migrated the old familiar CMS servers to the new AWS 'Cloud' CMS on Tuesday, October 31, at 1600 UTC (Noon EDT).

By the look of our logs, 99.9 percent of users are using the system without issues. All changes have proven to be invisible (totally transparent) and present no problems for most users. There are always exceptions, however. Here are the issues affecting selected users that we've seen so far:

1) You will not be able to connect using Telnet with a third-party program set to use an IP-numbered CMS address. You must use a fully qualified domain name in Telnet settings. Now that we're post-change, we recommend 'cms.winlink.org' as a setting that will work into the future. Old CMS names will also work for at least one year after

the transition and will be phased out slowly as we detect their lack of use. These include 'server.winlink.org', 'perth.winlink.org', 'halifax.winlink.org', 'wien.winlink.org', 'sandiego.winlink.org', and a few others.

2) Although the change is totally transparent, this does not fool intelligent humans. Knowing about a change, we expect to see the change appearing in our program logs and displays! But unless you're using an updated client or gateway program or have already made changes as suggested above to a third-party program, you will continue to make connections labeled by your program with the old names. You're really connecting to the new CMS cluster, but your old program is masking that (lying). Don't be confused! Just watch for a program update, and get it, or change your configuration if the program leaves it up to you. This goes for all programs until they are updated, including utilities like RMS Link Test.exe.

3) Also, the new CMS cluster is sensitive to both upper- and lower-case passwords for accounts. The old CMS was not. Your account, if already established on the old CMS, will always use upper case alpha characters in usernames (call signs) and passwords. Applications that connect to the old CMS, including this web site, often eased the user experience by accepting either, then converted your input to upper case before submitting to the CMS. Accordingly, if your account is already established on the old CMS and was transitioned, be sure to use UPPER CASE alpha characters if you find your application is getting rejected when you try inputting lower case characters. This includes our new webmail app. If you can't make it work after trying the possibilities, contact a Winlink administrator, or post on the support reflector. This has nothing to do with the common Telnet 'password' CMSTELNET, used in manual Telnet configurations in Airmail and other programs.

4) We found a bug, fixed in the next version of Paclink, that caused Telnet connections on the new CMS to fail with "\*\*\*Telnet access code does not match - Disconnecting" when a MARS service code was used in the program. The workaround until the new version is released is to use a different service code, i.e. PUBLIC.

5) If you saved mail in folders on the old webmail app, it was not migrated to the new webmail app on the new system, nor will it be. We found that users did not manage their saved mail and generally never accessed it. It has not been destroyed. If you have something very important to recover, please contact us and we will locate it and send it to you.

6) Iridium GO users with Winlink Express will need to update to Express version 1.5.9.4 and Iridium GO firmware version 1.5.2 to use a fix for a problem making Telnet connections to the new servers through our load balancer.

7) Users who have embedded Winlink maps or data in their own web pages will generally continue to pull from our servers without a problem because we have set redirects on the old servers. In embedded position reports that use the query string '?callsign=xxxx', the query string is not supplied to the new servers. For long-term reliability and complete compatibility, all users of embedded Winlink maps or data must update their web code to use new URLs. See the new URLs on the position reports page. Application developers using the Winlink API should contact your WDT contact for in-depth information about changes.

8) The web app called Sysop's Message Monitor returned the message "Unable to validate access to this application". This was a bug in the web site code that is now fixed.

Although the new servers have been under Beta test for a very long time, and a full-scale test was successful last summer, it's impossible to anticipate all issues with a complex system like Winlink. We will appreciate your reporting odd behavior to the Winlink-programs-group at google groups if you see anything questionable. You can navigate there with a click.

## **Q109 What are some of the details about the new Cloud Winlink CMS Architecture?**

A109 The CMS is composed of several programs (Windows services) that handle discretely different functions (Handling Telnet connections, Receiving Internet mail, Forwarding mail to the Internet, Processing position reports, performing database maintenance, providing web services, etc.).

The Winlink system consists of two CMS's (presently) which are hosted in the Amazon cloud (in different Amazon availability zones).

All connections to a CMS are managed by another set of servers which balance load and determine health of each CMS.

CMS applications interact with a single database server with real-time backup to a second database server in a different Amazon availability zone.

If the primary database fails, the secondary database server is automatically made primary. This process usually takes less than a minute during which time the message servers will cache and retry all activity.

Daily backups are performed and held in AWS S3 storage for 7 days.

An additional database backup is performed daily and stored off-site on a dedicated server (not on Amazon resources). These backups are held for 30 days. This off-site server also contains a complete set of all programs and services to create a stand-alone CMS. It can be brought on-line quickly in case of catastrophic failure of all Amazon resources.

The backups saved to the offsite fail-over system are imported into the running database on that server daily. One of the modules that make up a CMS has as its single purpose a set of tasks that test and report on different aspects of a CMS -- enough to verify the viability of the database.

It's true that Amazon has resources in many places, but not all their services work across regions. The load balancer (AWS Elastic Load Balancing) we use, for example. At some point it may be offered; at which time we can investigate that and the impacts that would be introduced - such as additional latency.

The current system architecture is resilient, redundant and easily managed.

The fail-over backup system can be hosted anywhere but it must be easily accessible and highly available. At present that server is in San Diego.

Telnet connections are made by connecting to cms.winlink.org on port 8772. All programs making Winlink Telnet connections should be configured to use this new address. The password is CMSTELNET.

**Q112 Are there some “maintenance” things I should be doing to keep my part of WL2K running smoothly?**

A112 Yes, like most hardware and software, revisions occur.

- 1) Keep your WL2K password recovery email address up-to-date. **VERY IMPORTANT.** In Winlink Express go to Settings ... Winlink Express Setup ... make change ... Update. Another alternative to do this is via Winlink.org. My Account ... Login ... View ... Edit ... Save. Note that there are slots for “email address” and “PW Recovery email address”.
- 2) Keep you client software up-to-date. If you are using Winlink Express an opportunity for this to be done happens every time you Open Winlink Express with a live internet connection. Your copy of the Standard Templates database will also be automatically updated.



- 3) Update your RMS stations and frequency list. See Q2600 if you are an AirMail user. If you are a Winlink Express user go to Open Session ... Channel Selection ... Update Table Via Internet.
- 4) Review and update your Whitelist. Addresses and domains (like "bigbear.com" are removed from the Whitelist if they are not used for 400 days. See Q630-Q650.
- 5) Update the Catalog. This is automatically done in (an Open) Winlink Express with an internet connection present. If you are using AirMail see Q2600.
- 6) Keep your list of Standard Forms updated. See 11575.
- 7) Keep your computer operating system up-to-date
- 8) Keep the firmware for your hardware up-to-date.
- 9) Keep your batteries charged.
- 10) Download the latest version of the Winlink FAQ file. Review Additions and Changes. Save on your computers that use WL2K. Save this FAQ file to your cell phone and Tablet.

**Q115 Is Winlink 2000 designed to replace the e-mail part of the internet, in case the internet fails?**

A115 No. Its original purpose (started in 1999) was to provide a very long-range radio path for radio amateurs who did not have access to "land-line" communications needed to send and receive e-mail messages. Subsequent uses have been oriented toward providing partial backup of e-mail services for ARES/RACES "served agencies" during a local commercial communications outage or communications overload. Transfer speeds and available bandwidth do not allow for complete replacement of services. This may change with increased use of D-Star and RMS Packet satellite paths to the internet infrastructure.

**Q120 How do I register as a Winlink 2000 User?**

"Registration" is automatically done when you connect to the Winlink 2000 system via radio or via a Telnet session. Accessing the WebMail part of the WL2K web page does **not** automatically register a new user. Your User information will remain in the database for 400 days after your last interaction with the Common Message Server. User radio privileges are not checked by Winlink 2000 system staff. Use of WebMail does not "update" the 400-day limit; this must be done by using a RMS station, or connecting directly to the CMS.

**Q121 How do I Get an Account?**

A121

1. Download, install and configure any client software. We suggest Winlink Express. Study its Help file about installation and use. If you are not using Winlink Express go to (4) below.
2. If you are using Winlink Express, follow the account creation instructions presented by the program. If you have Internet, then you enter a "Permanent" password. See (5) below regarding Password case rules.
3. If you are using a radio connection enter ANY password to get by the password PopUp, then Connect to any RMS Gateway. That password will be ignored and a new temporary Password you will be sent by radio back to you (via your second Connection).

Use the following instructions to create an account via RF with other client software:

4. 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 sent to your account. Retrieve it with a second connection. Secure (password protection) login will now (beginning April 15, 2016) be enforced by the CMS so be sure to set your password in your client program.
5. Your password can be a mix of upper and lower case UNLESS one of your client programs will be AirMail, in which case you MUST use all upper-case characters for your password. Your single WL2K access password is used for all client programs (Winlink Express, AirMail, Paclink, etc.).
6. At any time, use the form (lower right on the 'My Account' page) to have a password re-sent to your account address. Retrieve it using your client program.
7. Go to 'My Account' from the menu. Use your callsign as your username, and password to log in. You can change your password once you are logged in.
8. Click the 'edit' tab. Be sure to edit your account settings and set a password recovery email address! **Important: Keep your password recovery address up-to-date.**

Winlink accounts stay alive only with client program use via a RMS or Telnet connection; Webmail and other accesses don't count!). Accounts off-air for **400** days are automatically purged. Tactical email addresses must access the CMS at least once every 6 months to prevent being purged. Use it or lose it! See Q360.

**Q123 My e-mail account appears to be deleted after a period of non-use. Why?**

A123 Yes, your account was deleted automatically by the system after 400 days of non-use by radio or Telnet. This has been a function of the Winlink system for many years, it helps validate our charter as a special radio e-mail service and separate WL2K from general-purpose internet e-mail services.

WebMail is a convenience available to radio e-mail account holders if their account is active. You cannot reset the 400-day countdown clock by using WebMail. Only using Telnet or access via radio keeps a WL2K e-mail account active.

As explained on the web site registration pages, an account for web site access does not link in any way to or create a radio e-mail account.

Establishing a new e-mail account is very easy. All it takes is connecting with an RMS station via RF or to the CMS using Telnet (no modem or radio required) and sending a message using a legitimate call sign. Your account is created automatically when you do this.

**Q125 How many Winlink 2000 users are there?**

<u>Date</u>	<u>Total Users</u>	<u>Active During Prior 30 days</u>
April 4, 2020	25,808	11,676
June 10, 2019	23,050	9,243
November 21, 2017	20,749	7,642

On February 2008 there were exactly 19,503 registered stations with unique callsigns.

Early in December 2007 there were about 13,000 registered users.

**Q140 I just connected to a packet RMS, expecting an important message. WL2K says I have no mail. Why?**

A140 The RMS may be seeing you as Usercallsign-15, caused by you going through a Node (if using packet, with either AirMail or a terminal (keyboarding) program). See Q145. If that is the case, and you are using AirMail, you might try connecting to the Node as Usercallsign-15. See Q3510 if you are using AirMail or Q8550 if you are using a Terminal (Keyboarding) program.

Another possibility is that you may have opted to have your WL2K mail Forwarded to another email address.

**Q145 I would like to use my callsign with a SSID as my WL2K address. Is that possible?**

A145 Yes, in fact you can have multiple WL2K addresses, such as K3ABC@winlink.org and K3ABC-3@winlink.org. The system should treat those two call signs as separate users. There are some areas of confusion that need to be discussed.

- 1) In WL2K if you connect as a –ssid callsign and there is THAT –ssid registered in the system as a separate user it will treat you as a separate user. There are some specific reasons for this having to do with RMS's etc.
- 2) If you connect with a –ssid and THAT –ssid is NOT registered in the system, it treats you as the BASE call sign ...no ssid
- 3) If you connect through a packet network or some switches (Nodes) that alters your –ssid then this can pose a problem. Paclink has an extended feature added (signified by the N in the SID) that tells the target RMS what your real –ssid is even if the packet network altered it in the connecting process. See Q3510 and Q8550.

If you want your Paclink to really operate as K3ABC and not as K3ABC-3, then simply change the call sign in the site properties. You will also have to change any accounts on Outlook Express, Outlook etc. to match the new base call sign. See Q3560

Users of Winlink Express can easily switch between multiple callsigns.

**Q150 Are there any guarantees that the message I send via WL2K will get through to the intended person?**

A150 No guarantees, but if one of your intended recipients is NOT a WL2K user, you will get a service message from the CMS, telling you of that problem. Assuming that you have addressed the message correctly, there are still a multitude of reasons why the intended person might not get the message; or got it and has not read it. The WL2K system is good, but not infallible, ditto for the rest of the internet infrastructure.

Some e-mail servers' Spam Filters are very aggressive. Some may reject e-mail originating or from a server located in specific countries. It is the responsibility of the message originator to verify that the message path is working – **all the way** to the recipient of the message. See Q750.

“Receipt Confirmation” is discussed in a web page by K7BFL:  
<http://www.felge.us/ReceiptConfirm.html>

**Q160 What happens if the Common Message Server (CMS) fails?**

A160 The CMS is in a “Cloud”, hosted by Amazon Web Services. If that fails, we have an independent live backup CMS system in San Diego that can be put online in minutes. And even if that fails, the Hybrid RMS gateway radio-only network will function to keep message routing and delivery moving. If that fails Users would use Peer-to-Peer and/or RMS stations which are configured as a Hub. See Q164 and Q10020.

**Q164 What is the Winlink Hybrid Network?**

A164 See the Help file in Winlink Express ... Help ... Index ... Search for “MPS” ... Display. Read all.  
See Q103.

Phil (W4PHS) also has a good written presentation on it (revised in October 2014), available from his own web site at:

[http://www.philsherrod.com/Winlink/Radio\\_Only\\_Winlink.pdf](http://www.philsherrod.com/Winlink/Radio_Only_Winlink.pdf)

There is also a piece in the Winlink web page at:  
<http://www.winlink.org/HybridNetwork>

Not all HF RMS stations participate in this Hybrid Network. It requires the use of pactor 2-4 or VARA HF.

After you have read these documents you might consider signing up to use the Hybrid Network if needed. Select a Message Pickup Station (MPS). This is the station you would use to send and receive messages (using only packet, pactor 2-4, or VARA) during a unique "internet outage".

Go to Winlink Express.... Settings .... Hybrid Network Parameters. Be sure that the MPS's country has an amateur radio reciprocal operating agreement with your country.

Also, if you are an AirMail or Paclink user, you can use (if needed) the Hybrid system by Connecting to your MPS with AirMail or Paclink.

Winlink Express is the only client software which can be used to define your MPS.

**Q167 After I download a message from a RMS when is it deleted from the WL2K system?**

A167 The message is immediately deleted from the CMS.

**Q170 Are there any guidelines concerning the size of messages that WL2K will accept and process? What are the relative speeds of the various protocols?**

A170 120000 bytes is the largest “compressed” message size that will be accepted for Winlink. Due to the much slower transfer speeds of radio paths (compared to dial-up, etc.) it is better if messages are kept as small as practical, while still accomplishing the communications objectives of both users.

Peer-to-Peer messages are limited in size only hardware memory size and equipment thermal limits.

Following are approximate air times needed to transfer a 4K message (after compression) for several modes of operation, *under ideal conditions*:

Pactor 1	15 minutes
WINMOR 500	10 minutes
Pactor 2	4 minutes
WINMOR 1600	3 minutes
Packet (1200) 1 Node	2.5 minutes
Packet (1200) direct	2 minutes
Packet (9600) direct	1 minute
ARDOP	faster than Pactor 2, slower than Pactor 3
VARA	faster than ARDOP, slower than Pactor 3
Pactor 3	30 seconds
VARA FM	20 seconds
Pactor 4	15 seconds
Telnet (Internet Access)	seconds

See this report (July 5, 2020) [comparing the performance of various protocols](#) supported by WL2K.

Message content containing “emotions” and “backgrounds” [embedded image files] should be avoided, if possible.

WL2K (except when using Keyboard or Web Message Access) will process Attachments of many file types. Some file types come with significant “overhead”. This overhead can be reduced by changing the file to a txt, rtf, html, or csv file, if appropriate.

Image files should be as small as practical!

**Q180 What is the most popular protocol??**

A180 See Winlink.org ... Tools ...Traffic <https://winlink.org/RMSChannels>

**Q200 What are some of the design principles of the WL2K system and associated software?**

A200 Principles include:

1. A message system compatible with SMTP e-mail.
2. Enable messages to be transferred to the destination party in a VERY accurate manner, within a short time duration (several minutes).
3. Enable use of the available internet infrastructure, if available.
4. Encourage use of VHF/UHF radio spectrum, if a “non-radio” path is not available.
5. Enable EFFICIENT use of HF radio spectrum, if VHF/UHF is not available. Use as small as possible “RF Footprint”.

See [http://www.felge.us/RF\\_Footprints.pdf](http://www.felge.us/RF_Footprints.pdf)

6. Enable e-mail type messages to be sent between two radio stations, without using any portion of the "internet". This is called "peer-to-peer".

**Q220 Does WL2K support Linux or Macintosh (MAC OSX) operating systems?**

A220

Yes, but since Windows operating systems are used by most actual and potential users, we feel our limited manpower resources should be used to improve the present Windows based software.

There is a version of the RMS Packet software that runs under Linux and several have used this to add packet gateways to WL2K...again this is more of a server function than user access. See Q9100.

A Linux version of Paclink is being developed by N2QZ and KA1WPM. Contact them if you would like to help. Nick, N2QZ, has created an io group for people interested in the paclink-unix project. See Q920.

The Macintosh can now run AirMail just as well as any computer out there, especially, the new Intel based Macs. These new Macs can run Windows naturally through "Boot Camp", which comes with the operating system. You can also run Windows via VM Ware or Parallels. These programs basically run Windows just like a regular Windows machine except in many cases faster. One other advantage to these programs is you can also run multiple operating systems, such as Linux, Mac OS X, Windows, etc.

AirMail will also run on older Mac's using the Windows emulation, such as Soft Windows. This may be a bit sluggish, depending on the speed of your computer, but will work.

AirMail also runs fine on older Mac's under Virtual-PC. The only wrinkle has to do with USB/serial adaptors not AirMail, either map the serial port from the Mac side OR enable VPC's USB support and install the Windows USB drivers. But don't do both, that ties the serial ports into knots.

You can also run AirMail under WINE on Linux.

KI7QFV has packet and Pactor 3 working with Winlink Express, using WINE and a MacBook Pro. She is now working on adding WINMOR to the mix!

See <https://wiki.psrq.org/wiki/Winlink-Mac: Internet Email over Radio on a Mac>

If you mean as a WL2K RMS Pactor station, the answer is no; those are only Windows .NET programs running on Windows 7 or later. Perhaps someday there will be a .NET runtime for the Mac which would make things a lot more transferable.

As a last resort you can access WL2K via any dumb terminal program on packet in keyboard mode. This is not recommended...it is error prone, does not allow attachments etc.; but it will work in an emergency. HF access via keyboard is very restricted due to its inherent inefficiency.

The WL2K Development Team is open to integrating other operating system software into User programs. If you are or know a good Mac programmer, we will encourage him and help him if he would like to write a Native Mac client. It really isn't that hard. We will give the VB.NET source if they wish.

If you have such programming expertise and want to donate your time, please contact the System Administrator, K4CJX.

**Q240 Why doesn't WL2K use the TCP protocol?**

A240 Tests done early in the development process indicated that the B2F format we use resulted in higher throughput than using the TCP protocol, which has much unnecessary overhead for radio use.

**Q250 Why doesn't WL2K use the FT8 protocol?**

A250 FT8 was designed to handle very small pieces of data. It does that very quickly and efficiently. WL2K messages are composed of relatively MUCH larger pieces of data, which other protocols handle more efficiently.

**Q260 While monitoring transmissions from WL2K stations, I notice that the content appears as "gibberish". Isn't this illegal?**

A260 The content looks that way because it is a compressed binary format called "B2F." This format is available to anyone, so the compressed data is not considered encryption or illegal for radio amateurs. Additional information about B2F is at:

<https://www.winlink.org/B2F>

Data transferred through Winlink 2000 is not considered to be Secure.

Data transferred through Winlink 2000 using the Keyboard method is not compressed; therefore, it is easily readable by other listeners.

A message "viewer" is available on the internet. See Q480.

**Q280 What document(s) explain the components of a packet exchange in Paclink or AirMail? A question has been raised specifically regarding the "FF, FC, FS, FQ, EM, & YY" that shows up during a session. What does each of those mean?**

A280 What you are seeing is a BBS forwarding exchange where the two connected systems propose transmission of messages they have available for the other user, and list which messages they wish to receive of those proposed.

For documentation of the basic F6FBB BBS proposal exchange, see:  
<http://www.f6fbb.org/protocole.html>

WL2K uses the standard FBB type protocol with a B2 extension. B2 is simply a specific mechanism for encapsulating a message which allows adding attachments, addressing multiple recipients, and mixing radio and e-mail (internet) recipients. Otherwise it is virtually identical to the FBB B1 protocol and it uses the exact same LZW compression algorithm as FBB B1.

The B2 protocol was developed in 1999 by the WL2K Development Team to be an efficient mechanism to move text and binary attachments using the FBB forwarding protocol. The FBB protocol and B2 is more efficient than the standard internet SMTP protocol in RF applications such as Packet or Pactor.

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During a WL2K Session there is information that is not easily identified.

The following is from a recent Post on the WL2K WINMOR Yahoo Group; from Rick Muething KN6KB. Rick is a leading software designer with the Winlink Development Team; he explains the Session info.

\*\*\*[Example Session]\*\*\*

[WL2K-2.7.8.2-B2FWIHJM\$]

PQ: 76481232

Wien CMS via VE1YZ

FW: KD4B

[Winlink Express-1.2.13.0-B2FHM\$]

PR: 92530534

VE1YZ DE KD4B (FM06SA)

FF

FC EM 7YIYBZX79JV3 148 145 0

F> 68

FS Y

\*\*\* Receiving 7YIYBZX79JV3

\*\*\* 7YIYBZX79JV3 - 161/155 bytes received

FF

FQ

\*\*\*[Explanation by KN6KB]\*\*\*

The PQ; 76481232 is the challenge phrase for secure login. It is generated by the CMS using a standardized hash algorithm that creates a challenge number (76481232 in this case) based on:

- 1) The password for the connected call sign
- 2) A Secret phrase known by the CMS.
- 3) A large random number (so the challenge changes with every connection of the call sign)

The PR; 92530434 is the response generated by the client program which is based on:

- 1) A secret phrase
- 2) The password known by the Client program (must match the one known by the CMS)
- 3) The challenge phrase above

The CMS uses an algorithm to verify that the password (as known by the client) is exactly the same as the one known by the CMS. If it matches the connection proceeds otherwise the CMS immediately disconnects with a failed secure login fault.



The advantage of this system is the password itself is never sent over the air or Telnet connection and the challenge phrase and matching response are different (because of the random number) on each connection even from the same station. This has been in use about 10 years and proven to be very secure. It is used by both Winlink Express and AirMail. Because the PQ and PR are followed by a ":" they are considered by the FBB protocol used as comments not forwarding commands.

The 7YIYBZX79JV3 148 145 0 are simply the message number (7YIYBZX79JV3), actual size (148), and compressed size (145) of the message in bytes. For a very short message as your example these are nearly the same. For a larger text message (> 2 K bytes) you will see a typical 2:1 compression. Some other messages with attached files may have more or less compression depending on the "entropy" of the files. Those numbers are used by the receiving protocol to know when to un-compress the received message when a block of messages are chained for forwarding as permitted by the B2F protocol. The algorithm and code for capturing and un-compressing can be challenging but once debugged is reliable although once in a great while a message will decompress OK and still fail an overall CRC check. In such rare cases there is no recovery possible and the link must be dropped.

For obvious reasons we keep the details of the secure login algorithm well-guarded. When you get to a point where your client needs to verify the secure login (it is optional for users and is ignored if secure login is not enabled by the user in his Winlink profile) we can get you the details of the algorithm.

There is also a secure login for servers to the CMS. It works on a similar principal but has a different algorithm. This is now required for ALL servers and insures no one can operate a "rogue" server without proper information and authorization in the WL2K master database. You normally won't see this in the client program unless the server fails the secure login which will force a Disconnect.

FF means you have no more messages to upload to the CMS

FQ means that the CMS has no more messages to download to you

#### **Q290 Why is the BCC email feature not available for Winlink users?**

A290 For anyone interested in why Winlink 2000 does not utilize BCC on the Ham bands, please refer to Section 605 of the Communications Act, Citation 47.

Obviously, this only applies to Amateur Radio (no Exceptions), and perhaps only in the United States, but that is not the issue. Winlink is capable of Encryption and could also obscure the recipient list of a message via the IETF RFC for SMTP mail if there was a purpose. However, keep in mind, so can Microsoft, Apple, and other software providers. What is important is NOT what Winlink 2000 can do or cannot do, but what the FCC allows the US Amateur Radio Control operator to do, and Blind Copying recipients of messages is not allowed.

#### **Q300 I am active in MARS and the National Traffic System, handling messages using the "Winlink 2.9" software. Can I use this software with Winlink 2000?**

A300 No, it is not compatible. The Winlink 2000 system is an off-spring of Winlink 2.9. Winlink 2.9, Winlink 3.1, and Winlink Classic are all similar. Winlink 2.9 is a user program. Winlink 2000 is a "system". AirMail is similar to Winlink 2.9 but has MANY differences. A major difference is the message routing process. AirMail and Winlink 2000 do not support "H-routing". Winlink 2000 is centered on the SMTP e-mail standard.

Winlink 2.9 was written by Victor D. Poor, W5SMM, who continued to write software for Winlink 2000. You can read more about the history of Winlink on a [Winlink page](#) or at: [https://www.felge.us/WL2K\\_History.pdf](https://www.felge.us/WL2K_History.pdf)

AirMail can be used to send and receive NTS radiograms via the Digital Traffic Network system, by accessing the DTN "Area Hub" pactor stations. See the instructions at: [https://nts-digital.net/mw/index.php?title=Main\\_Page](https://nts-digital.net/mw/index.php?title=Main_Page)

**Q320 How can I send a Radiogram via Winlink 2000?**

A320 It either be embedded in the Body of the message or Attached to the message.

AirMail can be used to send and receive ARRL radiograms via the Digital Traffic Network (DTN) system, by accessing the DTN "Area Hub" pactor stations. See the instructions by at:

[http://nts-digital.net/mw/index.php?title=Main\\_Page](http://nts-digital.net/mw/index.php?title=Main_Page)

Also see Q6100.

**Q340 How can I find the location of a WL2K user?**

A340 Some WL2K users may voluntarily report their location to the CMS. If you have access to the web, go to the WL2K web page....Maps....User Positions... <http://www.winlink.org/userPositions>

Click on the dot of the approximate position of the station you are looking for. Click again on "View Position Reports" to see all the recent reports from that station.

If you are using AirMail, send a "Position Request" message via Message Index....Window....Winlink-2000....Position Request.

This User location information is not available for all Users, only for those who have voluntarily recently sent their location information to the CMS.

**Q360 What are some of the Limits associated with WL2K?**

A360

Message size maximum, including Attachments: 120000 bytes (compressed)

*[If a message exceeds the absolute compressed size limit, a service message will be sent to the sender advising that the message has not been accepted. There are no limits on the number of messages for each user or the overall byte size]*

Attachment name size maximum: 50 characters (including extension). This is not a problem when Sending from a Winlink address but does occur when Receiving at a Winlink address [the Attachment is not downloaded, with no "error note"].

Life of an Unread message: 21 days

Registration period for a WL2K user: 400 days since last access via radio or Telnet (Internet Access). No "getting close to limit" info is available from the CMS.

Life of a Tactical E-mail Address: 6 months since last use (Connection to the CMS). No "getting close to limit" info is available from the CMS.

Life of an e-mail address in your Whitelist: 400 days since you last sent a message to that address. No "getting close to limit" info is available from the CMS.

Tactical address name length: Current Tactical addresses are limited to 12 characters total (including any "-") preceding the "@winlink.org". See Q7030.

User daily time limit for HF users is defaulted to 30 minutes for each UTC day for a specific RMS. The RMS operator may change that default, or customize it for different protocols (pactor, ARDOP, VARA, etc.) and different users. If you have specific larger needs, e-mail your request to the RMS operator (RMScallsign@winlink.org).

There are no User daily time limits associated with a RMS Packet station or Telnet (Internet Access).

**Q370 Is there somewhere I can see how many messages the WL2K system has handled last month?**

A370 Yes. From the WL2K web page go to ...Tools...Live System Information....Traffic  
<https://www.winlink.org/RMSChannels>

**Q380 I just got a "message not delivered" service message from the WL2K Common Message Server. Why?**

A380 The WL2K outbound E-mail (SMTP) client will try and send your outbound mail directly (no relays) to the end recipient 10 times over a period of 5 hours. If it still fails (in this case because it appears the ISP is not accepting or blocking the connection) it gives up and sends a failure notice to the originator.

Most of the times these failures are due to:

- (a) Improperly listed public MX record for the destination domain
- (b) Some form of spam or other filtering mechanism used by the ISP
- (c) The server is offline or otherwise down. If multiple servers for a Domain are available (as listed in the MX records) all are tried.

**Q400 What kinds of Attachments will the WL2K system accept?**

A400 All except .exe. Attachments are not useable when accessing via the Winlink web page or when using the Keyboard Method.

**Q410 I can't seem to send an attachment. When I attempt to send, I get the message "(Attachment deleted, could not be sent in this mode.)" Tried in P2 same thing; tried different RMS's; same thing.**

A410 Go to Tools....Options....Settings. Make sure that "B2F" is selected for the BBS Forwarding Protocol.

**Q420 I sent a message to someone who does not have a Winlink account. Some additional "legal" words showed up at the bottom on the message. Why?**

A420 Winlink appends a "footer" containing reply guidance for recipients to the bottom of messages being sent to Internet (SMTP) addresses. The footer is never appended to messages sent to a Winlink address or to known bandwidth-limited services such as SailMail, (as well as many known blog services). The addition of this footer occurs at the CMS and before the message is forwarded to the recipient's Internet mail provider. As such, it does not consume RF bandwidth. It is legally required to notify a non-ham that they must have no expectation of privacy should they choose to reply to the message containing the header. It is not optional. There is no option to remove this footer from future messages to which it may apply.

***This message was sent from an amateur radio account. If you reply, be mindful that your reply will be subject to inspection by the public. If your reply contains prohibited content (profanity, personal or commercial business information, etc.) it may not reach its destination, and will endanger your correspondent's license. Ask your correspondent if you have any questions.***

**Q430 Is a Password needed to be a WL2K User?**

A430 Yes. The "radio secure password" became a requirement April 15, 2016. It is needed to access a RMS via radio or the CMS via Telnet. It is the same password you have been using for WebMail, etc.

The new (October 31, 2017) CMS cluster is sensitive to both upper- and lower-case usernames (call signs) and passwords. The old CMS was not. Your account, if already established on the old CMS cluster, will always use upper case alpha characters in usernames (call signs) and passwords.

On January 31, 2018 the Winlink Team and its third-party partners rolled out updates to most every gateway and client program that will work on the system. Each (except AirMail) has been updated to take advantage of the CMS's ability to use passwords with both UPPER and lower-case alpha characters. Previously, the system limited and stored passwords only using UPPERCASE alpha characters, and user software in many cases allowed input in lower case and then corrected it to uppercase for you before submitting it. AirMail users must have an all upper-case password.

If you have had a password problem with a program or this web site, try this: enter your password using uppercase characters. If you use AirMail your password (used with all client software) must be in all Upper Case.

If this doesn't work for you, we suggest changing your password. You can do that using the link on your [My Account] page, or by changing it using Winlink Express client software.

If you still have a problem, Post on the support groups details of your experience and someone will assist you directly by email.

UPDATE: February 12, 2018 -- We found several bugs in gateway programs and the WebMail app that caused users with mixed-case passwords not to authenticate with the CMS properly. These have all been fixed. If you run a gateway station, check that a user can successfully get a connection to the CMS when connected to your station. If not, the solution is in the latest version of RMS Trimode and RMS Packet. If you had an error when sending a message using WebMail, give it another try!

NOTE: If you are an AirMail user you must have a WL2K password in all Upper Case. Your single WL2K access password is used for all client programs (Winlink Express, AirMail, Paclink, etc.).

**Q460 Is there any priority associated with the downloading of messages to a user?**

A460 Yes, smaller messages are downloaded before larger messages, in groups of five.

**Q465 What are the rules regarding WL2K and “Third Party Traffic”?**

A465 from: <https://www.winlink.org/guidelines>

Remember that there is no privacy over amateur radio. Anyone who is properly equipped can read messages handled by Winlink. Each gateway sysop routinely monitors messages passing through their station to ensure acceptable message content. Any message violating local rules is deleted and the sender advised. Gateway sysops are legally responsible for traffic flowing through their stations.

**Third-Party Traffic**

Third-party traffic is any message transmitted that is either from or to a non-amateur licensee. In the Western Hemisphere (with a few exceptions) there is no restriction on third-party traffic being passed over amateur radio. Many countries outside of the Western Hemisphere also now permit third-party traffic over amateur radio. Messages between amateurs if they originate from or are delivered over Internet are not considered third-party traffic. Third-party traffic rules only deal with that portion of the message path which is transmitted over the radio spectrum.

For example: if a message originates from a non-amateur as an internet email in the U.K. and is delivered to a U.S. amateur over the radio from a gateway station in the US, no third-party rule is broken even though the U.K. does not allow third-party traffic over amateur channels. Likewise, a message originating from a U.S. amateur and passed by radio to a U.S. gateway is OK even if it is addressed to the Internet address of a non-amateur in the U.K.

Users and sysops must make themselves familiar with these third-party rules for the country in which they are operating as well as linking with if they are exchanging messages with non-amateurs. US gateway sysops should know that §97.219(c) provides protection for licensees operating as part of a message forwarding system. "...the control operators of forwarding stations that retransmit inadvertently communications that violate the rules in this Part are not accountable for the violative communications. They are, however, responsible for discontinuing such communications once they become aware of their presence."

**Business Content**

Directly or indirectly enhancing one’s pecuniary interest using amateur radio is universally prohibited. Business traffic is any message that is related to an amateur’s business or an activity involved in making money or attempting to make money for the amateur. Placing orders to trade stocks are a clear-cut example of disallowed message content. On the other hand, in the US, the FCC has opined that merely ordering items for personal use is not in violation of the rules so long as it is incidental to your activity as an amateur and not to enhance your pecuniary interest. Even though the Winlink user may use Telnet connection or WebMail and never transfer information over the Amateur radio spectrum, it is the policy of Winlink administrators to abide by the Part 97 (US rules) as it pertains to business related message content.

The WL2K administrators may block any unsolicited mail sources, incoming messages from list servers or any “subscription-type” messages that might contain business related traffic. The best way to avoid unsolicited mail is to keep your Winlink email address private and to learn to properly use your account whitelist.

RMS SysOps have software available [SysOp Message Manager] to monitor the content of messages going In and Out of their station.

**Q470 I am a USA amateur. I just upgraded from a Technician Class to General Class. Can I immediately use my additional privileges on HF, connecting to a RMS on a General Class frequency?**

A470 Yes. However, if the FCC Universal Licensing System (ULS) does not yet indicate your new licensing status (it will take several days) you should do a couple of things:

- 1) Do not use AirMail or Paclink with your new privileges (Telnet OK, "old" privileges OK).
- 2) When using Winlink Express, change the Settings...Winlink Express Setup screen to include in the "Callsign Suffix" box the appropriate indicator (described below in 47 CFR §97.119(f). [Remember to change back after the ULS has your upgrade.]

A USA licensee who successfully upgrades may immediately operate with the privileges of the new license class.

47 CFR §97.9(b), "The person named in an operator license grant of Novice, Technician, General or Advanced Class, who has properly submitted to the administering VEs a FCC Form 605 document requesting examination for an operator license grant of a higher class, and who holds a CSCE indicating that the person has completed the necessary examinations within the previous 365 days, is authorized to exercise the rights and privileges of the higher operator class until final disposition of the application or until 365 days following the passing of the examination, whichever comes first."

If using privileges of the higher class before the upgrade appears in the FCC ULS, the licensee should identify with the appropriate indicator after their call sign.

47 CFR §97.119(f), "When the control operator is a person who is exercising the rights and privileges authorized by §97.9(b) of this part, an indicator must be included after the call sign as follows:

- (1) For a control operator who has requested a license modification from Novice Class to Technical Class: KT;
- (2) For a control operator who has requested a license modification from Novice or Technician to General Class: AG;
- (3) For a control operator who has requested a license modification from Novice, Technician, General, or Advanced Class to Amateur Extra Class: AE.

*If your upgrade is not in the ULS send a courtesy email regarding your upgrade to the SysOp of the RMS you intend to use. SysOps are responsible, to the best of their knowledge, to ensure that their station is operated in a legal manner, including Connects from stations with the proper credentials. Without your courtesy email the SysOp (getting their information about you from the ULS) will assume you are still a Technician. You may then get a "Warning" email from the SysOp.*

#### **Q475 Does the Winlink system (WL2K) have a Privacy Policy?**

A475 Yes. The ARSFI and Winlink Global Radio Email® Privacy Policy has been updated as of April 11, 2019 to clearly state that all messages sent or received over amateur radio frequencies are publicly available for inspection.

## **Terms, Conditions and Privacy Policy**

By using the ARSFI.org or Winlink.org servers and gateway stations ("the system") and by creating and maintaining an account in the system, you agree with, understand, and hold the Amateur Radio Safety Foundation, Inc., its contributors, developers, administrators, officers, and system operators harmless per the conditions set forth here. You also agree to the following terms and conditions, policies, and operating guidelines.

The Winlink Common Message Servers (CMS) and the participating Winlink stations (RMS gateways) make available publicly accessible ("Public Domain") information and data from the National Weather Service, the U.S. Government and other third-party sources. You must use such information with care as it may be inaccurate or out-of-date. The Amateur Radio Safety Foundation, Inc., its contributors, developers, administrators and system operators expressly disclaim responsibility for the content stored or transported by the system.

The information stored and transported by the system may be used freely by you as long as you operate in compliance with the rules governing Amateur Radio where you are located. Before using information obtained through the system, special attention should be given to the date and time of the data being displayed as well as the date and time of transport. Information passing through the system is not guaranteed to be accurate or current. The developers, administrators and system operators of the system will apply their best efforts to inspect and remove content prohibited by rules governing Amateur Radio. Should a message or data appear to be in violation of the rules, administrators and system operators have the right to hold or destroy the prohibited data, content or message.

The system administrators and participating station sysops strive to make the Winlink service available 24 hours a day, seven days a week. However, because individuals who provide Winlink radio email service are volunteers and that many aspects of system administration are not automated, the timely delivery of data or messages may not always be possible, and, therefore, is not guaranteed.

Special care, automated tools and design is provided by the developers and administrators to protect the system, you and your computers from spam, malware and viruses, but freedom from these is not guaranteed. The system provides you with options for spam control. You are ultimately responsible to properly use them.

You assume the entire risk related to your use of information or data received or sent over the system. This information or data is provided "as is", and the Amateur Radio Safety Foundation, Inc., its contributors, developers, administrators, and system operators disclaim any and all warranties, whether express or implied, including (without limitation) any implied warranties of fitness for a particular purpose. In no event will the Amateur Radio Safety Foundation, Inc., its contributors, developers, administrators or operators be liable you or to any third-party for any direct, indirect, incidental, consequential, special or exemplary damages resulting from any use or misuse of the system, from data or information acquired from it, or for any failure of the system to perform in any way.

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This privacy policy ("Policy") discloses the general privacy practices of the Amateur Radio Safety Foundation, Inc., located at 6143 Anchor Lane, Rockledge, FL 32955, U.S., and its projects, subsidiaries and affiliates (collectively, "ARSFI," "Winlink," "We," or "Us"). Any changes to this Policy will be posted on this page with an updated "effective date" posted at the end of this Policy.

**Privacy and Amateur Radio Email**

*You understand and agree that email content sent and received over the Winlink system is not private.* By most countries' amateur radio rules--to which each radio licensee must abide--content may not be encrypted with the intention to obscure it. Message content transported through the system over public or government radio frequencies, over the internet, or over private networks may be accessed by anyone with appropriate equipment and software. Messages are available online for public inspection, and may be requested by law enforcement, regulatory or defense agencies, health and safety agencies, or similar organizations in support of life- or property-threatening mitigation efforts, search and rescue, legal inquiries, or incident investigations. In addition, radio gateway sysops regularly monitor the messages sent and received through their stations in order to comply with their license regulations. System administrators also regularly monitor messages sent through the system to insure message content conforms to regulatory requirements under amateur radio rules.

**Our Pledge**

Your personally identifying information will not be sold, traded or used for commercial gain. Ever.

**Information Collected and Purposes of Collection**

While visiting any of ARSFI's websites including but not limited to, winlink.org; and arsf.org ("Site", "System"), or while using client email software to create an account, We may ask you to register and/or provide Us with information that personally identifies you ("Personal Information," "Personal Data"). Personal Information may include, but is not limited to, your name, phone number, street address, and e-mail address. *This is generally the same Personal Information made public by your licensing authority.* On any page that collects Personal Information you provide, We will specifically describe what information is required in order to enable your interaction with the System, provide you with the product or service you are requesting, respond to your inquiry or comment, or other uses as described in this Policy. We may also log IP addresses (the location of a computer on the Internet) from visitors like yourself for administration and troubleshooting purposes and to determine site usage.

We may also use Personal Information to contact you regarding administration of your account, or for your safety, should you employ radio email for emergency or contingency communications. You will at all times be able to opt out from receiving communications from Us. Please refer to “Opting-Out” section below for more details.

We reserve the right to disclose Personal Information when needed for your safety or to comply with the law or a legal process, to cooperate with investigations of purported unlawful activities, and to identify persons violating the law or our Terms of Use applicable to a given Site or the System. In the event of a change in control of ARSFI (a non-profit, public-benefit entity), our databases, including any Personal Information, will be transferred to the new owning entity.

**Related Third Party Products/Services**

If you sign up to register software, or to obtain a product or service We offer, We may share Personal Information with a third party such as a credit card processor and/or shipping and fulfillment services company, in order to provide you with the product or service you are requesting. These third parties are required to comply with this policy and to protect your information in the same way We do. They are not permitted to retain or use Personal Information for any purpose unrelated to providing the product or service you requested. By choosing to sign up for such products or services, you are agreeing to and acknowledging the release and use of your Personal Information to such third parties for such purposes, if necessary.

**Unrelated Third Party Products/Services**

You may use Winlink email messaging to communicate with third parties. Some of these third parties may also collect their own copies of your Personal Information as you provide it to them. We encourage you to check the applicable privacy policy for that third party prior to disclosing Personal Information to such third parties.

Third party sites linked to and from the Site are not necessarily under the control of ARSFI. We shall have no responsibilities or liabilities whatsoever for the content or privacy practices of any such linked site or any link or linking program at any time. We do not necessarily endorse companies (or related products or services) to or from which the Site is linked. If you decide to access any of the third party sites linked to the Site, you do so entirely at your own risk.

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**Cookies**

We may employ cookies (i.e., small data text files that websites send to your browser and are stored on your system) and other similar technologies (e.g., web beacons, pixels, tags, device identifiers, and web analytics services) to recognize you and/or your devices and to track your usage of the Site to help tailor it to your interests and needs. By tracking usage, we can also best determine the features that serve you best. In addition, by identifying your computer (but not any Personal Information) to our server, these tools also may allow you to avoid retyping your e-mail addresses, usernames and passwords each time you access the Site.

You may decline cookies by selecting an option on your browser. If you do so, however, portions of the Site which require registration may not be accessible to you, and you may need to re-submit certain registration information each time you access the Site.

**Children’s Privacy**

ARSFI cares about the safety of children and their use of the Internet. Therefore, in accordance with the Children's Online Privacy Protection Act of 1998, We will never knowingly request or solicit personally identifiable information from anyone under the age of 13 without verifiable parental consent. In the event that We receive actual knowledge that We have collected such personal information without the requisite and verifiable parental consent, We will delete that information from our database as quickly as is practicable.

**Opting-Out**

We respect your privacy and ability to choose whether to share information with Us and any third party. When choosing to use certain features or services on the Site, you can choose whether to share optional Personal Information in connection with that feature or service.



You may "opt-out" altogether from providing Personal Information to Us by not registering on the Site, or not creating a radio email account in the System, and thereby not providing Personal Information. Although it provides convenience and useful help information for users, the web sites of Winlink and ARSFI are not required to use our software or our radio email service. You may also choose at a later date to confirm the accuracy of your Personal Information that you have provided to Us by editing your account information online, or inactivate your account altogether by contacting us at [admin@winlink.org](mailto:admin@winlink.org).

Certain portions of the Site and certain services provided on the Site, however, do require registration and logging-in in order to access or use these areas and services. If you choose not to register or provide certain information, these areas will not be accessible to you.

Your messages sent using the system are retained after delivery for 21 days and then automatically purged. Your Winlink account, all content you may have provided including your Personal Information, is retained as long as you maintain use of the system. It is entirely deleted and cannot be recovered if you do not use your account *via radio or telnet* for 400 days. Personal information stored on our web servers is automatically deleted and cannot be recovered if you do not log in for exactly one year. If you maintain an active radio email account, you can log in to the web site and your account Personal Information will be restored to the web site from our central radio email servers.

**Security**

ARSFI maintains industry standard safeguards to help protect the security, integrity, and privacy of the Personal Information that you provide to Us. Please understand, however, that there are inherent security risks in any online medium, and no guarantee can be made against unauthorized access by third parties. This does not pertain to your email message content, for which you agree there is no privacy whatsoever as previously described.

**For Users Located in the European Union**

Given that ARSFI and Winlink are established in the U.S., your Personal Data will be transferred to the U.S. for processing, where less strict privacy protections may apply to your Personal Data than those in the EU. However, ARSFI will take reasonable measures to ensure your Personal Data remain protected in compliance with the EU's General Data Protection Regulation (GDPR).

You acknowledge that the transfer of your Personal Data to the U.S. is necessary for the purposes described above. You have the right to request access to, correction of, or erasure of your Personal Data. You may also request restrictions on or object to certain Processing of your Personal Data, or request the portability of your Personal Data. If you would like to make any such requests or would like more information about your rights related to your Personal Data, you can contact ARSFI's or Winlink's administrator: [admin@winlink.org](mailto:admin@winlink.org) or [admin@arsfi.org](mailto:admin@arsfi.org). You understand and agree that ARSFI's ability to comply with your requests regarding the Processing of your Personal Data may be limited by our internal policies, and applicable laws and regulatory requirements that ARSFI is required to comply with. You acknowledge that the Personal Data collection, use, processing and transfer activities described in this Policy are necessary for the performance of the services rendered by ARSFI and Winlink. Therefore your requests may result in the denial of access and services to you.

You also have a right to lodge a complaint with your country's supervisory authority.

ARSFI will retain a copy of your Personal Data until completion of the purposes listed in this Policy or for as long as reasonably necessary for ARSFI to comply with applicable law and ARSFI's internal retention policies.

**How to Contact Us**

If you have any questions or comments about this Policy, please contact us at: [admin@arsfi.org](mailto:admin@arsfi.org).

**Notice to Freelance Authors**

ARSFI respects the intellectual property of others. The licensors of articles appearing on our Site have assured Us that they have the right to authorize electronic distribution of the articles they provide to Us. If you are a freelance author, and if you have questions or concerns regarding the electronic distribution of your article(s), We recommend that you contact your publisher directly. If you dispute the right of your publisher to authorize electronic distribution of your article(s), you may provide Us with a written notification of your claim. Your notification to Us must be in writing and must include all of the following information:

A full and complete identification of your article(s) (namely, the title and listed author(s), publication in which it appears on our Site, the original publication date, and the web page on our Site in which it appears);  
Your name, address, telephone number, facsimile number and e-mail address;  
A statement that you own the copyright at issue or that you are acting on behalf of the owner (and, if acting, the name, address and telephone number of the copyright owner for whom you are acting), and, if the copyright has been registered, a copy of the copyright registration or its number and date; and  
A statement that you have a good faith belief that electronic distribution of the article(s) has not been authorized by the copyright owner, its licensees or agents, or by applicable law.  
Your contact information must be accurate and complete so that We can confirm the authenticity of your request and follow up with you if We have difficulty identifying your article. You must sign your notification and affirm to the truth of items (1) – (4) in the form of a statement, sworn and notarized, under penalty of perjury.

You must send this request to Us at the following address by U.S. Mail or overnight courier. (We regret that We cannot process notifications by fax, telephone, telegram, or e-mail.)

Amateur Radio Safety Foundation, Inc.  
Attn: Secretary  
6143 Anchor Lane  
Rockledge, FL 32955

**Effective Date and Changes**

This Policy is effective as of 4/11/2019. ARSFI reserves the right to modify the terms of this policy at any time and in our sole discretion, by posting a change notice to this page. Your continued use of the Site following our posting of a change in the Policy will constitute binding acknowledgement and acceptance of those changes.

**Winlink System Policies and Operating Guidelines**

Winlink (WL2K) is a global radio email service. Most gateway sysops and users are subject to amateur radio regulations. Winlink is also used for SHARES and government and non-government agency communications on frequencies outside the amateur bands. Different regulations apply to those users. It is always the responsibility of all radio licenses to operate within the laws and rules that apply to their license and location. Winlink administrators and volunteer gateway station operators exercise the self-regulation customs common in amateur radio, and so, to assist Winlink participants to stay out of trouble, and to foster orderly operations, you agree to these guidelines and policies by maintaining an account and using the system. Operating within these guidelines will keep most operators within the laws that govern their radio license, and avoid administrative actions against your account.

**Do Not Interfere**

Listen first! Because a live human being (control operator) is always present at the initiating station, there is one common theme paramount to the successful operation of the system: simply listen on the frequency about to be used to determine if that frequency is occupied. If the frequency is occupied by any detectable signal, the proper action is to either wait until it is free before transmitting, or find another Radio Message Server (RMS or gateway station) whose frequencies are not busy. Not only is this a common courtesy to other operators, but it is a specific requirement of every country's rules regulating amateur radio licenses, worldwide.

**Third-Party Traffic**

Third-party traffic is any message transmitted that is either from or to a non-licensee. In the Western Hemisphere (with a few exceptions) there is no restriction on third-party traffic being passed over amateur radio. Many countries outside of the Western Hemisphere also now permit third-party traffic over amateur radio. Messages between amateurs if they originate from or are delivered over Internet are not considered third-party traffic. Third-party traffic rules only deal with that portion of the message path which is transmitted over the radio spectrum.

For example: if a message originates from a non-amateur as an internet email in the U.K. and is delivered to a U.S. amateur over the radio from a gateway station in the US, no third-party rule is broken even though the U.K. does not allow third-party traffic over amateur channels. Likewise, a

message originating from a U.S. amateur and passed by radio to a U.S. gateway is okay even if it is addressed to the Internet address of a non-amateur in the U.K.

Users and sysops must make themselves familiar with these third-party rules for the country in which they are operating as well as linking with if they are exchanging messages with non-amateurs. US gateway sysops should know that §97.219(c) provides protection for licensees operating as part of a message forwarding system. "...the control operators of forwarding stations that retransmit inadvertently communications that violate the rules in this Part are not accountable for the violative communications. They are, however, responsible for discontinuing such communications once they become aware of their presence."

**Message Content and Privacy**

There is no privacy over amateur radio. Anyone who is properly equipped can read messages handled by Winlink. Each gateway sysop routinely monitors messages passing through their station to ensure acceptable message content. Messages may also be available to the public on-line for inspection. Any message violating local rules is deleted and the sender advised. Gateway sysops are legally responsible for traffic flowing through their stations. Originating stations are legally responsible for traffic through theirs. Recipients of unacceptable or illegal content should inform the sender to stop or adjust their anti-spam filter (whitelist) to reject messages from the sender.

**Business Content**

Directly or indirectly enhancing one's pecuniary interest using amateur radio is universally prohibited. Business traffic is any message, sent or received, that is related to an amateur's personal or commercial business or an activity involved in making money, attempting to make money, or even to personally save from spending money for the amateur. Placing orders to trade stocks or receiving investing guidance are clear-cut examples of prohibited message content. Ordering or receiving via Winlink paid subscription-based weather guidance, custom forecasts, or any paid digital subscription product is another. On the other hand, in the US, the FCC has allowed that infrequently ordering physical items (ordering a pizza or repair parts that cannot be delivered digitally via radio) for personal use is not in violation of the rules so long as it is incidental to your activity as an amateur, and not done to enhance your pecuniary interest. Even though the Winlink user may use a Telnet connection or WebMail and never transfer prohibited content over the Amateur radio spectrum, it is the policy of Winlink administrators to abide by the Part 97 (US rules), and FCC interpretations of these rules, as it pertains to business message content transported *by all connection types*.

***Accordingly, YOU ARE STRONGLY ADVISED NOT TO CONDUCT PERSONAL OR COMMERCIAL BUSINESS VIA A WINLINK COMMUNICATION OF ANY KIND. If you do so, it will be considered a violation of these terms and conditions.***

If in dispute, Winlink administrators consult with the FCC or other regulatory entity representatives for their interpretation of applicable rules whenever their application or intent is unclear. Administrators will communicate these interpretations to any amateur who may question an administrative warning or action. Administrators may block or remove messages from unsolicited mail sources, incoming messages from list servers or any regular or frequent "subscription-type" messages that might contain business related content. The best way to avoid unsolicited mail is to keep your Winlink email address private and to learn to properly use your account anti-spam whitelist. ***Do not instruct paid information services to deliver purchased or subscribed information products to your Winlink account when they can be delivered through other radio services off the amateur bands.***

Commercial services must always be employed first if business content will be common. Sailmail, Inmarsat, or Iridium are recommended for maritime users, and there are others regionally available.

**Encrypted Messages**

All messages must be in plain language and use a publicly published format. The system will not accept PGP encrypted messages. Message attachments must be of file types that can be viewed with commonly available, publicly documented software such as .doc, .rtf, .jpg, .bmp, etc. The system will not accept as attachments executable files with extensions such as .exe, .com, .vbs, etc. This reduces the chance of an encrypted message but also is another protection against malware. Administrators may change the acceptable file types as experience dictates.

**Obscene Content**

Obscene content is not allowed by the laws of most countries on amateur radio frequencies, and also not on the Winlink system. Messages containing obscene content or profanity will be rejected or deleted when discovered and the sender immediately locked out of the system whether the sender

accesses the system via Internet or radio. The receiving gateway sysop may determine if a message is obscene and usually warns the originator prior to taking any action. Warnings are not required, however.

**Sending Unsolicited Mail & Ban Requests**

It is a violation of these terms of service to send messages to another user who has requested they not be included as a recipient. This qualifies as sending spam. If a user receives unwanted, illegal or improper messages after they have taken measures with the sender to stop, they should advise the system administrator (address a message to [SYSOP@Winlink.org](mailto:SYSOP@Winlink.org)) and the source of those messages can be locked out. If a user persists in violating these terms of service, the system administrator or one of the gateway station operators will permanently lock the abuser out of the system.

**Viruses & Malware**

Every message offered to the system from any internet source is scanned for viruses and malware, and any detected threat is deleted before it can enter the system. The recipient is notified whenever an infection is detected and purged. Where possible the sender will be advised that his or her system is sending malware.

**Callsign (license) Validation**

To qualify for a Winlink account users must hold a valid amateur radio service license issued by the licensing authority of their country. Or, users may belong to and be licensed by a government agency or program participating with Winlink in emergency or contingency communications. *Winlink Global Radio Email is not available to holders of marine or ship's licenses.* Any licensee may self-register with the WL2K system by using a client program to connect to any gateway via radio or over Telnet to a Winlink server. Automated callsign validation with your licensing authority may be employed, or a WL2K gateway operator or system administrator will verify the call against the appropriate country's available amateur license database, or with the licensing authority directly. This ensures the license is valid and that operating privileges are appropriate. If this information is not found or not validated, the user will be asked to provide documentary evidence of their identity and that their license is valid. Applicable "special temporary authority" agreements from CEPT, IARP or other reciprocal agreements must be sent with proof of license on demand by a system administrator in order to retain use of the system. The user may be locked out of the system during the verification process at the discretion of the administrator.

**Login Security**

Winlink system use requires secure account login for web and radio users using client programs or terminal or web access. Passwords are secure and not sent over radio links. With this users may protect themselves from gaining unauthorized access to their account. This does not secure messages passed over the radio. It only authenticates that the radio link is established with a verified and licensed station within the Winlink system.

**Q480 Are messages I send or receive available for viewing by anyone?**

A480 The ARSFI and Winlink Global Radio Email® Privacy Policy has been updated as of April 11, 2019 to clearly state that all messages sent or received over amateur radio frequencies are publicly available for inspection.

A "Message Viewer" database has been created. The database contains messages which meet either of the following criteria:

"Winlink" messages Sent by or to **only** US-licensed stations on amateur radio frequencies within the last 21 days.

OR

"Peer-to-Peer" messages Sent by or to **only** US-licensed stations on amateur radio frequencies within the last 21 days, using client software owned by ARSFI. These messages enter the database when one of the PTP computers is connected to the internet.

The Viewer is accessible via the Winlink web page ONLY to a registered Winlink user, being logged into the Winlink webpage using their login password

OR

A person with a valid amateur radio callsign, name, and email address; having previously been cleared for login access to the Viewer by the WL2K Administrator.

**Q485 Is it possible for me to “monitor” pactor messages sent by WL2K Users?**

A485 Yes. SCS, the company that created Pactor has released PMON software for Linux to allow over-the-air monitoring of Pactor 1/2/3 transmissions for meaning. Additionally, PMON automatically decompresses B2F/LZHUF compressed messages on the fly. This is very useful for monitoring Winlink email transfers. The program requires only minimal hardware: an inexpensive Raspberry Pi 3 Model B+ (minimum) computer and an inexpensive USB sound device. An SCS Pactor modem is not needed.

The program is a free download for radio amateurs from a Linux repository provided by SCS. Easy-to-follow instructions, program information and documentation are provided on [this SCS web page](#).

Thank you to John Huggins and Gordon Gibby, MD for their original decoding programs, and to Hans-Peter Helfert and the SCS team for this welcome contribution to the amateur radio community!

**Q490 Does the Winlink Development Team have a “Self-policing” policy in place to identify and correct WL2K transmissions which could be considered to be illegal?**

A490 Yes. Significant changes in 2019 are related to monitoring and amateur self-policing of Winlink US amateurs regulated by the FCC. This has been the right thing to do once WL2K detractors pointed out the abuse some users have been committing, usually by treating Winlink email exactly like they would common email service from a common carrier rather than an amateur radio service. The US Amateur Message Monitor is a product of this as a tool built initially for the new ARRL Volunteer Monitor Program led by Riley Hollingsworth, but now is available to the licensed amateur community to monitor messages for legality under FCC rules and our Terms & Conditions. Also, there are new automated filters for profanity and third-party traffic transiting through US-licensed stations.

**Q495 In general, what should a WL2K user consider to be “legal”, before sending a Winlink or Peer-to-Peer message?**

A495 At a high level, if it is not legal to say something on a Voice, CW, or any other digital mode, then the same content is not legal using WL2K.

Message data (including Attachments) is compressed before it is sent (both ways). This appears as gibberish to the casual observer; however it is not considered to be encrypted. Most all WL2K messages can be viewed on the internet. See Q480.

You are responsible for the (WL2L legal) content of messages sent from you, and to you. Consider not giving your Winlink address to your Stockbroker, Realtor, medical provider, etc. See Q420.

The content of all WL2K messages is considered (by the Winlink Development Team) to be "Third Party" information. See Q465, Q470, Q475, Q480, Q485.

Radio Amateur WL2K activities must be legal in all the following (same criteria as if you were transmitting Voice or CW):

1. The country of your license issue.
2. The country of your transmitting location.
3. The country of the RMS location which you are using.
4. The license class of the callsign you are using for WL2K.
5. The license class of the on-site Control Operator.
6. Do not use a packet Node or RMS which is operating in an illegal manner (frequency, Mode, expired callsign, etc.).

Some of the same WL2K system components also service MARS and SHARES users, which follow different Regulations, compared to Radio Amateurs.

**Q500 How do some features compare between Outpost, AirMail, Pat, Paclink, and Winlink Express?**

A500

	<b>Outpost</b>	<b>AirMail</b>	<b>Pat</b>	<b>Paclink Unix</b>	<b>Paclink</b>	<b>Winlink Express</b>
<b>Download Location</b>	<a href="#">download</a>	<a href="#">download</a>	<a href="#">download</a>	<a href="#">download</a>	<a href="#">download</a>	<a href="#">download</a>
<b>Author</b>	Jim Oberhofer KN6PE	Jim Corenman KE6RK	Martin Hebnes Pedersen, LA5NTA	Nicholas Castellano N2QZ	Winlink Development Team	Winlink Development Team
<b>Useable for Telnet (Internet Access)?</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Useable for AX.25 Packet?</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Useable for Pactor 1-3?</b>	No	Yes	No	Yes	Yes	Yes
<b>Useable for Pactor 4?</b>	No	Yes	No	No	Yes	Yes
<b>Useable for WINMOR? (not supported by WDT July 10, 2020)</b>	No	Yes, with BPQ	Yes	No	No	Yes
<b>Useable for VARA and VARA FM?</b>		No		No	No	Yes
<b>Password-protected Secure Login</b>	Yes	Yes, Upper Case only	Yes	Yes	Yes	Yes
<b>Uses compression of data [before transmission] and mail Attachments</b>	No	Yes	Yes	Yes	Yes	Yes
<b>Can be used with a Sound Card?</b>	Yes, with AGWPE or Firewood or UZ7HO	Yes. with AGW and AMPE	Yes	Yes	Yes	Yes
<b>Can be used with most any TNC on AX.25 packet?</b>	Yes	Yes. with AGW and AMPE	Yes KISS (Linux only) Most w/transparent mode	Yes	Yes, KISS and AGW	Yes, KISS

	<b>Outpost</b>	<b>AirMail</b>	<b>Pat</b>	<b>Paclink Unix</b>	<b>Paclink</b>	<b>Winlink Express</b>
<b>Can handle simultaneous radio Sessions with different modes (like packet &amp; pactor)?</b>	No	Yes	Yes w/session queue	No	No	No
<b>Useable for "peer-to-peer" message transfers?</b>	Yes	Yes	Yes	No	No	Yes
<b>"peer-to-peer" messages available for Viewing? See Q480.</b>	No	No	No	No	N/A	Yes
<b>Able to do a Manual "Keyboard" Connect?</b>	Yes, with included terminal	Yes	No	Yes	Yes, with included terminal	Yes, with included terminal
<b>Minimum OS, CPU requirement</b>	Any	Windows 95	Linux, Mac OSX, Android (amd64, 386, arm, arm64), Win64/386, *BSD (amd64, 386, arm), Solaris (amd64)	Linux, FreeBSD, x86, x86_64, MIPS, ARM	.NET Framework, Windows 7	.NET Framework, Windows 7, needs "fast" CPU (or Sound Card device) for WINMOR, ARDOP, VARA, VARA FM
<b>Recommended uses?</b>	Single user Emcomm where compatibility with packet networks is important	Single user Routine Maritime Emcomm	Single user Limited EmComm	Casual Single user Limited Emcomm	Single user Multi user Routine Emcomm	Up to 5 users Routine Maritime Emcomm
<b>Tactical Address support?</b>	No	No	Yes	No	Yes	Yes
<b>Message Precedence Support?</b>	No	No	No	No	No	Yes
<b>HTML/CSS Forms creation &amp; content-only transport</b>	Msg forms w/ variable font size	Similar function with Q Forms	No	No	No	Yes
<b>Provides Warning for possible illegal Out-of-Band operation</b>		No				Yes
<b>Radio Only Forwarding network support?</b>	No	No	Limited Can't update MPS	No	Yes	Yes
<b>RMS Relay Support</b>	No	No	Yes	No	No	Yes
<b>Message Preview/choose downloads</b>	No	Manual via Keyboard	No	No	No	Yes
<b>Built-in Message Editing and Administration?</b>	Yes	Yes, also uses any e-mail client	Yes	Uses email client	Uses any e-mail client	Yes
<b>Built-in photo resizing, cropping, and rotating</b>	No	No	No	No	No	Yes
<b>Attached documents?</b>	No	Yes	Yes	Yes	Yes	Yes
<b>Address Book?</b>	Yes	Yes	No		Yes	Yes

	<b>Outpost</b>	<b>AirMail</b>	<b>Pat</b>	<b>Paclink Unix</b>	<b>Paclink</b>	<b>Winlink Express</b>
<b>Scripting for AX.25 packet Connects via Nodes or Digipeaters?</b>	Yes	Yes - Limited	No	Yes	Yes	Yes
<b>"Catalog" of Help and Weather bulletins?</b>	No	Yes	No	No	No	Yes
<b>Multi-user [callsigns]</b>	Yes	No	No	No	Yes, unlimited POP/SMTP server LAN support	Up to 3
<b>Variable font size</b>		Yes	Yes	per e-mail client	Yes	Yes
<b>KISS TNC support for low-cost TNCs and radios with built-in TNCs</b>		Yes, with AGW and AMPE or AMPEstreams22	Yes, Linux only	Yes	Yes	Yes
<b>Automatic Gateway Polling</b>	No	Yes	Yes, using cron	Yes, using script, cron	Yes, HF and VHF	VHF and Telnet
<b>AGW/AGWPE support</b>	Yes	Yes	No		Yes	Yes
<b>Multi-language</b>	No		No	No	Yes	No
<b>Ease of Setup</b>	Easy	Easy to Complicated	Moderate	Difficult for Linux noobs	Moderate	Easy
<b>Update Support</b>	Updated 1-2x/year	Infrequent	As needed, email announcement	As needed, small user group	Automatic, frequent	Automatic, frequent
<b>Release State</b> (Beta versions may be unstable)	Mature, Stable	Mature, Stable	Unstable	Pre-release, Stable	Mature, Stable	Mature, Stable
<b>Protocol which drove initial development of the software</b>	packet	pactor		packet	packet	WINMOR
<b>Cost of software</b>	Free	Free	Free	Free	Free; Donation optional	Free or \$25 (purchase registration key to support the Winlink system), gentle nagware.
<b>Support Group</b>	Contact author	<a href="#">Click Here</a>	<a href="#">Click Here</a>	<a href="#">Click Here</a>	<a href="#">Click Here</a>	<a href="#">Click Here</a>

**Q580 Does WL2K comply with Part 97 of the FCC Rules?**

A580 RMS stations and WL2K users are governed by the rules and regulations of their own country.

***Winlink 2000 complies with §97.221 for an Automatically controlled digital station:***

- For Wider than 500 Hz: 97.221 (b) (b) A station may be automatically controlled while transmitting a RTTY or data emission on the 6 m or shorter wavelength bands, and on the 28.120–28.189 MHz, 24.925–24.930 MHz, 21.090–



21.100 MHz, 18.105–18.110 MHz, 14.0950–14.0995 MHz, 14.1005–14.112 MHz, 10.140–10.150 MHz, 7.100–7.105 MHz, or 3.585–3.600 MHz segments.

**[Editor Note: “data” includes emission type J2D, which includes pactor 3 (3 kHz or less).]**

- For 500 Hz: 97.221 (c) A station may be automatically controlled while transmitting a RTTY or data emission on any other frequency authorized for such emission types provided that: (1) The station is responding to interrogation by a station under local or remote control; and (2) No transmission from the automatically controlled station occupies a bandwidth of more than 500 Hz.

**Winlink 2000 complies with §97.109 Station control, for 3rd Party traffic rules:**

- (e) No station may be automatically controlled while transmitting third party communications, **except** a station transmitting a RTTY or data emission. All messages that are retransmitted must originate at a station that is being locally or remotely controlled.

**Winlink 2000 complies with Section §97.219(c) for 3rd Party traffic Content Rules:**

- §97.219(c) provides protection for licensees operating as part of a message forwarding system. "...the control operators of forwarding stations that retransmit inadvertently communications that violate the rules in this Part are not accountable for the violative communications. They are, however, responsible for discontinuing such communications once they become aware of their presence.

**Winlink 2000 complies with §97.309 for data emission codes:**

- (4) An amateur station transmitting a RTTY or data emission using a digital code specified in this paragraph may use any technique whose technical characteristics have been documented publicly, such as CLOVER, G-TOR, or Pactor, for the purpose of facilitating communications.

**Winlink 2000 complies with Sub-Part E when so designated (i.e.: §97.403 Safety of life and protection of property):**

- No provision of these rules prevents the use by an amateur station of any means of radio communication at its disposal to provide essential communication needs in connection with the immediate safety of human life and immediate protection of property when normal communication systems are not available.

**Q585 After a message for me arrives at the CMS, how does a RMS Station initiate a Connect with me?**

A585 It doesn't. RMS Stations are "listeners" only, scanning several frequencies on several bands. RMS HF stations do not send out any beacon announcements. They just sit and scan and scan and scan, waiting for someone to call them. You need to call any RMS Station (or the CMS) to initiate a Connect and download your messages.

If you have defined in your Setup of Winlink Express, AirMail, or Paclink to Forward your incoming mail to an address other than [Yourcallsign@winlink.org](mailto:Yourcallsign@winlink.org) the CMS will immediately Forward the message to the alternate address; after which the message will be Deleted and will not be available for pickup via radio or Telnet.

**Q587 Are RMS Stations considered to be "automatic robot" stations?**

A587 That depends on your definition of "robot" and "automatic". RMS Stations have their transceivers and TNC's controlled by the station computer. They are usually "unattended" by their Control Operator. Transmissions will begin ONLY after the receiver detects being called by another station AND in the moments before the call the frequency was deemed to be "not occupied" by the RMS HF Station. Loss of a satisfactory receive signal by the RMS will time out the transmitter and Disconnect with the user station

**Q590 Let's assume that there is a total internet crash; none of the RMS stations have a path to the Common Message Server. Is WL2K of any use to me?**

A590 There seems to be confusion as to how WL2K deals with the loss of Internet. Let me address this question and see if I can bring a little clarity to it.

As presently designed and deployed, the assumption is made that Internet may fail regionally but not globally. A disaster may take out the Internet infrastructure over an area of as much as several states or a single country but not the entire world.

If Internet fails in a given region those RMS sites that implement RMS Relay in the region will be able continue to exchange traffic locally on VHF and globally on HF. RMS Relay will provide the ability to reach WL2K stations on HF that are in areas where Internet is still functional and can still reach the CMS. The CMS is now on the Amazon Web Services Cloud, should provide a high level of redundancy.

Individual HF client stations using Paalink, Winlink Express, or AirMail will continue to be able to exchange traffic with out-of-region HF stations that can still reach the CMS.

The whole idea is to keep users and the network entirely connected even when even large areas become isolated due to loss of Internet. The WL2K addressing would remain functional and anyone that can reach any functional HF or VHF port can exchange messages with anyone else anywhere in the system without thought about how it is routed.

It is argued by some that we should build a system to support total global failure of Internet. Army MARS has in fact plans to implement just such a system using HF accessible and interconnected CMS sites. I do not know the timetable for this implementation, but meanwhile the system outlined in the Winlink 2000 Roadmap document is currently being implemented and will support any disaster scenario experienced to date.

An all-HF system, no matter how implemented, will have bandwidth and latency limitations that constrain its value. Served agencies need (and expect) a communications service will be able to handle a reasonable volume of complex traffic with good speed. To that end we need to provide a service that will make use of the best and fastest means available at any given time.

The WL2K mission is to provide, through a volunteer network, effective last resort communications in civil emergencies and personal communications in non-emergency conditions

By Vic Poor, W5SMM, AAA9WL  
February 13, 2008  
edited by Don Felgenhauer K7BFL November 11, 2017

**Q600 The SCS "Pactor 3" and "Pactor 4" TNC's seem to be "expensive". Is there any "discount" program?**

A600 The TNC's made by SCS contain a LOT of technology. Discounts are available from Farallon Electronics for qualified users. See:  
<http://www.felge.us/SCSDiscount.pdf>

**Q610 How do I change my Message Size Limit (formerly "Attachments" limit)?**

A610 As of February 2008 the "Attachment Limit" concept has been replaced by a "compressed message limit". The default value for users is 120000 bytes (compressed). The Limit applies to messages downloaded to Users from the CMS. It does not apply to uploaded or Peer-to-Peer messages.

This can be changed by four methods. Any of the four methods will get the job done.

1. via the WL2K web page....My Account....Edit.
2. If you are using Winlink Express, go to Settings...Update User Options....Post ....
3. If you are using AirMail, go to: Message Index....Window...Winlink-2000....Options Message. Send. Note: the possible reference to "Attachment Limit" in the Options message is actually the "Compressed Message Limit". Also, any possible reference to turning the Whitelist feature Off should be disregarded.
4. If you are using Paclink, see Q7650.

**Q620 I will not be accessing the WL2K system for several months. Is there a way to have all of my incoming WL2K e-mails diverted to another e-mail account?**

A620 Yes, using the AirMail software, go to Window....Winlink-2000....Options Message. Change the "Alternate Address". Send the message, either via radio or Internet Access (Telnet).

If you are using Winlink Express, go to Settings .... ...Update User Options .... Post.

To return to receiving email at your Winlink address; send another Update User Options Message, with the "Alternate Address" blank.

**Q630 How does the WL2K system deal with Spam?**

A630 Messages incoming to WL2K users are filtered, using high level methods, by the Common Message Server (CMS). Winlink 2000 uses the information from SPAMCOP. It also requires a reverse DNS lookup. Each server IP address must return a PTR-record that matches the HELO or ELHO command received from that server and it must have an A-record that matches the host name shown in the HELO or ELHO command. If such a record exists, then it has entry to the Whitelist system.

In addition, each individual WL2K user uses a "Whitelist". About 90% of the messages into the CMS from the internet are Spam! In order to combat this problem. It was decided by the Winlink Development Team than use of the Whitelist should be required of all users.

**After August 1, 2008, the Whitelist is turned "On" for all users and cannot be turned "Off". As of September 2007, WL2K is no longer using a Spam Filter with a "Threshold". Ignore references to a Spam Threshold in the AirMail software.**

**Q650 How does the "Whitelist" function?**

A650 The "Whitelist" option allows messages to be downloaded to you only if the message was sent from an internet e-mail address on your Whitelist; OR if the message was sent to you from other WL2K user OR if the sender put a "//WL2K" in the Subject line [see Q690].

There will be certain exceptions. Messages from Saildocs.com, Sailmail.com and other specific domains will be accepted unconditionally except where a recipient specifically blocks the domain name in their whitelist.

If a message is rejected, the CMS will automatically send a "Rejection Notice" to the sender of the message.

**NOTE:** The CMS will not accept incoming mail from "Reflectors", such as ARRL.NET, even if the domain is in your Whitelist. *You may not forward any internet-based address to a [winlink.org](http://winlink.org) account. If you do, it is a violation of the Winlink Terms and Conditions of Use as you then give up general control of the content in the messages you receive, as is required to comply with FCC rules (97.113). See Q700.*

The data for your Whitelist is stored in the CMS Cloud. Decisions regarding rejecting messages to you are made by the CMS, independent of which software you are using (AirMail, Winlink Express, Paalink, etc.).

Data for your Whitelist is composed of two unique pieces:

a) A list of allowed e-mail addresses or e-mail domains. See Q700.

b) A list of disallowed e-mail addresses or e-mail domains (the "Blacklist")

Since you have been using the WL2K system, the CMS has been accumulating e-mail addresses in YOUR "Whitelist", automatically adding to the list each new (non-Winlink) address to which you send a message.

Addresses in your Whitelist remain there for 400 days after you last manually added the address to your Whitelist OR sent an e-mail to that address.

#### **Q675 How do I view or change the address or domain entries in my Whitelist or my Blacklist?**

A675 New (non-Winlink) email addresses are automatically added to your Whitelist when the CMS receives the message **from** you, independent of which user program you are using. The list can also be viewed and changed by accessing the Winlink web page at [www.winlink.org](http://www.winlink.org) ... My Account ... Login ... My Whitelist; OR doing the following procedure:

**Create a new message [the following is an example] to the CMS with the following format (not case sensitive):**

To: [System@winlink.org](mailto:System@winlink.org)

Subject: Whitelist [do **not** include //WL2K]

LIST *will return a list of all Whitelist and Blacklist entries for the user.*

ACCEPT: *jblow@somewhere.com will allow messages from jblow@somewhere.com to be accepted. You may send multiple lines, each containing one e-mail address.*

Reject: *jblow@somewhere.com will reject any messages from jblow@somewhere.com. You may send multiple lines, each containing one e-mail address.*

Delete: *jblow@somewhere.com will remove jblow@somewhere.com from the user's Whitelist. You may send multiple lines, each containing one e-mail address.*

ACCEPT: gmail.com will accept all messages from gmail.com

REJECT: Verizon.com will reject all messages from [xxxxxx@verizon.com](mailto:xxxxxx@verizon.com)

**NOTE:** The CMS will not accept incoming mail from "Reflectors", such as ARRL.NET.

*You may not forward any internet-based address to a [winlink.org](http://winlink.org) account. If you do, it is a violation of the Winlink Terms and Conditions of Use as you then give up general control of the content in the messages you receive, as is required to comply with FCC rules (97.113). See Q700.*

**IMPORTANT NOTE:** Domain Entries without the "@" will be treated as "domain names" only. For example, if "Accept: sailmail.com" were entered, then ANY message from that "domain name" (sailmail.com) would be accepted.

### Send the message

An example of a message to control your Whitelist:

TO: SYSTEM  
Subject: Whitelist [do **not** include //WL2K]

Accept: joe@somewhere.com  
Accept: bill@someplace.net  
Reject: nogood.com  
Delete: joan@overthere.com

**Q680 I notice that messages sent from Paclink have modified my Subject, prefaced by //WL2K R/. Why? Do I need to always include the //WL2K R/ in the subject line of all my messages going through the Winlink 2000 system?**

A680 The reason Paclink automatically puts //WL2K R/ on the subject line is to implement one of our "good use tips", that is, to also use it on your outgoing messages, so that persons who click their 'reply' buttons and have an email setup that replies from a different email address than they receive on will have a good chance of having //WL2K R/ in the subject line of their reply. Persons in these situations would otherwise have the reply mail rejected. This also goes for folks with ISPs who use some nonstandard message headers. You would be surprised how often this occurs.

No--you don't need //WL2K R/ on outgoing messages. New addresses not already on your Whitelist are automatically added to it. But if you have internet recipients in the above categories, you sure will want it.

**Q690 Tell me about the "Message Precedence" logic that is used in WL2K.**

A690 The following logic is used by the CMS to determine the downloading order. Uploading (to the CMS) is determined by the Posting time (earliest time first).

Message precedence is an indicator of the sequence messages are processed by the radio operator. Winlink uses a system similar to the "Government And Public Correspondence Telecommunications Precedence System" in the Code of Federal Regulations Title 47, part 213.

Use of this system in Winlink is optional but is available for use when needed. However, all messaging passing between WL2K users and Internet e-mail now requires a message precedence header in the subject line. This is not required if the Internet e-mail address of the originator/recipient is in the user's Whitelist. In this case, the Message Precedence System bypasses the Whitelist. See Q650.

The term "precedence" means the order in which messages transmitted, or in receiving and relayed, or provided to the served agency. This is in the order required by the precedence designator. Messages lacking any designator are handled last. Message precedence establishes how fast a message needs to be sent, relayed and \*acknowledged\* by the receiving station that it was delivered to the recipient. Ideally, the addressee should acknowledge receipt, rather than the operator, but that may not always happen in a crisis. The operators can establish that the message was received (e.g., read receipt), but the addressee may not respond immediately.

An example of precedence is sending a letter through the Post Office as first class versus priority mail. Aside from legal constraints, the Post Office isn't concerned about the content, only when the customer wants the letter delivered. That tells the employees how to handle the letter. The system used by Winlink is:

//WL2K Z/ - Flash

//WL2K O/ - Immediate

//WL2K P/ - Priority

//WL2K R/ - Routine (Default) This is what the CMS assumes if nothing else is there.

The optional precedence indicator is included in a Winlink message by adding one of these headers to the beginning of the subject Line of the message, whether from Internet email or within the Winlink system.

There are two practical applications of this system in Winlink. First, the CMS servers route messages to and from users connecting through RMS gateways and Telnet connections in the order of priority applied to each batch. Higher priority messages are transferred before lower priority or Routine messages. This is NOT available for messages sent outside the Winlink system.

Second, you can set Winlink Express to make a sound if a message of a given priority arrives. Under "Settings", select "Message Notification and Forwarding". In the dialog box, under "New Message Notification Sound", choose the message precedence, notification sound, and repeating the sound.

The system used by Winlink is similar to CFR 47 part 213, but is not identical. For consistency, the following message precedence definitions are suggested as a starting point in local response planning. These were adapted from CFR 47 part 213, and are written for the radio operator.

FLASH (Z): Handle in the order received and ahead of all messages. If feasible, interrupt any traffic of lesser precedence.

IMMEDIATE (O): Handle as fast as possible, ahead of all other messages except those with FLASH precedence.

PRIORITY (P): Reserved for messages which require expeditious action, sent ahead of ROUTINE messages.

ROUTINE (R): Routine communications that require rapid transmission but not preferential handling. Handle last, or not at all, when busy with higher-precedence traffic.

Note that criteria examples are not provided here. Those should reflect local priorities based on the situation and needs that resulted in the message from the originator. What works for the President of the United States doesn't necessarily apply to a rural community or a state EOC. The ARRL NTS message precedence system is another example, but is written for both individual people ("welfare") and local government. Ideally, precedence criteria are pre-defined by the served agency, based on recommendations from amateur radio operators, but consistent with community priorities. CFR 47 part 213 offers some ideas, but the final composition up to the served agency.

Best practice shows that the radio operator should not set the precedence. Operators transmit and receive message traffic as part of their duties and should avoid composing the message. Message composition falls to the message originator, as does setting precedence. The operator certainly can advise the originator as to which precedence may be best suited for a given message. If no precedence is given, the operator should assume ROUTINE.

**Q700 Even though recipients are on your Whitelist, some internet addresses get rejected by the CMS. Why?**

A700 Verify that the "From" address of the Sender is the same as the address you have in your Whitelist. This situation is common with folks who use services such as "ARRL.NET". *You may not forward any internet-based address to a [winlink.org](http://winlink.org) account. If you do, it is a violation of the Winlink Terms and Conditions of Use as you then give up general control of the content in the messages you receive, as is required to comply with FCC rules (97.113).*

There is a standard in e-mail delivery designed to prevent spam sent from domain names that do not match the IP address. (This is a common way spam originates). It's called reverse-DNS lookup. WL2K central servers check with the DNS of every incoming internet sender to be sure the 'From' address matches the IP address from which the message comes. If not, it is rejected as incoming spam. This is our firm policy.

Some may point out that RFC 2821 states that SMTP servers (ISPs) may verify the match, but should not reject the message if verification fails. Our policy is tough for a reason; WL2K is a radio-based service for the benefit of our radio users. Each licensed radio user is bound to obey legal rules that govern them, or they risk their license. In virtually every country these regulations strictly prohibit indecent or commercial content from being transmitted on the airwaves. Besides the normal spam problem for anyone with a mail server on the internet (less than 1% of messages hitting our system are valid), we MUST be bound by regulations stricter than RFC 2821. Also, the Winlink 2000 system is NOT an ISP. We are a private concern and are not legally bound to RFC 2821, or to accept any messages that are not of our choosing. We do not charge our users for the services we provide. We strictly obey the rules that govern amateur radio in every country our network stations and users operate.

What can you do?

If your recipient's internet mail provider has not updated their DNS records to include reverse-DNS (PTR) records, the WL2K check fails, and incoming legitimate mail can be branded as spam and rejected. Advise your internet correspondents to tell their ISP to upgrade their service to current anti-spam standards by adding a PTR record (the reverse-DNS record) to their DNS servers. If they won't, your recipients can get a free email account with Yahoo or gmail (Google) that properly conform.

The good news is that most ISPs are diligent and have the same concerns about spam. For the few that don't, well, we wish they did. Sorry for the trouble, but internet spammers have made life complicated for us all!

**Q720 I just sent a message from my Blackberry to a W2K User. It was rejected by the CMS...."not on the Whitelist". The User has my correct email address in his Whitelist. What happened?**

A720 The CMS may be seeing the message coming not from your email address, but from "----blackberry.com". You need to Setup your real email account on the Blackberry and delete the blackberry.com account.

Go to [www.blackberry.com](http://www.blackberry.com) and search for your email support from your provider. You can also delete a signature line there.

**Q730 For testing purposes is there a way I can send a message from my Winlink account to my Winlink account?**

A730 Yes. The Winlink system allows you to send and receive to internet email addresses and users--other than yourself--using their Winlink account address, CALLSIGN@winlink.org. You can't send from within the system to your own account because it would set up an endless delivery 'loop', so it's not permitted.

However, if you want to send a message for test purposes to your CALLSIGN@winlink.org address using client software, do this:

- 1) Address your message to TEST@winlink.org, and compose it otherwise as you wish.
- 2) Post it to your outbox, as you would any other message.
- 3) Open a session, a radio or telnet session, and send it normally.
- 4) Wait a minute, and connect again. The message you sent to TEST@winlink.org will be returned to your inbox as if it came from another user with the TEST callsign.

Of course, if an internet account is handy on an online machine, you can always send and receive from your internet-based email account address.

**Q735 Is it necessary to insert “//WL2K” in the Subject line of a Winlink message?**

A735 If you are using the WL2K Message Precedence logic, Yes; see Q690. Otherwise, No. In most cases it is only necessary to manually include “//WL2K” in the Subject line if you think it is possible that a Reply or Forwarded Reply to your message might come from an email address not in your Whitelist or the Addressee email address.

As of June 2020, Winlink Express does not have a User Preference to automatically include “//WL2K” in the Subject of every New message. Winlink Express will accept a manual insertion of “//WL2K”.

Incoming messages from non-valid email domains or email addresses or domains in your “Blocked” list. See Q650 and Q700. Messages that pass those tests will be accepted for you if the message is from an email address which is in your Whitelist.

If the message has failed all of those tests it will be accepted for you if “//WL2K” is in the Subject line.

The CMS will only Reject outgoing messages with a non-valid email address OR a message from your Winlink account to your Winlink address. Adding //WL2K to the Subject will not change that criteria logic.

**Q740 It seems that a friend of mine is just unable to get an important message to me through the WL2K Spam Filter? Any suggestions?**

A740 a. Have them preface the Subject: with “//WL2K”. See Q735.

b. You send a message to them first.

c. You send a message to the email address that your friend uses as a “From” address.

d. Have your friend show their email Network Administrator the contents of Q700.



e. Have another friend (who can send emails to you) relay the email to you.

**Q750 Is there a good way to “Road Test” my WL2K equipment and software?**

A750 Yes; it takes some time, but is well worth the effort, especially if you do not use the Winlink system several times each week WITH THE EQUIPMENT AND SOFTWARE YOU EXPECT TO USE during the situation for which you are planning to use WL2K.

It is NOT good enough to “ping” your local RMS gateway station. Messages need to be sent and received.

**You are using a digital system; which is only “one electrical connection” OR “one keystroke” away from Failure.**

You need to test the entire “system”, which includes:

- 1) your equipment and software
- 2) the Winlink 2000 system
- 3) the equipment and software associated with the person with whom you need to exchange messages.

Be as realistic as possible. If you (User1) expect to exchange messages with User2 during an “emergency event” by using your laptop with packet going through a Node, don’t make the Test with your desktop computer, using Telnet. If User2 expects to exchange messages during the “emergency event” using their Blackberry, the Test should not be done with their desktop computer.

The testing process:

- 1) User1 sends a message to User2
- 2) User2 confirms receipt of the message, by doing a “Reply”.
- 3) User2 sends a message to User1.
- 4) User1 confirms receipt of the message, by doing a “Reply”.

A successful test is the receiving of all four messages.

*Don’t forget to print one of the four messages! Your printer ink supply may have dried up!*

***The configurations of the systems you are testing are dynamic, living systems. Firewalls and Spam Filters are continually being changed. Test on a regular basis!***

**See Q150, 380, 610-740, 3510, 8550.**

**Q770 How do I choose which HF RMS station to use?**

A770 Be sure that the RMS is in your country or its country has an amateur radio reciprocal operating agreement with your country. See Q780.

Use the data from the AirMail propagation module (View...Propagation) or similar data from Winlink Express (Open Session ... Best Channel) to give you guidance on which stations and frequencies are better than others at the time of day you want to connect.

Do NOT try to connect on a frequency that is in use! PTP, WL2K, NTSD, RRI, ALE, CW, SSB, RTTY, beacons, etc. may share those frequencies. No exclusive Reservations. No Connects should be attempted on a “busy” frequency. See Q11520.

Use RMS Pactor stations which should have a very strong signal with you, according to data from the propagation module.

Use lower frequencies (80 and 40 meters) if possible.

If you are a USA amateur and will be using a RMS on 60 meters be sure to ONLY use one of the five legal frequencies.

30 meters is a very useable "forgotten" band.

Use Pactor 3 or Pactor 2 if you have them. It saves everyone time and makes more RMS time available for other users.

Use one of the stations that are not quite so "busy" as others. You can get a feel for this by going to the WL2K web page....Reports.....RMS HF Station Status; <http://www.winlink.org/RMSHFStatus>  
Click on the station symbol callsign....

If you want to access a RMS on V HF or UHF go to Q775.

#### **Q775 How do I choose which VHF or UHF RMS station to use?**

A775 See Q770.

1. Obtain a "Diagram" of packet RMS Gateways, VARA FM RMS Gateways, packet Nodes and packet Digipeaters in your local area. If no diagram is available, make one. See an example at <http://www.felge.us/SpokNS.pdf>
2. Select a RMS that can hear you well and you can hear well (though prior testing).
3. If your selected RMS is not part of a packet network, attempt to Connect if the frequency is not in use.
4. If your selected RMS is part of a packet network, AND you suspect that the network is currently lightly used, attempt to Connect if the frequency is not in use. Limit your Connection time to about 5 minutes, before giving room for others to possibly use the network, before you again re-connect if needed.
5. If your selected RMS is part of a packet network, AND you suspect that the network is currently heavily used, check into your local Voice Net to obtain guidance regarding RMS's which would be best for you to use (or not use).
6. If (5) is TRUE, use a RMS which will minimize the incremental impact of your Connection to the network.
7. If you are part of an Emcomm Call-out or Test, obtain guidance from the Digital Command station. See Q20100, Q20200, Q20300, Q20350.

#### **Q780 I received a service message from the CMS, saying that a message I wanted to Send had been rejected. Why did that happen?**

A780 If you are a US-licensed station that routinely connects to a foreign gateway, or a non-US-licensed station that connects with a US gateway, you may be affected by new CMS behavior. The Winlink CMS now will enforce US Third-Party Message rules.

Because Winlink is being severely criticized for allowing US client and gateway operators to violate US amateur radio third-party traffic rules, the CMS (beginning July 20, 2019) will provide automatic enforcement of these rules. Part 97.3(47), 97.115 and 97.117 apply.

If you attempt to send or receive a third-party message between a US-licensed station and another station the US does not have a third-party communication agreement with, you may receive a service message saying the message will violate the applicable rules and that the message is refused (if you're sending) or being held at the CMS (if you are receiving). Alternative means to successfully send or receive the message will be explained. The US has treaties with most countries in the North and South America, but not most European, Asian and Pacific countries.

If you are a US-licensee, you should have no trouble sending and receiving to/from internet addresses if you connect with another US-licensed gateway, or one licensed in Central or South America — as long as the US has a third-party agreement with the licensing country.

If you are a non-US licensee, you should have no trouble sending and receiving to/from internet addresses if you connect to non-US licensed gateways.

For catalog items like weather and position reports, there is no 3rd party so countries without 3rd party agreements with the US can still use US stations to perform those actions but cannot exchange regular email. If a station from a country without a 3rd party agreement has traffic has an emergency need to pass traffic through a US station, they can use the word EMERGENCY in the subject line to override this restriction.

See Q770.

## **Q800 What is the “Catalog” part of Winlink 2000?**

A800 The WL2K "Catalog" can be used to request weather bulletins and other documents from the Winlink 2000 system for hams, and from the Saildocs server operated by the Sailmail association but also accessible via e-mail by WL2K users. It is available for Winlink Express and AirMail users.

The catalog entries are organized first into sections for "WL2K" and "Saildocs". Clicking the little "+" will expand a selection, clicking a "-" will collapse it (just like Windows Explorer). The right and left-arrow keys can also be used to expand and collapse folders.

Under "WL2K" are a folder for "global" bulletins, plus a folder for each station which has been seen, containing that stations local bulletins as well as the "update" listings. Under the "global" folder are folders for each bulletin category, click on these (or use the arrow keys) to open that folder and show the contents in the list on the right side. Bulletins or documents are requested by checking the corresponding checkbox, see Winlink 2000 Bulletins for more information.

Of interest and use for WL2K users are the WL2K\_Help and WL2K\_Users folders. These folders contain messages that can request specific Help files and specific “current” information regarding WL2K users.

Under "Saildocs" is a series of category-folders. The "Grib files" category is a special folder which brings up a grib-request window with a world map for requesting grib weather-data files. See "Grib Weather Files" for more information on requesting grib data. Saildocs also includes many text weather-bulletin documents which can be requested. These are organized into folders under "Saildocs" for the different ocean regions. Some areas have sub-folders to further divide the selection for easy browsing. Also, many bulletins are listed under more than one heading, for example Atlantic hurricane bulletins are listed under both "Atlantic" and "Tropical". See "Saildocs Catalog" for more information on requesting documents from Saildocs.

The Catalog is integrated into both Winlink Express and AirMail. It is not integrated into Paclink.

## Q810 How do I request a message from the Catalog?

A810 If you are using AirMail see Q1580.  
If you are using Winlink Express, see Q11640.

## Q820 How do I update the list of messages in the Catalog?

A820 Every time there is a small change, deletion or addition to the WL2K Catalog displayed in the AirMail menu "Window>Catalogs," the list should be updated periodically to take advantage of the changes and additions. This is done by sending a "Request" message to the CMS; then waiting for the updated Catalog to come back from the CMS

The Update is relatively short, while obtaining a new List is a bit longer. Either way, once the change is received, AirMail automatically updates your existing Catalog list. The method for obtaining a revised list is as follows:

1. Go to the AirMail menu item "Window>Catalogs." Do either 2a, 2b, or 2c; depending on what you have in your present Catalog.

2a. Under Catalog, expand "WL2K" further to show some of the RMS or CMS call signs.  
Pick a RMS or CMS that you wish to use and Click on that call sign. On the right-hand side you will see both "LIST" and "UPDATE." Go to Step 3.

2b. On the left, expand the directory tree to Catalogs...WL2K...Global.  
In the "Code" column you should find "LIST" and "UPDATE". Go to Step 3.

2c. Create a new message, using the following format:

To: INQUIRY@winlink.org  
Subject: REQUEST [do **not** include //WL2K]

*In the body of the message include either one of the following lines:*

LIST *[if you want an entire new Catalog file]*  
UPDATE\_CAT *[if you want a simple update to your present Catalog file]*

*Go to Step 4*

3. Check either "UPDATE" or "LIST." If you choose "UPDATE," all changes & additions will be shown, BUT the deletions will NOT be taken away. However, if you choose "List," then you will have a fresh new shorter list. Unless otherwise instructed, an update will be adequate.

4. Post the message to WL2K and Send your request.

5. Wait a minute; check back into any RMS or CMS and retrieve the information you requested. Once the update or new list has been received, it will automatically update your AirMail Catalog List. If it does not, restart AirMail. If that does not update your Catalog, select (do not Open) the update message you just received; then go to Tools....Update Catalog.

## Q830 How can I submit a request to the CMS for just about any information on the internet (images, text, even web pages), not just the items you see in the Catalog?

A830 Assuming the resulting information is less than ~120K bytes (compressed) **AND that it is legal for you to send and/or receive the information via WL2K (See Q465, Q475, Q495)**. Smaller is better. Just address a new Winlink message to INQUIRY with Subject of REQUEST and in the body list one or more Internet URL's each on a separate line. Post and Send. Wait a few minutes. Connect again to a RMS or the CMS) to pick up the requested information.

**Q840 How can I send a short "Text" message to a cell phone, from my WL2K software?**

A840 Sometime you may want to send a message via Winlink (because you do not have cell or internet service) to someone who responds more quickly to a Text Message (vs email) on their cell phone, assuming that their cell service is working. H You may need to immediately talk to that person on VHF or HF.

How do you accomplish that task; and get a Reply back (to your Winlink email address) from the other person? The following process applies to most any email service. SMS is the technology used for this process. MMS is also used. MMS can be viewed as a "latest model update" to SMS.

Just pay attention to detail and follow these 3 steps:

1) Your email to them needs to be addressed correctly. There is a nice website about SMS and MMS at: <https://www.digitaltrends.com/mobile/how-to-send-e-mail-to-sms-text/>

Notice that a service is now being provided to determine the cell service provider from a cell number. Cool! Since most cell phones are now "Smart", concentrate on the MMS part of the article.

Compose your email. All words in your Subject line will become the first words that show up in the Text Message. Address the message to: TenDigitPhoneNumber@ReceiverCellProviderDomain. A List of ReceiverCellProviderDomain's should be kept in your Winlink laptop. Your cell phone "Contact" info should include a full TenDigitPhoneNumber@ReceiverCellProviderDomain (as reference) for each person to which you might ever want to send a Text message via email.

2) You email to them needs to get through their spam filter. Test...Troubleshoot...Confirm....Practice.

3) Their Text Message (Reply) back to you needs to get through your [WL2K] Spam Filter "Whitelist". Sometimes the "From" domain gets changed from the one you sent To. You might consider including in your Whitelist the SMS and mms domains of the major cell service providers (such as txt.att.net, mms.att.net, vtext.com, vzwpx.com. Test...Troubleshoot...Confirm....Practice. See FAQ Q675, Q750.

Most problems with this process are associated with getting Reply back to your WL2K account. It may help for you to Send to a SMS address, even though your target is a Smart phone.

**Q900 Who pays the expenses of creating and operating the Winlink 2000 system?**

A900 Winlink 2000 (WL2K) is (and always has been) all volunteer. No one is compensated for their contributions of time which now [2007] totals well over 20 man-years. We try to offset at least some of the costs of running servers, registering internet addresses and domains, licensing software etc. with donations.

In 2006 we set up a not-for-profit public service corporation to handle the finances and contributions from the distributions of CDs and also as a vehicle to accept donations of equipment and services (e.g. retired commercial servers etc.). This corporation is called the Amateur Radio Safety Foundation Inc. (ARSFI) see <http://www.arsfi.org/> The directors of the ARSFI are primarily the founders and developers of WL2K and no director receives any compensation. We are in the process of obtaining Public Charity status 501(c)(3).

The ARSFI is the mechanism we use to pay for the expenses of WL2K and to purchase what licenses, hardware and new development tools and software are required. It is also a mechanism to provide training for Emcomm groups and distribute information about WL2K and Amateur Radio Emergency services in general.

Interested parties or those wishing to contribute to the operation of WL2K can do so in one of a few ways. These mechanisms can all be reached via the ARSFI web site above.

- 1) Join the ARSFI (\$25/year). Your membership gives you a vote into how the organization is run and what it does. The contribution goes to the ARSFI and some of that is used to support Winlink 2000.
- 2) Make a cash donation through the ARSFI. Both Pay Pal and Secure Credit Card mechanism are available on the ARSFI.org web site. We request that personal donations be limited to \$100.
- 3) Purchase one of the CDs which we make available throughout the year to various boater, RV, and EmComm groups. These have convenient up-to-date software and other useful information. A nominal \$15 donation is suggested to cover duplicating and mailing costs. If you would like a CD configured to target a particular group or service, please contact one of the directors and provide us information on what is your target audience.
- 4) Make a donation of equipment or services to the ARSFI. This can be in the form of retired but otherwise useable servers, radio equipment, software, facilities or services (e.g. legal, accounting, engineering, programming or documentation help) To make a donation of equipment or services please contact one of the directors of ARSFI.

Donations of cash or check are also appreciated and should be sent to:

ARSF Inc.  
c/o Rick Muething, KN6KB  
6143 Anchor Lane  
Rockledge, Florida USA 32955

Make checks payable to ARSF Inc. or Amateur Radio Safety Foundation Inc.

*Your support of WL2K and the ARSFI is much appreciated.*

*Rick Muething, KN6KB*

*Director, Treasurer Amateur Radio Safety Foundation*

*Winlink 2000 Development Team*

#### **Q910 I have lost my ARSFI Registration Key. How can it be retrieved?**

A910 Log In to your Winlink account <https://www.winlink.org/> on the Winlink web page. Your Registration Keys are in the left column.

#### **Q920 What Discussion groups are concerned with WL2K?**

A920 [https://winlink.org/content/winlink\\_programs\\_group](https://winlink.org/content/winlink_programs_group)

*Owned by the Winlink Development Team. Hosted by Google Groups.*

**This is our primary support forum.** If you need help using a Winlink client or sysop program, post here. The purpose of the group is to provide help to users of programs developed by the Winlink Development Team. This includes client programs Winlink Express and Paclink; gateway programs RMS Trimode, RMS Packet, RMS Relay; and other utilities and administrative programs. Help and discussion of any aspect of the Winlink system is welcome.

[https://groups.google.com/forum/#!forum/winlink\\_for\\_emcomm](https://groups.google.com/forum/#!forum/winlink_for_emcomm)

Regarding interaction between Winlink and Emergency Communications

<https://groups.io/g/palink-unix>

Discussion group about the Paalink-Unix project:

<https://groups.io/g/bpq32>

A user group established by John Wiseman G8BPQ/GM8BPQ and Ron Stordahl AE5E (ex N5IN) for BPQ32 - AX.25 NET/ROM compatible Node software for Windows.

BPQ for DOS and BPQ32 for Windows were written by John Wiseman G8BPQ/GM8BPQ and have a considerable following of appreciative users.

BPQ32 includes BPQMailChat, a modern BBS and Chat system, and BPQAPRS, an APRS Mapping and Messaging application.

BPQ32 offers three program interfaces. The DLL interface is the fundamental and most capable interface and is recommended for new applications. An AGW-like front end interface is offered permitting BPQ32 to be used with any program currently supporting AGWPE. The third, now deprecated, interface method is ActiveX.

An AGW back end interface has been added to allow BPQ32 to use sound card modems.

Many useful BPQ32 utilities and configuration examples are included.

<http://groups.google.com/forum/#forum/pat-users/>

Owned by a third-party.

Discussion/support group about the PAT client program project.

**Q925 I have questions about getting Weather reports via Winlink/SSB. Is there a group that discusses these issues?**

A925 Yes, join the AirMail Group above.

**Q940 Now that VARA and ARDOP have been implemented, will I still be able to use my Pactor equipment?**

A940 Yes It is expected that the RMS Pactor stations will continue to service Pactor users for many years to come.

**Q945 What is the difference between “Dial”, “Mark”, and “Center” frequencies?**

A945 See this information from the AirMail Help files.

[http://www.felge.us/Center\\_vs\\_Mark.pdf](http://www.felge.us/Center_vs_Mark.pdf)

and another visual representation of the topic from K7MM at:

<http://www.felge.us/CenterDialK7MM.pdf>

**Q947 What is the RMS Analyzer Program?**

A947 The “RMS Analyzer Program” is optional software available for Winlink Gateway Server Sysops. The following description is from the software author Doc W1EO.

This is a brief description of the RMS Analyzer program intended to highlight several of the many features designed to assist the sysop monitor the statistical performance of his/her WL2K Server. It will also serve as an invitation to join our group of sysops who are seriously interested in maximizing their server performance and helping their clients improve their own performances.

There are four main panels on the main display:

One - left: Data blocks with dynamically updated numerical values as connections are made with the Server

Two – left center: Upper plot, bar graph showing hourly complete and incomplete connections. Lower, azimuth plot showing completed connection locations.

Three – right center: Upper plot of current day complete and incomplete connections and the percent incomplete connections. Lower plot, showing hourly connection range and published MUF and FOT derived from NOAA.

Four – right: Three PIE charts of band, complete/incomplete mode and cumulative mode performance.

Each of the four center plots on panels 2 and 3 may be expanded for increased visibility.

Either a single day (shown) or the month-to-date data may be selected. The specific day of the month or the specific previous month can be selected.

The scanned frequency bands are derived from the RMS Trimode.ini file. The displayed order can either be as contained in that initiation file or it can be sorted in ascending order.

Most of the data boxes, buttons and plots have hover hints associated with them to help explain their uses.

Each time the adif log file is updated by Trimode, Analyzer extracts the new information from which the main display is automatically updated.

New versions (release or beta) of RMS Analyzer are posted on the ftp site. The Analyzer Settings panel may be configured to check for newer versions and automatically download and install them at midnight rollover or when the BOOT button is clicked. A recent Microsoft Installer is posted on our main web page (<https://groups.io/g/w1eo/files>) along with Word and pdf versions of the documentation manual.

Recent versions of RMS Analyzer provide a means of calculating and displaying the peak throughput of each of the four main protocol modes. Unfortunately the current Trimode adif logs always present zero sent bytes for the VARA mode so that throughput is based solely on the received bytes. We have been promised a corrective update soon.

To install RMS Analyzer on a WL2K Gateway Server for the first time, download and run the Microsoft Installer (msi) program from the main web page (<https://groups.io/g/w1eo/files>). It will offer to install the several support files and the executable program in the C:\RMS\RMS Trimode\Analyzer\ folder. Another folder may be specified. A monitor.ini file will be created from the monitor.ini.sample file which the installer provides. If the offered folder is not used, the



monitor.ini file should be edited to include the folder location where Analyzer will be able to find the Trimode adif log files.

The precise latitude and longitude values of the Server should be inserted into the monitor.ini file which will allow the Google Earth button to center the plot looking down the Server's chimney. Otherwise Analyzer will calculate and use the center location derived from the grid square contained in the RMS Trimode.ini file. The program will run properly without a passcode. One may be obtained from W1EO upon request – it is merely a means to keep track of stations running RMS Analyzer.

Run the RMS Analyzer executable program. Change the size, color and location to suit. When it is running the number of panels being shown may be selected. All this information is sticky and will be remembered the next time the program is started.

Please join us by fleshing out the innovative WL2K program suite to provide the sysop with methods to dynamically monitor the performance of the Server.

73 de Doc, W1EO

#### **Q950 Are there other general sources of Help for WL2K users and SysOps?**

A950 Run Link Test to be sure you have no problems with ports: [https://downloads.winlink.org/Sysop%20Programs/RMS\\_Link\\_Test\\_install\\_2-0-22-0.zip](https://downloads.winlink.org/Sysop%20Programs/RMS_Link_Test_install_2-0-22-0.zip)

Harris County (Texas) ARES/RACES – WL2K Resource Page  
<http://harriscountyares.org/winlink/>

Radio Relay International (RRI)  
<http://radio-relay.org/about/>

Digital Traffic Network – (DTN)  
[http://nts-digital.net/mw/index.php?title=Main\\_Page](http://nts-digital.net/mw/index.php?title=Main_Page)

N0IA – Tuning Packet Parameters for Best Performance  
<http://www.felge.us/TuningVHFPacket.pdf>

K7BFL – Suggested Packet Parameters for Winlink Express, AirMail, and AGW  
<http://www.felge.us/Parameters.html>

SV2AGW – A discussion about packet TNC's built into radios  
<http://www.felge.us/TascoModem.pdf>

Icom – D Star Specifications  
<http://www.icomcanada.com/dstar/dstar7.htm>

ARRL Lab (KC1SX) – Comparative Performance of Packet Radios at 9600 baud  
<http://www.felge.us/RadioCompare.pdf>

The “Pactor Primer” and “RF Interference”; two excellent articles written by Jim Corenman, KE6RK; author of the AirMail software:  
<http://www.airmail2000.com/docs.htm>

AirMail Installation and Setup Instructions – W5IFQ and KC5QHH

<http://www.felge.us/AirmailInstallW5IFQKC5QHH.pdf>

K0BG has an excellent web site regarding tips for installing a mobile station that works well: <http://www.k0bg.com/>

Good information about RF noise, static, grounding.

Jim Brown, K9YC has written a fine paper on reducing receive noise at <http://k9yc.com/KillingReceiveNoise.pdf>

KL7EDK has written a fine “paper” about techniques he has used to his enable his HF RMS station to be very successful, with a very low ambient noise level.

<http://www.felge.us/InRetrospect.pdf>

A “Digital Messaging” web page is available from K7BFL, with lots of links to other pages.

<http://www.felge.us/digitalmessaging.html>

There is an informal group called the “HOW Club” [Hams on Winlink] which sends you weekly messages (to your Winlink address) of an instructional nature. You then send a “Reply to All” message back to the group with your comments and/or questions. It is a good way to practice actually using the “radio” aspects of Winlink. See

<http://www.felge.us/HOWClub.pdf> for detail

## AirMail – Setup - General

### **Q1000 What kind of computer operating system do I need to run AirMail?**

A1000 Windows 95 is the “minimum” operating system, although a more modern Windows operating system is always encouraged.

### **Q1005 I see that there are several “modules” in addition to the “HF Terminal”. What are their differences?**

A1005 The “Telnet Client” module is used to communicate via the Telnet protocol, using an internet connection. The “setup” for this is via the Tools...Options...Modules...Telnet Client...Setup window. This module is the easiest to get setup and is suggested as an initial means to get AirMail working. See Q4000.

The “Terminal” or “HF Terminal” module is used to communicate via HF, using factor 1, 2, 3, or 4. The “setup” for this is via the Tools...Options...Settings window. See Q2000.

The “VHF Packet Client” module is used to communicate via packet radio. The “setup” for this is via the Tools...Options...Modules...VHF Packet Client...Setup window. See Q3000.

### **Q1010 I having trouble getting AirMail to talk to my computer com port. Any suggestions? I am using a serial to USB converter between my computer and the TNC.**

A1010 Some serial/usb converters work ok; some don't. Good results have been reported for those brands of Radio Shack, Manhattan, Keyspan, Edgeport, IBM and Startech. Many folks are having difficulties with those sold by Belkin, but that may have changed.

The Keyspan and IBM devices have been tested and listed on the Microsoft Hardware Compatibility List (HCL). Since only “listed” hardware has been tested and found to be substantially compliant, buying unlisted equipment is a gamble at best.

Things like COM ports floating (or being able to be assigned and reserved unchanged by the driver) are symptoms of software that can't get on the approval list because someone wrote cheap drivers.

### **Q1020 I want to install a new version of AirMail. Do I need to uninstall the old version first?**

A1020 No; just copy the new file into your main AirMail Folder. Double click on the new file. Installation will begin. All of your previous settings and frequency lists will be preserved.

**Q1030 I have been using AirMail successfully for several days. Yesterday I installed a new version and reset the "starting" message number [Tools...Options....Settings....Current Message Number] to the same number as was used for my first message. The RMS to which I connected would not accept my next message. Why?**

A1030 Each message "alive" within the Common Message Server must have a unique message number, referred to as a "MID". You should not "reset" the starting message number when re-installing or updating the AirMail software.

However, if you are using multiple computers (like your laptop and your desktop) with the same callsign, keep the message numbers significantly different from each other in the two computers. To do otherwise your "new" message to another WL2K user might not be downloaded at its intended destination. If he is using AirMail, he might get a "Message Already Received", from your "other" computer, since AirMail keys on the message number of the Sender.

**Q1060 Is it possible to get AirMail software to use on a Windows mobile PDA?**

A1060 No, sorry. Windows CE (for mobile devices) is completely different from the Windows 95/98/ME or Windows NT/2000/XP families.

**Q1080 I have been reading and now using the next generation of USB flash drives: the U3 smart drive. Has anyone setup the AirMail program to run under the U3 smart drive?**

A1080 [from WA9OTP] A handy way to transport the AirMail program between computers is in a small USB flash drive. These drives are very inexpensive now, compact, and durable. When AirMail 'installs' it copies programs to your computer, it does not add complex links (DLLs).

According to Jim Corenman, KE6RK, who wrote AirMail:

"The only caveat is that if AirMail has never been installed on the machine, then a library file might be missing- vcl50.bpl which normally lives in the Windows/System32 folder. The fix is to copy that file into the AirMail folder on the USB-drive. 73, Jim"

I have tried this, and included the vcl50.bpl file as Jim suggests, and found that AirMail will boot and run from the flash USB drive on any other machine.

Of course, you may have to adjust the com ports for your new situation.

**Q1090 Are there any special things I need to know to get AirMail to work with the new Windows Vista operating system?**

A1090 First, a comment on upgrading to Windows Vista: If the new computer came with Windows Vista then that's great. If you are contemplating upgrading your computer to Windows Vista then make sure that is what you want to do. Windows-XP is robust and reliable; if yours is not then something has been compromised. And upgrading a compromised system results in a compromised system with fancy new drapes. But if you have a fast processor and at least a gigabyte of memory, then go for it.

The next question is an upgrade-installation or a clean install. Generally we prefer a clean install, but only if the computer manufacturer supports Win-Vista for your computer, and provides driver updates. For example, upgrading our three-year-old IBM Thinkpad was a piece of cake-- do a clean install for Win-Vista, go to the Lenovo website support/downloads page and install the system-update file for Windows Vista. We were impressed, but your mileage will vary.

There are a couple of issues when running AirMail under Windows Vista, mostly related to new Vista security features. The short answer is that AirMail works fine under Win-Vista when run as an administrator. A new security feature of Windows Vista is "User Account Control" (UAC). Remember, if you can do anything useful with your computer, it is not sufficiently secure. "User Account

Control" is a watchdog service that does two things: warns you if you are trying to do something useful, e.g. run a program. And, if a program attempts to write into protected areas (e.g. the "program files" folder), a virtual copy of the file or folder is created instead for that user. The result, for AirMail, is severe schizophrenia, and release-notes that just keep reappearing. Here's how to fix it:

First, install AirMail as usual: Download the file from the website and save it in a "downloads" folder, then open that folder and open the downloaded file. AirMail will go through the install steps, and Windows may show a "not installed properly" warning when finished-- click "Yes this installed normally" and continue.

Once installed, before running AirMail, right-click the AirMail desktop icon and select "properties", click the "Compatibility" tab, and check "Run as administrator". This allows AirMail to write into its own folders (otherwise prohibited). For AirMail versions prior to 3.3.090 also check "Run this program in compatibility mode" and select Windows-XP SP2 (this will enable com-port descriptions).

You will continue to get warnings from UAC about an "unknown program" each time you start AirMail, and you may want to disable UAC. You can disable UAC in Control panel: open "User Accounts" and turn "User Account Control" off.

Help file: Vista does not include the program to display the traditional help files, "Winhlp32.exe". This may be available for download, alternately it can be copied from Windows-XP C:\Windows folder. To do this you will first need to set the permissions for the C:\Windows folder to allow Administrators full access, and to do this you will need to first take ownership (right-click the Windows folder, select properties, then Security tab, Advanced button, Owner tab, Edit button). Then copy the complete (277 KB) Winhlp32.exe from Win-XP over the 9KB "stub" Winhlp32.exe on Win-Vista.

The propagation program installs OK and runs properly under AirMail. It will not likely run correctly under its own desktop icon without some fiddling similar to the above.

Upcoming versions of AirMail will move the user-folders into Win-Vista's user-space, while maintaining the basic hardware settings in a common file. This will avoid issues with UAC as well as permitting separate "personalities" if desired. The Help file will also be converted to HTML format. The goal is for AirMail to run smoothly under Vista's highest security settings, but this will take some effort.

[from Jim Corenman, author of AirMail; February 1, 2007]

**Q1150 I am having trouble getting AirMail to install. I followed the instructions on the web site, but after I start the install it never seems to complete unzipping the files it grays out and an AirMail button appears in the tray, but it doesn't do anything. No AirMail folder is created in the Programs file. I've left it running for over a half hour and still nothing and if I hit cancel a popup tells me that "install.exe is still running". Help please!**

A1150 [from KF6PNA] Some versions of InstallShield have a problem working with screens that have resolutions above 1024x768.

I have a desktop computer with 2 monitors connected. The primary is a 19" with resolution 1280x1024. The secondary is a 22" widescreen with resolution 1680x1050. With nothing left to lose, and since I'd tried everything else I could find, I changed the resolution on the 19" to 1024x768, reran the installation and lo and behold, the setup dialog boxes appeared on my monitor and I was able to complete the install.

I changed the resolution back and tried to do another install and noticed that I could just barely see the dialog box along the right side of the screen. I was able to grab the setup dialog window and drag it back onto the screen and was able to complete the installation. Then I figured one more test was in order. I changed the configuration of the video card to only use the 19" monitor and ran another install, with the resolution set to 1280x1024, and everything worked perfectly as it had in the past.

The bottom line... The setup dialog boxes were displaying "off the screen" giving the appearance that the install was hanging, when it was just waiting for a response. Problem solved! I'm using an NVIDIA GeForce 8400GS video card with the latest drivers.

**Q1200 I am moving my AirMail software to a new computer. How do I move the Address Book?**

A1200 The Address Book information can be Exported and Imported. Search the AirMail Help file for "address".

In your "old" Airmail, Go to Tools ... Address Book ... Export Addresses. Export the csv file to a USB Flash Drive.

Move the USB Flash Drive to your "new" computer. Open your "new" AirMail. Import the csv file to your "new" AirMail.

Note: Before doing this process with the Address Book, consider moving all files in your "old" AirMail folder to your new computer, utilizing a USB Flash Drive. See Q20100.

## AirMail – Use - General

**Q1500 There seems to be a very large message trying to download to me. My message pipeline is plugged! It will take too much time to download. How can I delete the message before it downloads?**

A1500 Sometimes a very large message (with or without Attachments) gets sent to a WL2K user and the attempted downloading of it results in very long airtime and the inability to download other messages. There are several methods available to fix this problem:

### Method 1

If you have Winlink Express installed on your computer, see Q11680.

### Method 2

Have someone who has access to your WebMail account read and off-load the message; then Delete the message

### Method 3 (See Q8510, Q8515)

a. Set your program to the "Keyboard" mode. (AirMail is normally in the "Handshake" mode.

b. After connecting to a RMS station, type LM. This will give you a listing of the messages waiting for you, complete with Message ID, size, and origination.

c. Find the number of the offending message. Copy and Paste its Message number into a line to be sent back to the CMS as:

K xxxxxxxxxxxxxx [xxxxxxxxxxxxxxx is the Message ID]

d. The message will then be Killed (Deleted). You will get a confirmation of that back from the CMS.

e. Repeat (b) to confirm that the message is no longer in the queue for you.

f. Disconnect (Disconnect Button or type BYE)

g. Connect again, in the normal Handshake mode. The Pipe will be unplugged!

h. Send a note back to the offending Sender

### Note:

The KM command will work also, but ALL of your messages will be deleted.

### Method 4

Download the message via Telnet (Internet Access) or the WL2K web page, if an internet connection is available.

Method 5: Request the System Administrator to delete the message.

**Q1540 I want to use AirMail with “Internet Access”, Packet, and Pactor. Do I need three different computers, or three “instances” of AirMail on one computer?**

A1540 No, a single installation of AirMail on a single computer will handle your needs. The three communications access methods each have their own unique communications “Module” within the main AirMail software. If you expect to have the Packet Module and the HF Terminal (Pactor Module) open at the same time, they each need to have different port numbers.

**Q1580 How do I get a message from the Catalog, using AirMail?**

A1580 AirMail's "Catalog" window can be used to request weather bulletins and other documents from the Winlink 2000 system for hams, and from the Saildocs server operated by the Sailmail association but also accessible via e-mail by WL2K users. The AirMail catalog is found under the Window menu, Catalog selection. The catalog window is divided into two panels- on the left is a "tree" showing various folders, like AirMail's message-index tree or Windows Explorer. These folders represent categories of documents which can be requested.

The catalog entries are organized first into sections for "WL2K" and "Saildocs". Clicking the little "+" will expand a selection, clicking a "-" will collapse it (just like Windows Explorer). The right and left-arrow keys can also be used to expand and collapse folders.

Under "WL2K" are a folder for "global" bulletins, plus a folder for each station which has been seen, containing that stations local bulletins as well as the "update" listings. Under the "global" folder are folders for each bulletin category, click on these (or use the arrow keys) to open that folder and show the contents in the list on the right side. Bulletins or documents are requested by checking the corresponding checkbox, see Winlink 2000 Bulletins for more information.

Put a Check in “request Box for each message you want. Pay attention to the estimated size of the message. Is it too large for your download method?

Close the Catalog Window.

A “Request” message should now be in your Outbox. Send. Reconnect to the CMS/RMS in a few minutes; the messages will be downloaded to you.

**Q1600 Using AirMail, how do I update the list of messages in the Catalog?**

A1600 Every time there is a small change, deletion or addition to the WL2K Catalog displayed in the AirMail menu "Window>Catalogs," the list should be updated periodically to take advantage of the changes and additions. This is done by sending a “Request” message to the CMS; then waiting for the updated Catalog to come back from the CMS

The Update is relatively short, while obtaining a new List is a bit longer. Either way, once the change is received, AirMail automatically updates your existing Catalog list. The method for obtaining a revised list is as follows:

2. Go to the AirMail menu item "Window>Catalogs." Do either 2a, 2b, or 2c; depending on what you have in your present Catalog.

2a. Under Catalog, expand "WL2K" further to show some of the RMS or CMS call signs.

Pick a RMS or CMS that you wish to use and Click on that callsign. On the right-hand side you will see both "LIST" and "UPDATE." Go to Step 3.



2b. On the left, expand the directory tree to Catalogs...WL2K...Global.  
In the "Code" column you should find "LIST" and "UPDATE". Go to Step 3.

2c. Create a new message, using the following format:

To: INQUIRY@winlink.org  
Subject: REQUEST [do **not** include //WL2K]

*In the body of the message include either one of the following lines:*

LIST *[if you want an entire new Catalog file]*  
UPDATE\_CAT *[if you want a simple update to your present Catalog file]*

*Go to Step 4*

3. Check either "UPDATE" or "LIST." If you choose "UPDATE," all changes & additions will be shown, BUT the deletions will NOT be taken away. However, if you choose "List," then you will have a fresh new shorter list. Unless otherwise instructed, an update will be adequate.

4. Post the message to WL2K and Send your request.

5. Wait a minute; check back into any RMS or CMS and retrieve the information you requested. Once the update or new list has been received, it will automatically update your AirMail Catalog List. If it does not, restart AirMail. If that does not update your Catalog, select (do not Open) the update message you just received; then go to Tools....Update Catalog.

## **Q1610 What is GRIB weather data?**

A1610 GRIB is a file format and stands for Grid In Binary. It is used for the storage, transport and manipulation of gridded meteorological data, such as Numerical Weather Prediction model output. It is designed to be self-describing, compact and portable across computer architectures. The GRIB standard was designed and is maintained by the World Meteorological Organization.

GFS is a mathematical model developed from USA weather offices. GFS stands for Global Forecast System and is a global numerical weather prediction model run by NOAA/NWS. This model runs four times a day. It is "pointed" to USA. It means that every mile AWAY from the "center" has less probability of a correct prediction. In USA and Atlantic the probability is more than 75% that is really good. In Mediterranean it is around 50%. It means that if the grib says "South" it has the same probability than "North"; and it is not good! The local bulletins in the WX\_ area is the best solution for Mediterranean sailors

Grib files are extracted from a computer forecast model (GFS). While such computer data can provide useful guidance for general wind flow, there are limitations which must be understood. The file is a weather prediction generated by a computer run by NOAA/NCEP (GFS, WW3 models) or the US Navy (comaps, nogaps) and downloaded and processed by Saildocs (a service of Sailmail). The network is complex, and any computer network is subject to hardware and software failures or human error which can affect accuracy or availability of data. In particular, if servers were not able to download a current data file then the grib-file may be based on old data.

Also remember that grib data is not reviewed by forecasters before being made available. You are getting a small part of the raw model data that the forecasters themselves use when writing a forecast, and it is your responsibility to make sure that the data is consistent with your local conditions and with the professionally-generated forecasts (e.g. text bulletins and weather-fax charts).

Grib data also has limitations along shore, where local effects often dominate and may not be adequately modeled. In addition, these models cannot provide adequate prediction for tropical systems, frontal activity or convergence zones. For example, while global models can provide useful data on the likely track of hurricanes, they grossly underestimate the strength of hurricanes

because of their small size compared to the model grid. For hurricane/cyclone forecasts, carefully monitor the appropriate warning messages and do not rely on grib data from any source.

That all said, grib data can provide useful guidance not available elsewhere. Understand the limitations and use the data carefully. Grib data should be considered supplemental to other forecasts, and not be relied upon in lieu of professionally generated charts or forecasts.

AirMail does not understand the Euro coamps lat-lon limits, you will need to format the request manually. You can create a "GFS" request and then change the code from "GFS" to "coamps", and change the grid if desired.

See [www.saildocs.com/gribinfo](http://www.saildocs.com/gribinfo) or send a (blank) email to: [gribinfo@saildocs.com](mailto:gribinfo@saildocs.com) for more info on formatting grib requests.

Additional info regarding grib files can be obtained from the AirMail Help file or from <http://www.saildocs.com/gribinfo>

### **Q1630 Is there a maximum number of addresses that can appear in the AirMail "To" line?**

A1630 No; however keep in mind that most folks use some sort of spam-filter on the receiving end, and most spam-filters are sensitive to messages with a bazillion "to" or "cc" addresses- lots of cc's is something often used by spam. Keeping the number of recipients down to a reasonable number per message will increase the chances of getting it through.

### **Q1660 How is it possible to view all addresses in the "To" line as I add them to it?**

A1660 Save the message, then select View menu, Message-header, and re-open the message. You will see the complete headers with word-wrap, easy to check or copy.

### **Q1700 How can I select multiple addresses in the address book?**

A1700 Create an address-book entry called "Group" or whatever, enter one to-address and as many cc-addresses as you want, one per line. To copy/paste; use the right-click menu (or the usual windows shortcut ctrl-V to paste).

### **Q1720 How can I print out a message, if I don't have a printer connected to my computer?**

A1720 If you have a "thumb drive" and another computer (with printer) is available in your vicinity, try this:

Select the message (do not Open).

Select File.....Import/Export.....Export email format. This will enable you to Save the message as a text file on your thumb drive.

If the message has Attachments, "Save As" those on your thumb drive, by right-clicking with the mouse.

Move your thumb drive to the other computer. Open the files and Print.

Another "substitute printer" can be the camera on a cell phone.

**Q1750 AirMail version 3.4.062 does not seem to Forward Attachments. Why?**

A1750 There appears to be a bug in that version. Version 3.3.081 does not have that problem. A “work around”:

1. Use the REPLY Icon (Format a Reply Message)
2. Left click in the empty body.
3. Right click, and then choose Append Original Message
4. Click YES button to include original Attachments
5. Change address for the recipient from the originator to the receiver. Add your extra text.

## **AirMail – Setup (HF Pactor)**

**Q2000 I have connected to a RMS Pactor station, with a Posted message to go out, but it won't go. Why?**

A2000 You may not have your BBS Forwarding Protocol set to "B2F". See Tools...Options...Settings...System Settings

**Q2050 I have heard talk about my PK232MBX not working on Pactor. What is this all about?**

A2050 The early PK232mbx models with firmware rev. of 7.0 have code in them that effects how binary files are transferred. The WL2K folks found that the B2F protocol is the most effective way to transfer files. However, with older code in the firmware, the PK232 cannot use this protocol so it switches to the FBB protocol, which is slower.

The whole point is that you get a slower throughput with the older firmware. In revision 7.1 the code has been changed to accommodate B2F, but do not expect to see a major increase in throughput because it is still only Pactor 1. To see a major increase in throughput you need to go to Pactor 2 or 3 (with a SCS tnc).

The PK232mbx will not support use of the GetFAX function.

## **AirMail – Use (HF Pactor)**

**Q2505 Is it ok to try to connect to a RMS station if I can hear someone else using the frequency?**

A2505 **No.** See Q11520

**Q2510 I am not getting solid Connects with any RMS Pactor Station. What could be wrong?**

A2510 Several items could affect the performance:

See the AirMail Help files. See Q950.

Does the LSB/USB configuration of your radio match that of your TNC?

Are you on the correct EXACT center (not dial) frequency? The main frequency chart is listed as center frequency. In the lower right-hand corner of the Terminal screen on the AirMail Terminal form, you will find the actual dial frequency. The dial frequency varies with modem type and other factors, while the center frequency is always the same, regardless of mode of operation or sideband used.

The TNC to computer baud rate should be set as high as possible, given the specs of your computer and TNC.

Over modulation of the transmit audio? You should barely see any ALC with full output to your transceiver. This can be set up in AirMail. Read the AirMail help files. Reduce the transmit audio gain level. Less is better.

Turn off all processors, compressors and filters on both the receiver and transmitter.

Is your receive bandwidth filter wide enough for the mode used? Pactor 3 needs 2.4 KHz.; Pactor 2 needs 0.7 KHz; Pactor 1 needs 0.6 KHz.

Some radios do not perform well with both the microphone and the TNC connected simultaneously to the radio. Disconnect the microphone.

Maybe you have an "RF or Audio" problem due to RF feedback into your system. A symptom on this problem would be a "better" signal, when using a very low power output. Use ferrite chokes and/or less power output. This feedback can also be reduced by Increasing the audio level from the TNC and decreasing the transmit audio gain at the transmitter.

If you are using a battery for power, is the battery voltage too low? In this case maybe a lower power output setting may work better.

Listen to your transmitted signal with another receiver. Does it sound like that of a public RMS Pactor station? See above.

Maybe you need a better antenna?

Install a better earth ground connection or counterpoise.

**Q2520 I am not getting solid Connects with one particular RMS Pactor Station. What could be wrong?**

A2520 Several items might improve the performance:

See the AirMail Help files. See Q950

Change to a different frequency band for that RMS Pactor Station

Try a connection at a different time of day.

Use another RMS Pactor Station. It does not matter. They are all transparent to the system.

If the audio from the RMS Pactor Station sounds distorted or "different", that station may have a problem. Notify the Sys Op by sending an email to: [RMSCallsign@winlink.org](mailto:RMSCallsign@winlink.org)

**Q2525 I am using pactor 1 with my MFJ-1278 to Connect just fine to a RMS Pactor station. I can't seem to upload or download any messages. What could be wrong?**

A2525 That particular TNC does not support the "B2F" compression protocol, required by WL2K. However you should be able to exchange messages with other pactor stations, using the peer-to-peer approach. See Q5000.

**Q2530 I have connected to a RMS Pactor Station and messages are flowing, but VERY SLOWLY. Any suggestions?**

A2530 If you are "almost done" with the transfers, hang in there and wait for the finish.

If you will have a significant estimated time left to finish the transfer, do a Hard Disconnect (hit the Button twice). Pick another RMS Pactor Station, another frequency for the same RMS Pactor Station, modify your equipment for a better signal, or wait until propagation conditions improve. There are many RMS Pactor Station's and frequency bands available; something usually works better...now. The Magic of WL2K!

When you make the next connection, AirMail tells the RMS Pactor Station how much of the message(s) have already been transferred, and the process will continue from where it left off on the previous connection.

See Q2520 and Q2680.

**Q2533 I have heard that there may be problem, using my Icom 706MkIIIG with Pactor 2 and Pactor 3?**

A2533 The very early (you would have to check with Icom to get the serial number range) versions of the 706 MkIIIG have issues with a slow transmit rise time which adversely affects Pactor 2 and Pactor 3 performance. A It apparently occurred during the first month of production. There is a mod required which will correct the problem. Contact Icom for a possible modification,

**Q2535 When using the HF Terminal window, I constantly must use the scroll bar to keep up with the information showing in the window. How can I keep that from happening?**

- A2535 To fix the scrolling problem:
1. Maximize the Terminal window.
  2. "Restore Down" the Terminal window (the box next to the Close Box)
  3. Scroll down to the bottom of the Terminal window.

The Terminal window should then scroll up automatically, with new information

### **Q2550 How do I find what frequencies the RMS Pactor Stations are scanning?**

A2550 AirMail has a built-in frequency list of all public RMS Pactor Stations. The scanned frequencies of a particular RMS Pactor Station show up in the HF Terminal Window, when the RMS Pactor Station is selected. Be sure to set your radio dial to the “Dial Frequency” shown at the bottom of the Terminal Window. The frequency shown above is (depending on setup) the Center Frequency.

### **Q2560 How can I keep the Frequency List up-to-date?**

A2560 Download the list of Public RMS Pactor Stations List from this site at Tools....Live System Information....RMS List

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

EmComm operators can receive a special EmComm RMS Pactor list from their local RMS sysop. These lists are compiled by the WL2K server from actual on-air stations reporting in within the last 48 hours of the time you download them. You can also download those special Emcomm lists from [www.winlink.org](http://www.winlink.org), if you have the correct “Service Code”, available from your local Emcomm leadership.

A Public frequency list for RMS stations can also be downloaded from the Catalog part of AirMail:

Window...Catalogs...WL2K...Global...WL2K\_RMS

### **Q2570 How do I download a new Frequency List, using AirMail?**

A2570 To download a new Frequency List for inclusion in AirMail, follow the instructions below:

1. Go to Menu items: Windows...Catalogs...WL2K...Global...WL2K\_RMS
2. Check the Box labeled “PUB\_PACTOR”. Post to WL2K.
3. Check into a RMS Station (or the CMS) to send the request.
4. Check for new mail in a few minutes. A new message should be there for you, with the latest frequency information.

Go to Q2580 for installation instructions.

### **Q2580 After I have downloaded the new Frequency List, how do I install it in AirMail?**

- A2580
1. Open AirMail. A message with the new list (embedded in the message) should be in your In Box. Select it [do not Open]
  2. Go to “Tools....Make Frequency List”.
  3. Scroll through the list; verify that it is the “new” list.
  4. If your list is a “Public” list, and you have additional Emcomm RMS Pactor stations to add, Copy and Paste the info for any Emcomm RMS Pactor stations you want to include. See Q2590.

5. Click the "Update" button, the program will go into a frenzy of formatting.
6. Click "Save" the frequency list.
7. Go to "View....Frequency List"
8. Check the stations what you would like to include in your HF Terminal window list.
9. Update....Save....Ok
10. Close AirMail....Open AirMail

**Q2590 Where can I find a list of RMS stations which are primarily supporting "emergency communications"?**

A2590 See the list of active EmComm RMS for the various protocols at [www.winlink.org](http://www.winlink.org) ... Tools ... RMS List. Use a Service Code of "Emcomm".

**Q2595 I have been trying to send a message via an RMS Pactor Station (KL7EDK). It will not go. It is Posted to WL2K. Why won't the message be sent?**

A2595 You probably have your RMS Pactor stations in a unique AirMail "System", other than "HAM". The message will be sent if you either Post it to KL7EDK, or Post it to WL2K and include the station data for KL7EDK in the "HAM" System.

**Q2600 Are there some "maintenance" things I should be doing to keep AirMail and my part of WL2K running smoothly?**

A2600 Yes, like most hardware and software, revisions occur.

- a) Frequency List. See Q2560 and Q2570. This should be done every 1-2 months, only if you are using the HF part of WL2K
- b) AirMail Catalog. You should probably update this 2-3 times each year. See Q820 and Q1600.
- c) If you are using a TNC, update the Firmware. If you have a SCS TNC, it is updated about every year. Check the SCS web page for news about a new release. The latest is version 4.0. Your version number will show on the Terminal Window when you start up. The updating process is a shore chore, using the internet

Download from the SCS web page

start AirMail

Tools....Update PTC Firmware

- d) AirMail software. It is available by Clicking on the "AirMail" name at the top of the column from the WL2K web page at:



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

e) Winlink 2000 FAQ file. This is a pdf user "help", revised several times each year. Download from the WL2K website. Please send new material to [donK7BFL@gmail.com](mailto:donK7BFL@gmail.com) as you learn things that other folks might not know. You are now using that file!

**Q2650 It seems like there are not many RMS Pactor stations that will accept a Connect from my pactor 1 equipment. Why?**

A2650 The throughput of pactor 2 is about 3x the throughput of pactor 1. The throughput of pactor 3 is about 30x the throughput of pactor 1. See Q170. If a particular RMS operator can keep his station relatively "busy", accepting only pactor 2 or 3 connects, he will probably choose to go the "no pactor 1" route. By doing that, his station is providing the "most data transfer" for the "most users". Each RMS Pactor station owner/operator independently makes a decision regarding the use of pactor 1. RMS Pactor stations have given special considerations to pactor 1 users during unique events. E-mail a RMS Pactor Station with your special requests. They have the software ability to accept pactor 1 Connects on specific bands, and/or during specific times during the day.

The overall goal is to maximize the throughput on any given available band segment. The addition of Emcomm RMS Pactor stations will provide additional support for pactor 1 users.

**Q2680 Is pactor 3 the best mode to use, all the time?**

A2680 Not always. Sometimes pactor 2 has a better throughput than pactor 3; usually when using a narrow (0.5 kHz) receive filter to improve the signal/noise ratio of the received signal. This may occur during "noisy" band conditions or when the band is particularly crowded.

## AirMail – Setup (VHF/UHF Packet)

**Q3000 I have one of the new Kenwood radios (D700) with a built-in “Tasco” TNC. Will it work with AirMail (Packet Client module)?**

A3000 Yes, but proceed very cautiously. The first versions of the D700, TH-D7, etc. have a very small buffer.

The newer radios with built-in TNC's do work well with Winlink Express. See the Help files for Winlink Express.

Other radios which have this same packet performance are the Kenwood TS-2000, TH-D7, and Alinco DR-135. The radios will work fine if used with an external TNC supported by AirMail. See <http://www.felge.us/TascoModem.pdf>

The built-in TNC can also access WL2K via the “Keyboard” method (see Q8000).

It can also access WL2K in a limited manner by using the special APRSLINK method described at: <http://www.winlink.org/aprslink>

***A process for using the Alinco DR-135 (with internal “Tasco” TNC) with AirMail is described in Q3005.***

***Both Paclink and Winlink Express now have KISS drivers available for use with all radios with the “built in” TNC. See Q7016 (Paclink) or Q11230 (Winlink Express).***

The newer model radios (D710A, etc.) have a larger buffer and work better if they are used in the KISS mode.

From K6ACJ -----

The TH-D7, D700 and D710 all work on Packet using the KISS mode and actually the same KISS configuration; I use the TAPR2 TNC in AGWPE.

The difference in buffers between each will cause problems but the D710 has been tested extensively and seems to work fine. The TH-D7 will work on very short messages but sometimes lock up. When the TH-D7 locks up a FULL RESET must be performed and all the settings and memory are returned to Factory default. So, if you want to experiment with the D7, use the Free Kenwood Memory configuration program to READ and SAVE the D7 settings making it very easy to restore after the inevitable crash.

The D700 didn't lock up but if I recall I keep maxframe to 1 and paclen to 64, same as I used for the D7.

The D710 worked fine on packet and Winlink 2000, I was able to extend maxframe and paclen settings out for longer messages, so in my opinion the D710 is Ok for packet and Winlink 2000.

**Q3005 How do I configure my AGWPE software to enable AirMail to be used with the Alinco DR-135, using its internal TNC?**

A3005 K7CPO has had good results with the following setup procedure, using AirMail 3.3.081. AGWPE or AGW Packet Engine Pro is also needed with AirMail (with the addition of AMPE or AMPEstreams22 (see Q3015). It has been successfully tested with several RMS Pactor stations, both directly and via Nodes.

If your computer is "old and slow" it may not have enough cpu speed to handle all needed software. It works fine with a Pentium 4, 3.2 GHz.

Edit the AirMail ini file; set Packet Length=126. Save the file.

Use a DB-9 male/female cable between the DR-135 and the serial port (or serial/usb adapter) on your computer.

The Port setup for AGWPE or AGWPE Pro is:

9600 baud radio to computer  
TARP TNC2 [blank]  
KISS ON  
RESTART

Kiss Simple                    ExitKISS on Exit

Single Port

Persist=200                    Frack=4  
Slotime=15                    RespTime=2  
MaxFrame=1                    Check Every 120  
Retries=10  
TxDelay=55  
TxTail=4

1. Use the VFO to determine the packet frequency
2. Turn on the radio; get into the Data mode by pushing the Function key, then the Squelch key.
3. Start AGWPE
4. Start AMPE (or AMPEstreams22) and the Airmail Packet Client.
5. Operate the AirMail Packet Client as "normal".
6. It is VERY helpful to use the "monitor" part of AGWPE to monitor the health of the software, hardware, and packet frequency activity.

The radio/software will "lockup" if any of the following (there may be others) are done:

- a) Changing power level
- b) Changing from Data to Voice to Data

To recover: restart the radio; restart the software.

**Q3010 I am using AirMail 3.3.048. I would like to use the Packet Client module with my Sound Card, using the AGW-PE "TNC" selection. It doesn't seem to work at all. What am I doing wrong?**

A3010 Nothing. The reference to "AGW-PE" was mistakenly left in the code by the AirMail author, who is in the process of writing code to enable FUTURE versions of AirMail (Packet Client module) to work with Sound Cards and TNC's

using KISS, with the addition of the AGW-PE software. However KG9OG has come up with additional software to enable the AirMail Packet Client to work through the AGW software to your Sound Card. See Q3015

**Q3015 So, is there a way that the AirMail Packet Client can be used with Sound Cards and TNC's that are not on the pull-down setup list?**

A3015 Yes! KG9OG has come up with additional software to enable the AirMail Packet Client to work through the AGW software to your Sound Card device or any TNC that can be placed in the KISS mode. **An additional benefit of using this method with any TNC is that you will be able to monitor all packet traffic on the frequency, using the Monitor function of the AGW software.** N7XOO has written the following instructions to use for AirMail 3.3.081 or 3.4.034 Beta and Windows XP, 2000, or Vista.

**Configuring AirMail Packet Client to work with AGWPE or AGW Packet Engine Pro**

For Windows XP, 2000 and Vista 32-bit (Vista 64-bit is untested):

The purpose of this process is to enable the AirMail software "Packet Client" module to work with most any sound card device or TNC that can be placed in the KISS mode, and with enough buffer memory to handle the demands of AirMail, and your computer CPU is quick enough for AGW.

This configuration requires the addition of one or two additional pieces of software, each approximately 3M in size. Both are freeware. The following assumes that you already have AGW working well on your computer.

**1. Download, unzip, and install the "AirMail to Packet Engine" program (AMPE), AMPE162.zip (AMPEstreams22 may be substituted for AMPE as required, see web page listed below for download and configuration instructions)**

The link to the AMPE program (written by Brian Smith KG9OG) is

<http://www.gsl.net/mararc/ampe.htm>

After installing, read the excellent Help File and look for the Startup Command string. You now need a way to start AMPE; do either (a) or (b)

**(a) AMPE Shortcut**

If a shortcut for AMPE is not on your desktop, create a shortcut on your desktop to AMPE16.EXE. Then edit that shortcut, by right clicking, selecting "Properties" and then on the "Shortcut" tab in the "Target" box add the information as below; substituting the call you are using in AirMail for MYCALL, click Apply and then Ok. (NOTE: Be sure to add a space after AMPE16.EXE before entering the first letter of MYCALL)

"C:\ampe\AMPE16.EXE" MYCALL,1,TRUE,8000,8100 where MYCALL is the call you are using for AirMail, and "1" is the AGW Port you are using

**(b) AGW Packet Engine "Other Software Autostart"**

AGW Packet Engine or AGW Packet Engine Pro may also be used to define the Command String. Within AGW, select Setup...Auto Start other programs....ampe16.exe

the Startup Command String would be "MYCALL,1,TRUE,8000,8100"

[you need to scroll to the right to see the column for the Command String information]

**2 If you are using AirMail 3.4.034 Beta, go to Step 3. If you are using AirMail 3.3.081, continue:**

Start AGWPE, then AMPE, then AirMail;

In AirMail click Tools...Options...Modules....VHF Packet Client Setup

Enter KAM+ for the TNC type and T8100 (T8200 for AMPstreams) for the Com Port

Click OK and then Apply and Ok to close the AirMail Options window. You may not really be using a KAM+ but that's what is recommended for a choice. [The actual interface with your TNC is determined by the port settings in AGW, except for Packet Length].

Start the AirMail Packet Client Module. The Packet Client window should say "Packet initialized OK"

Go to Step 10. [the port redirector software is not needed if you are using AirMail 3.3.081]

**3. Download and install the Lantronix CPR (Com Port Redirector) version 3.1.0.4**

The link to the Lantronix file is;

[http://ltxfaq.custhelp.com/cgi-bin/ltxfaq.cfg/php/enduser/std\\_adp.php?p\\_faqid=928](http://ltxfaq.custhelp.com/cgi-bin/ltxfaq.cfg/php/enduser/std_adp.php?p_faqid=928)

Be sure to use the 3 version; the 4 version doesn't seem to work for this application. The purpose of this software is to enable you to create a "Virtual Com Port" on your computer (with a number than is not already being used), and to "re-direct" that Virtual Com Port to the actual Port number (1, 2, 3, etc.) that you have previously configured as part of the AGW software.

**IGNORE all the install and setup error messages when installing on Vista 32-bit. still install. Unblock ports in any Windows Firewall messages.**

**The program will**

**4. Reboot the computer.**

**5. Open the Lantronix Com Port Selector Program** and click the "Com Setup" button. Select a com port number that is not used by your computer.

Click the Port settings box and check "Raw", click the "Add IP" button and enter 127.0.0.1 for Host and 8100 for Port. Click "OK" and then click "Save".

**IGNORE any setup error messages when installing on Vista 32-bit.**

**6. Reboot Again.** The Lantronix software will now be running in the background. Verify the existence of your new "Virtual Port" by looking at Control Panel....System...Hardware...Device Manager....Ports.

**NOTE: For Vista 32bit, Device Manager will not show the Virtual Com Port, but it IS**

**operational.**

**7. Configure AirMail Packet Client** to use the virtual com port you set up in the Lantronix CPR and choose KAM+ for the TNC. You may not really be using a KAM+ but that's what's recommended for a choice. [The actual interface with your TNC is determined by the port settings in AGW, except for Packet Length]

**8. Close AirMail and edit the Airmail.ini file**

Backup your airmail.ini file; then do the following editing.

Within the [Packet Client] section “comment out” lines by inserting a semi-colon at the beginning of these lines. See the Example below. Note that in this example COM12 is your “Virtual Port”; not the com port of the device you will actually use.

All other settings remain the same, just add semi-colons starting with Tx Delay and ending with Packet Length 2.

```
[Packet Client]
DecoderType=KAM+
Port Settings=COM12:9600,N,8,1
Show Link Messages=1
Packet Length=126
;Tx Delay=600
;Persistence=64
;Slot Time=300
;Max Frames=2
;Frack Time=6000
;Max Tries=10
;Response Delay=2000
;Check Time=30000
;Radio Baud=1200
;Tx Level=500
;Tx Delay 2=600
;Persistence 2=64
;Slot Time 2=300
;Max Frames 2=2
;Frack Time 2=6000
;Max Tries 2=10
;Response Delay 2=2000
;Check Time 2=30000
;Radio Baud 2=1200
;Tx Level 2=500
;Packet Length 2=120
```

Save and Close the airmail.ini file

**9. Start AGWPE, then AMPE, then AirMail; then start the AirMail Packet Client Module.**

You should see a pop-up message from the Lantronix Com Port Redirector, and then in the Packet Client window it should say “Packet initialized OK”.

**10. You should now be up and running with the Packet Client window. When you click “Connect”; AirMail will be using the port and device you have configured in AGWPE (or AGW Packet Engine Pro).**

*[written by Gary Harrison, N7XOO; January 9, 2008, revised February 17, 2009]  
[edited by Don Felgenhauer, K7BFL, April 26, 2009, March 12, 2012]*

**Q3017 I have gotten AMPEstreams 2.2 to work with my USB Signalink and AirMail. It works great. I ran into trouble when I created another TNC in Packet Engine Pro, the Alinco DR-135 radio. The Alinco was on port 2 and would not talk to AMPEstreams 2.2. I am not sure how AMPEstreams uses two ports?**

A3017 The last version of AMPE was 1.6 and AMPE was a one port application. Switch to AMPEstreams 2.2 if you haven't already. The instructions for using AMPEstreams with more than one Packet Engine port are in the AMPEstreams Help file. Best to use the Rev1 Help file available here:  
[http://www.gsl.net/mararc/ampe\\_help\\_rev1.txt](http://www.gsl.net/mararc/ampe_help_rev1.txt)

Basically when you start AMPEstreams you can set the default Packet engine radio port to use by specifying the proper command line arguments. See the AMPEstreams Help file. Using the Packet engine program start menu option makes command prompt inclusion easy.

Then if you want to initiate an outgoing connect from your AirMail through a different Packet Engine radio port add space # Packet Engine radio port number after the callsign string in your AirMail connect to text box.

i.e.: AirMail packet module connect to text box> W1AW #2

More details are in the AMPEstreams Help file.

[from KG9OG]

**Q3020 I have the Packet Client module configured, but I can't seem to be able to connect to any RMS Packet stations. Help!**

A3020 You may have some basic packet setup deficiencies. With the same equipment, can you connect to ANY other packet stations? Are you on the correct frequency? Is the transmit audio level is set properly?

Some radios do not perform well with both the microphone and the TNC connected simultaneously to the radio. Disconnect the microphone.

There are a couple of books available which describe some of the basics of setting up and operating a packet station. They are: "Your Gateway To Packet Radio" and "Practical Packet Radio", both written by Stan Horzepa, WA1LOU. Both books are out of print but can be obtained at reasonable prices from your local used bookstore or on-line book sellers.

N8UR has excellent basic packet audio level setup information available at:  
<http://www.febo.com/packet/layer-one/transmit.html>

KC2RLM has a great web page regarding "Sound Card Packet" at:  
<http://www.soundcardpacket.org/>

Larry Kenney (WB9LOZ) has an excellent "Introduction to Packet Radio", available from:  
<http://www.choisser.com/packet/>

**Q3023 Is there an "optimum" Packet Length, when using the AirMail Packet Client?**

A3023 Yes, 126 is the magic number. Numbers larger than 126 bytes will result in alternate "large" and "small" packets being sent; with the average being 126.

**Q3025 I get a major amount of RF noise generated somehow from my laptop. This often interferes with the ability of the PTC IIe modem from linking with the incoming WL2K station. Some of the noise is reduced when I simply get out of AirMail. This leads me to think it might come down the USB/serial ports for controlling the rig and/or the USB/serial port for the SCS PTC modem.**

**I switched to a newer laptop and found the noise level significantly less. The laptop still seems to bump up the RF noise level.**

**I have several RF choke coils around the power leads, the serial computer control cable, and the PTC modem serial cable. I am looking for solutions.**

A3025 Laptops DO generate an incredible amount of noise. If you are using an HT the best solution is to use an external antenna. This puts some distance between the laptop and the transceiver's antenna. A 20-foot distance may help.

Other possible remedies:

- 1) Switching power supplies for Laptops. Use an Aircraft grade supply.
- 2) Put ferrite chokes (snap-ons) on all the cables coming from the computer serial, mouse, power etc.
- 3) Use a RF filtered direct current (DC) source for the Transceiver. Make sure it has 20+ ampere capability.
- 4) Bypass other sources (Refrigerators, bilge pumps, chargers, alternator etc.) at the source with good quality RF bypass capacitors.

Get a good book on RF Interference. Read the AirMail Help files.

There is usually no one silver bullet...normally several things each reduce the noise a smaller amount.

See the web site of K0BG (see Q950) good information about grounding, noise, static.

Useful information about RF ground systems is available at:

<http://www.radioworks.com/nbgnd.html>

**Q3030 I am using a KPC3+ with AirMail Packet Client, telling AirMail that it is a "KPC3". The TNC uses software (XMITLVL) to set the audio transmit level. I set the value to 130 with another program, before starting the packet client module. Everything works fine, until the next time I start the packet client module; the value has been reset to 100 (default). How can I get AirMail to not change the XMITLVL value?**

A3030 Tell AirMail that you have a KAM+.

Here is another solution to the problem (from VA3RSA):

REASON FOR THE PROBLEM:

When setting up the "VHF Packet Client", the KPC-3+ user will usually select the KPC-3 type TNC (nearest to KPC-3+). The TX Audio Level selection box is "greyed out" (can't be changed) with a fixed value of 500 (millivolts).

The results are saved to the AirMail.ini file under the [Packet Client] section with TX Level 500. When the "Packet Client" is started, AirMail will initialize the TNC. The value that has been set for XMITLVL will be 280 (a result of the KPC-3+ converting 500 into digital setting 280). This can be verified by closing the "Packet Client" and opening the



"Dumb Terminal". At the command prompt cmd: type 'xmitlvl' and it reports 280.

**SIMPLE FIX (WORKAROUND):**

On my own KPC-3+ (ver. 9.1 ROM) I use XMITLVL 48 in combination with the radio's digital drive level setting (other users may have completely different settings). I observed that the "TX Audio Level" box can be "ungreyed" (i.e. made active/changeable) by selecting the TNC type as any one of the PTC-II types. Non-PTC-II TNC's leave the box "greyed out" (unchangeable). I selected the PTC-IIe (one-port type) and set the drive level to desired value (may require experiment etc.). In my case entering 24 millivolts sets my XMITLVL to 48 which is what I want. Go back and select the "KPC-3" TNC and save all settings.

**CONFIRMING THE CHANGES:** Checking AirMail.ini will confirm the setting TX level 24 (which will get converted to xmitlvl=48). Next, start up the "Packet Client" and let the TNC initialize. Then close down the "Packet Client" and start the "Dumb Terminal". You should find that XMITLVL is 48.

**NOTE:** The user must determine by experiment the correct setting of XMITLVL for their KPC-3+/radio combination resulting in the correct TX deviation level (for my radio it happened to be 48). Then adjust AirMail's "TX audio level (millivolts)" setting to give the required XMITLVL number (for my case it was 24 millivolts).

**Q3040 I am using a KPC3 TNC. Is there a good way to set the transmit audio deviation at the proper level?**

A3040 Yes, here is how Airmail deals with TX Audio levels with the KPC series.

In the Airmail Tools/Options/Modules in the VHF Packet Client under SETUP second from the bottom is TX Audio Level this is grayed out. This level is sent to the TNC when you start the Packet Client and when you get the initialized OK prompt.

To set the correct level using a Deviation meter or Service Monitor, do the following:

In the Dumb Terminal at the CMD: type CAL this will bring up the calibration menu by selecting "T" that will cause the PTT to engage and both tones will be generated. with the + and - keys you can increase and decrease the audio levels till you get the correct deviation level. Now exit the calibration menu, this will stop the PTT and tones. At the CMD: type XMITL and it will read back the XMIT level. Note this number as it is the level you will need to set.

Note: the XMITL is from 0-502 Airmail defaults to 500 which will be at the 5 KHz+. The deviation level that works the best our area is between 2.5 - 3.0 KHz dev. Each step in the XMITL is approx. 15 mV by the owner's manual

Note: The TX Audio Level will be grayed out with the KPC3 you will need to change to any of the PTC modem series to be able to change it. You will need to change back to KPC before you exit, and you will need to run the Packet Client to write the info to the TNC.

Now go to the Dumb Terminal and at the CMD: type XMITL and see how close you are to the XMITL number you originally came up with for the correct deviation.

To get this right on you may need to go back and forth changing the TX Audio level in the Packet Client SETUP screen and remember to run the Packet Client to write the info to the TNC.

Note: you must close the Packet Client window to be able to go to the Dumb Terminal screen. TX Audio level and XMITL will not be the same number.

*If you are using a KPC3+, continue on to the advice in Q3030*

**Q3050 I am having trouble with AirMail talking to my PK232MBX. My terminal program works ok. What is the problem?**

A3050 Most likely the problem is that your serial port was configured using your Terminal Program and those settings do not match those required by AirMail. There are a few different approaches to fixing this problem. Here is one.

In you Terminal Programs, such as WinPack, go to the cmd mode and type RESET. This will reset you TNC.

Change the setting in your program to the following: Baud rate=9600, Start bit=8 parity=none, Stop bit=1 and Handshake=Hardware. Save the changes.

Now send the Autobaud "\*" cmd to the TNC and you should get the sign on message.

Close your Terminal Program and open AirMail. Make sure you have AirMail set up to the correct serial port and the right baud rate. You can check this by going to "Tools-Options" and going to the "connection tab" and check the settings. Also go to the "module tab" then to VHF Packet Client and then to the "setup" box and check the settings there. Make changes if needed and save the setting. Now AirMail should work for you.

NOTE: Make sure you make the changes before you send the Autobaud command or you will be right back to where you started from.

**Q3060 I have been trying for some time now to get my PK232mbx to send and receive Pactor. I have upgraded the PK232 to the latest firmware and DSP and USB port. It works fine in the "Dumb Terminal" mode. Help?**

A3060 There is a passage in the manual 4.3 #5 that states that the DCD must be off unless packets are received. It must be on when receiving packets.

*When the channel is quiet, the DCD LED must be OFF.  
If the DCD LED stays on when the packet channel is quiet, your PK-232 will never send packets to other stations.*

The original DCD pot is prone to seize up and self-destruct. It is a 1000 ohm pot and can be easily replaced. If it is grinding or hard to turn it time to replace it. Otherwise you won't be able to receive signals sent back to you. Timewave will send you a replacement that has three wires soldered to a panel mounted potentiometer and a new knob. They need five bucks and a padded envelope.

Sounds like you may have a reversed DCD problem. Funny enough the fix for that is to NOT use the SQL line between the TNC and the radio. Then the TNC will behave normally.

**Q3080 When I close AirMail and open my Terminal Program not all the functions work right. What may be wrong?**

A3080 AirMail turns off several functions that it does not need, such as Monitor. To restore those functions you need to reset the TNC. Here is how:

1. Close the Packet Client window
2. Go to Tools....Dumb Terminal and wait for the cmd prompt to come up.
3. Type RESET and hit the Enter key. You will see many boxes with zeros and eight's in them.

4. Now send the auto baud command and you will see the TNC sign on message. Now close the dumb terminal and close AirMail.
5. Open your terminal program. You may need to enter you call and the date/time again. Your terminal program should be ready to go.

**Q3100 I cannot get the Packet Client window to connect to a local VHF ham station, in fact the Icom 706 MkII G doesn't transmit. (The window shows that AirMail's Packet Client is connected to the SCS IIe modem). AirMail works great for me on HF, with the same equipment. What am I doing wrong?**

A3100 The 13 pin DIN on the back of the Icom 706 and IC-7000 normally has one PTT pin for HF control, and another pin for VHF/UHF control. You can solve your problem three ways:

1. Obtain another cable that uses the VHF transmit control pin.
2. Obtain another cable that connects to the microphone jack on the 706; that cable will work for both HF and VHF control.
3. Use the software menu on the radio to enable the HF control pin and the VHF/UHF control pin to be the same pin [from Gary Wood (K6AUD) of Farallon Electronics]

#### 706MKIIG

Set menu item 30 (see page 54 in the ICOM manual) to the OFF position. This activates H-Send (PTT) on pin 3 for all bands. The 13-pin input on the 706MKIIG will work for both Pactor and packet operation with the SCS PTC-IIe, PTC-IIEX, and the PTC-IIUSB modems.

If you're using a PTC-II or a PTC-IIPRO containing a plug-in DSP packet module, then you will need to use our #8120 cable for 1200 Baud, or our #8050 cable for 9600 Baud, which will connect from the Packet port on the modem to the 6 pin mini-DIN packet connector on the rig. [NOTE: this menu option is not available on the 706MKI or 706MII.]

#### IC-7000

Set menu item 20 (see page 131 of the Icom manual) to the OFF position. This activates H-Send (PTT) on pin 3 for all bands. The 13-pin input on the 706MKIIG will work for both Pactor and packet operation with the SCS PTC-IIe, PTC-IIEX, and the PTC-IIUSB modems.

If you're using a PTC-II or a PTC-IIPRO containing a plug-in DSP packet module, then you will need to use our #8120 cable for 1200 Baud, or our #8050 cable for 9600 Baud, which will connect from the Packet port on the modem to the 6 pin mini-DIN packet connector on the rig.

## AirMail – Use (VHF/UHF Packet)

### Q3500 How do I find a working RMS Packet Station in my local area?

A3500 Install Winlink Express on your computer. Go to Open Session [Packet Winlink] ... Channel Selection.

If you do not have Winlink Express, there are two pages on the WL2K web site that will give you the information. The first one is a map of RMS Packet stations that have reported to the Common Message Server within the past 24 hours. It is a link from the “Maps” tab. The link is:

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

Select the station symbol on the map or select the station call in the list to obtain detailed information about the station’s location, frequency, etc.

A “RMS Packet Station Status” tells you the time since a station last checked with the Common Message Server. It is from the “Reports” tab:

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

Another option is you can request of list of nearby RMS Packet stations from the AirMail “Catalog”.

- 1) To use this you must have a recent update of the WL2K catalog. You can do a list update or a full list in AirMail. Once the list is updated you will find a new bulletin called WL2K\_PACKET under the category WL2K\_USERS.
- 2) To use the new WL2K\_PACKET function you will need to have posted a position report. This can be done with AirMail using the position report menu. If you have posted a report recently (within 30 days) and have not moved substantially that will be enough.
- 3) Now request bulletin WL2K\_PACKET using AirMail’s catalog feature. This will put the request out and it should be available for pickup in a few minutes. The request will have all active RMS Packet stations and all RMS Packet servers within 100 miles (statute miles) of your posted position. The call sign, Grid Square, distance and bearing, Frequency and Baud rate will be in the list (example follows this message). Only those or RMS Packet stations that have reported in the last 30 days will be considered in the list....normally stations report about once per hour or so.

### Q3505 Is it ok to try to connect to a RMS station if I can hear someone else using the frequency?

A3505 **No.** See Q11520

### Q3510 I have heard that there are special “Posting Rules” needed when I use AirMail with a Node. What is that all about?

A3510 Depending on the software used by the Node, you may need to do the following, when using AirMail:

You need to use two Connect sessions; one to Receive messages, and another to Send messages. This “problem” is associated with the packet Node modifying Yourcallsign when talking to the RMS Packet station.

When receiving messages, “Connect As:” Yourcallsign-15. This will cause the CMS to download messages to [Yourcallsign@winlink.org](mailto:Yourcallsign@winlink.org).

When sending messages, "Connect As:" Yourcallsign. This will cause your messages to be sent out as coming from Yourcallsign@winlink.org.

The Paclink software is not affected by this modification; messages can be sent and received in a single session.

Note: When using AirMail with a Node, try this "one step" Connect process; it may download messages fine, without the above process:

Connect To: RMSPacketCallsign NodeCallsign *[no v or via used]*

**Q3520 I just connected to a RMS Packet Station (K7BFL-10) through a Node (WR7VHF-4). I had Posted three messages via K7BFL-10. None of my messages got sent. Why?**

A3520 The messages also may need to be Posted to the FIRST station (WR7VHF-4) you connected to in the connection process. It is best if you Post to WL2K.

**Q3530 I am attempting to connect to a RMS Packet Station through a Node called SEATAC. I cannot connect to the node because I get an error message "AirMail not licensed to this call sign". Does AirMail need a license?**

A3530 No, AirMail does not need any special licenses for amateur radio use. You got that error message because you tried to connect to a node "alias" name, instead of the Node's call sign.

**Q3540 Will AirMail work with more than one Node?**

A3540 AirMail will work with more than 1 Node. The procedure:

1. Select the Keyboard mode.
2. Enter the Call [NOT the Alias name] of the first Node in the "Connect To:" box
3. After connecting to the first node, type in the lower split screen  
c node2callsign
4. After getting a connection confirmation,
5. repeat steps 3 and 4 until you are connected to the RMS Packet Station
6. Select the Handshake mode

Messages will now flow automatically (but SLOW...). Use MAXFRAME=1

**Q3550 Will AirMail work with a Digipeater?**

A3550 Yes, AirMail will work when going through another packet station acting as a digipeater. The procedure:

1. Select the Handshake mode.
2. Enter into the "Connect To:" box...gatewaycall via digicall

Messages will now flow automatically (but SLOW...). Use MAXFRAME=1

**Q3555 What is the difference between an AX.25 packet “Node” and an AX.25 packet “Digipeater”?**

A3555 **Node** - any terminal on a network, more specifically for Amateur Radio AX.25 packet, this is a higher function than a digipeater because a packet node acknowledges to the sending station and makes connects to the next station. Most commonly used Node software/firmware includes G8BPQ (also known as BPQ node), KaNode (Kantronics controllers), and others (TheNet). Nodes are used to support the use of WL2K but are not part of WL2K. A Winlink Gateway station (RMS) is not a Node.

**Digipeater** - the lowest level of networking in packet radio. Not used much since the introduction of the node function, except for APRS, which nearly requires it.

Generally, using a packet node (see above) does not add functionality to a packet network EXCEPT when it is used to link different frequencies. Experience has shown an approximately 50 percent data transmission speed reduction when using the Node function, versus a simple digipeater, when all transmissions are done on the same frequency. *[from KK5CA][and the following from VE1YZ]*

Digipeaters are used to support the use of WL2K but are not part of WL2K.

A "digi" is a short name for "digipeater", or digital repeater. This name came into being in the very early days of Packet radio before the evolution of the network Node. Digipeating was built into the firmware (and still is) of all TNCs

The basic digi had no networking smarts in it. It was simple Packet store and forward system. You don't connect to a digi, but rather connect to your destination station "via" the digi callsign. You had to manually build your route to destination by daisy chaining digipeaters. A digi is very inefficient.

Then came the network Node... First came the Netrom, and later it's clones, TheNet, X1J, etc. There were software Nodes, most notably BPQ that ran in a computer.

All of these network Nodes share one thing in common. You connect to them, then connect to the destination node, or destination Node, then connect to the desired station. Network Nodes contain elaborate automatically updated routing tables. Most support TCP/IP.

More importantly, a network Node on a LAN (VHF) controls all the traffic on the LAN, since it is usually in a commanding position. For this reason, it is always better to connect to the LAN Node, rather than connect directly to another station on the LAN.

Then there are simple nodes such as the KANode and the AEA one built into some manufacturers TNC firmware. You also connect to them, but they have no automatic network routing. They work very well and are much better than a simple digipeater.

To confuse the issue, all Nodes usually support digipeating, but its use is generally frowned upon for connection purposes. It is there mostly for beaconing.

So, if someone talks about a "digi", in this day and age, you have to ask them to be more specific.

There are other networking systems such as Rose, plus many more. I'm not familiar with them.

**Q3557 Where can I learn more about x.25 packet, Nodes, Digipeaters, navigation through a Network, etc.?**

A3557 See [https://www.vhfclub.org/packet\\_radio\\_primer.html](https://www.vhfclub.org/packet_radio_primer.html)

**Q3560 I am using AirMail to send an e-mail to K6SSS-4. He doesn't get it, but he does get it when we use Paclink. Is there a problem?**

A3560 AirMail versions prior to 3.3.048 will not support dash-number calls (as a WL2K user). 3.3.048 will support dash-number calls as independent user callsigns (not to be confused with packet dash-number SSID's). Note that for Pactor use, 6-char callsigns can only use a single-digit suffix (i.e. 6 letters plus a dash plus 2 digits won't work for Pactor but will work for packet).

All recent versions of AirMail will support the use of packet SSID numbers for packet connection purposes only.

See Q140.

**Q3580 How do I set up a Tactical e-mail account for AirMail?**

A3580 Tactical e-mail accounts cannot be configured with the AirMail program. However you can use AirMail to exchange messages with a station using a Tactical e-mail account.

**Q3600 In the Packet Client window; how do I delete some of the entries in the "Connect To" list?**

- A3600 1. Stop AirMail
- 2. Navigate to C:\Program Files\Airmail
- 3. Open airmail.ini with Notepad [you may need to change your "View Folder" options to view "hidden files"]
- 4. Scroll down until you see a bunch of CONNECT TO entries, such as:  
Connect To 1=AL1Q-10 WR7VHF-3 AL1Q-7  
Connect To 2=K7BFL-10 WR7VHF-3  
Connect To 3=K7PKT-10  
Connect To 4=K7PKT-10 KC7AAD-2
- 5. Delete (very carefully!) lines which you no longer need.
- 6. Renumber the list, in sequence.
- 7. Save and Close the file

**Q3640 Is there a maximum number of addressees that can appear in the AirMail "To" line?**

A3640 See A1630

**Q3660 Is it possible to view all addresses in the "To" line as I add them to it?**

A3660 See A1660

**Q3680 How can I select multiple addresses in the address book?**

A3680 See A1700

**Q3700 I am using a PK232mbx TNC, with the latest firmware (7.2). It is working fine with WL2K packet for normal messages. However when I try to send a message with a 15K Attachment, the process hangs up. Why?**

A3700 That problem has been experienced by many others; the cause is unknown. Downloads TO you are ok; uploads FROM you hang up if the compressed attachment is greater than about 5K.

You can permanently solve the problem by configuring the PK232mbx in the KISS mode. See Q3015



## AirMail – Setup (Telnet via internet connection)

### Q4000 What is a “Telnet” connection?

A4000 Telnet is an Internet protocol that allows the user to connect to a remote computer. AirMail has a communications module called the “Telnet Client”, or in later versions “Internet Access”. This module enables the AirMail user to send and receive messages directly with the Common Message Server, using an internet “non-radio” path. This results in a much faster throughput speed.

### Q4010 How do I setup AirMail to use a Telnet (Internet Access) connection?

A4010 (Similar information may also be found in the Global Catalog under WL2K\_Help).

AirMail Telnet Client setup. Go to AirMail menu item: "Tools>Options>Modules" and check the Telnet Option. If you wish you can also set the module to initialize when bringing up AirMail by also checking "autostart." However, if you wish to start the module manually, then go to menu item: Module>Telnet client."

The setup for accessing the CMS (at a single logical location):

WL2K	(Remote Call Sign; <i>case sensitive</i> )
cms.winlink.org	(Remote Host; <i>case sensitive</i> )
8772	(TCP Port Outbound)
30	(Timeout in seconds)
CMSTELNET	(Password; <i>case sensitive</i> )

The CMS switched from a cluster (Wien, Perth, Halifax, San Diego) to a 'cloud' CMS cluster hosted by Amazon Web Services (AWS) on October 31, 2017.

The new CMS cluster is sensitive to both upper- and lower-case usernames (call signs) and passwords. The old CMS was not. Your account, if already established on the old CMS cluster, will always use upper case alpha characters in usernames (call signs) and passwords. NOTE: If you are an AirMail user you must have a WL2K password in all Upper Case.

Applications that connect to the old CMS, often eased the user experience by accepting either, then converting to upper case before submitting them to the CMS. Accordingly, if your account is already established on the old CMS and being transitioned, be sure to use UPPER CASE alpha characters if you find your application is getting rejected when you try using lower case characters. This includes our new webmail app.

The new upgraded server cluster is geographically diverse and sits within the AWS management environment. This, along with the newest, improved CMS software, provides the Winlink team better management tools, better analytics and monitoring, better backup, automated recovery from common problems, and will mean for users even more dependability and faster performance. Just in case, we have an independent live backup CMS system in San Diego that can be put online in minutes should the whole Amazon infrastructure collapse--and that's not likely. And even if that fails, the Hybrid RMS gateway radio-only network will function to keep message routing and delivery moving.

### Q4370 I have an Iridium SatPhone. How can I use it with Telnet?

A4370 Winlink 2000 Telnet (Internet Access) Set-up Instructions with AirMail for Iridium SatPhone Users (See the source information at <http://saildocs.com/iridiumppp>, courtesy of Jim Corenman and Sailmail)

## **WL2K Access via Iridium SatPhone/Telnet**

This document describes how to set up an Iridium PPP connection for use with the WL2K Telnet servers. It is a modified version of a non-copyrighted Iridium document entitled *PPP DATA Installation/Configuration*.

Prior to using your Iridium phone as a modem for PPP Data, you need to do the following two things:

1. Install a Standard 19200 bps modem driver on your computer (instructions below).
2. Set up and configure a dial-up networking connection for the PPP service (below).

The modem driver must be configured with the following Extra Initialization String: AT+CBST=71,0,1. In the dial-up networking connection, TCP/IP should be the only enabled network protocol. You must have an available serial port on your computer (e.g., COM1). You must have Administrator privileges if using Windows NT, 2000 or XP Professional. Horizontal rule. Windows XP Setup (others similar).

### Step 1: Install the Modem Driver

- close all applications
- choose Start > Control Panel
- double-click on Phone and Modem Options
- select the Modems tab and click Add...
- check Don't Detect My Modem; I will Select It from a List; then click Next
- click Standard 19200 bps Modem; then click Next
- click the Selected Ports button and click on an available COM Port (e.g., COM1)--this is the port to which you will connect your Iridium phone; click Next, then Finish.
- click the Standard 19200 bps Modem to highlight it and then click Properties
- select the Advanced tab
- In the Extra Initialization Commands box, enter: AT+CBST=71,0,1
- Then click OK, then OK again to close.

### Step 2: Configure Dial-Up Networking

choose Start > All Programs > Accessories > Communications > Network Connections

click Create a New Connection, and click Next

select Connect to the Internet and click Next

select Set Up My Connection Manually and click Next

select Connect Using a Dial-up Modem and click Next

if a Select a Device window appears, check the box next to Standard 19200 bps Modem, and uncheck all other devices; then click Next

enter a connection name (e.g., Iridium PPP) and click Next

in the Phone Number box, enter 008816000025 and click Next a username and password are not necessary, but will keep Windows from asking each time you dial.

click Next, then Finish

click Properties for the new dial-up connection, then the Networking tab

make sure Internet Protocol (TCP/IP) is checked; uncheck all other components

click OK, then close the connection box.

For use with AirMail's Telnet window, the simplest way to make the connection is to check the Dial First box in the Telnet window, then select the Iridium PPP connection. Don't forget to check the Hang up box.

First go to AirMail's Tools/Options menu, Modules tab, and check the box to the left of Telnet Client. Click OK. Then go to the Modules menu and select Telnet Client. This opens the Telnet window, very much like the Terminal window except it operates over an Internet connection. Click NEW and enter the following parameters:

(As example)

Remote callsign: WL2K

Remote host: cms.winlink.org

Port: 8772

Local callsign: Set to your ham callsign

Password: CMSTELNET

Click OK to save settings.

For use with AirMail's Telnet window, the simplest way to make the connection is to check the Dial First box in the Telnet window, then select the Iridium PPP connection. Don't forget to check the Hang up box.

To check mail, go to AirMail's Modules/Telnet menu, make sure WL2K is selected in the call sign box, and click the green Connect button. AirMail will dial the phone, contact the server, exchange mail and hang up.

Note: To make use of the Dial First feature, you need AirMail version 3.1.948 or later. Point your browser to: <https://sailmail.com/> and download amup948.exe to a Downloads folder. Make sure AirMail is closed, then open that file and install it into the same C:\Program Files\AirMail folder.

If you want to place a PPP Data call manually, you must open the Dial-Up Networking window and select the dial-up connection you created for your Iridium phone. Make sure the phone is set up, then open the Iridium PPP dial-up connection and click Dial. Don't forget to disconnect when you are finished!

## **AirMail – Use (Telnet via internet connection)**

**Q4500** When I hit the “Connect” button nothing happens? Why?

A4500 See Q4010. Also, you may have lost your connection to the internet.

## AirMail – Peer-to-Peer - Setup

### Q5000 What is “Peer-to-Peer”?

A5000 Peer-to-Peer is a process by which two radio stations, using AirMail, connect to each other without using any of the WL2K infrastructures. The two stations can exchange messages “automatically” using (or not using) the B2F forwarding protocol (Handshake) or exchange information in a conversational mode (Keyboard).

### Q5020 How do I set up AirMail to do Peer-to-Peer, using the Packet Client module?

A5020 Go to Tools.....Options.....Autoanswer. Make sure that “Accept Incoming Connects” is checked. Just connect to the other station, using the callsign of that station. If you want to exchange information conversationally, select the Keyboard mode.

### Q5040 How do I set up AirMail to do Peer-to-Peer, using the HF Terminal module?

A5040 It is recommended that you to create a new “System”. Use any name other than “Ham”.

1. Go to View....Station List (Systems will be selected)
2. Select “New”
3. Enter a new system name of your choice.....then Ok
4. Select the NEWSYSTEMNAME.....Settings
5. Enter your Callsign.....then Ok
6. Close AirMail, then Open AirMail
7. Go to Tools...Options....Settings. Select the tab for your new system. Make sure that the B2F box is checked.

You also need to add the Peer-to-Peer HF stations to which you will be connecting to the NEWSYSTEMNAME system.

1. Go to View....Station List....NEWSYSTEMNAME
2. Select “New”
3. Enter the callsign of the first Peer-to-Peer station.....then OK
- 4 The NEWCALLSIGN will then be Selecting in the Station List
5. Select “Settings”
6. Enter information about this new callsign.....then Ok.
7. Repeat for additional new stations.
8. Close HF Terminal
9. Open HF Terminal

The passive station “being connected to needs to have “Accept Incoming Connects” checked. See Q5020.

Packet stations to which you will be Connecting peer-to-peer should not be defined in the new system.

*Note: It is possible to add peer-to-peer stations to your Ham system and exchange messages with them via HF, peer-to-peer. The advantage of placing ptp stations in a separate system is to enable easy updating of the RMS Frequency List, which is in the Ham system.*

## AirMail – Peer-to-Peer - Use

**Q5500 I am using Packet Client. How do I connect to a Peer-to-Peer station?**

A5500 Select either the Handshake mode or the Keyboard mode. If it will be a direct connection, just enter the station's callsign in the "Connect To" box.

If the connection will be through one or more digipeaters, Nodes, K-Nodes, etc.; See Q3540

**Q5520 I connected to another station, using Peer-to-Peer. He sent me 4 messages, but I don't see them in my In Box. Why?**

A5520 They were probably addressed to someone other than YourCall. Check the Transit Box, if you think the messages were sent to your station. If the messages were not sent, then they were not "Posted" to you. See Q6300.

**Q5530 How do I send a message to the station to which I am Connected; Peer-to-Peer?**

A5530 You create the message as normal. The word on the "To:" line on the message preparation screen can be anything, even though AirMail gives a Warning Message for non-callsigns. (Post). Send the message to the station to which you will Connect, or (if you expect the Connect to be on HF) to the name of the AirMail HF "System" which you are using. **Note: if you use this latter option the message will flow to the FIRST station that Connects to you, not necessarily the station you want to receive the message.** If you are using packet and are using a Node or Digipeater you may need to Post the message to either the first Node, or the ultimate Callsign-15.

**Q5550 I am using pactor (HF Terminal window). How do I connect to a Peer-to-Peer station?**

A5550 In the Terminal window, select the correct "system" and the callsign of the station you would like to connect. See Q5040. Do either (a) or (b) below:

a. Select the "Keyboard" mode of interaction with the other station. Hit the green "Connect" button. After the station answers, the contact should proceed; you will be the initial "sending" station. Send a CTL O to transfer control to the other station. Messages will not flow between stations; information is "keyboarded", one word or one line at a time.

b. Select the "Handshake" mode of interaction with the other station. Hit the green "Connect" button. After the station answers, the contact should proceed as if you were connecting to a RMS station. Messages will "automatically" flow In and Out of your station; then you will automatically Disconnect.

If you both are in the "Handshake" mode, messages in the Out Box and the Transit Box will automatically flow to the other station, IF they have been Posted to the other station, and have not been previously sent to that station.

*[Wildcard Posting: messages which are Posted to the Airmail System name you are using (HAM or PTP or MBO or MARS or xxx) will also flow to the station to which you are Connected].*

**Q5580** Are there any operating advantages from using the “Keyboard” operating method, when connected to another station Peer-to-Peer?

A5580 Not really. The “Keyboard” method is very slow, compared to using the “Handshake” method. Handshake results in a MUCH higher efficient use of a frequency channel, and results in a complete “saved” documentation of the information shared between the two stations. If possible, use a voice channel for Chatting, especially on HF.

**Q6000** I have a message Posted for another station. The message will not “Send” automatically. Any suggestions?

A6000 a. The other station should make sure that its “Tools...Options....AutoAnswer” box is checked for “Accept Incoming Connects”.

b. Both stations should be using the Handshake mode.

c. The message should be Posted to the Receiving station; or, if using Nodes, the first Node you used in the Connection process.

**Q6100** How do I send an ARRL Radiogram to a NTSD Station?

A6100 NTSD (National Traffic System – Digital) stations are NOT the same as WL2K RMS Pactor stations. They scan different frequencies, and do NOT “automatically” forward messages to other NTSD stations. NTSD generally does not make use of the internet....radio only. See Q320.

**Q6200** I am using AirMail with pactor, peer-to-peer. Data compression does not seem to be happening. Why?

A6200 Be sure that the “B2F” box is checked in Tools....Options....Settings...YourPTPsystem. Some Digital Hub Stations require use of B1F.

**Q6300** Is there a way that I can set up my AirMail software to act as a “relay” between two other stations?

A6300 Yes, through making using of the “Tools...Options....Routing” screen. Make a new line entry for each “relay”. See the Help files in AirMail 3.3.080 (or later). The messages coming Into your station will be stored in the Transit Box. They will flow out of the Transit Box when the downstream station connects to your station.

**Q6310** I would like to act as a HF pactor “BBS” station, using AirMail. What do I put in the Routing Table?

A6310 Make a new Routing Table entry for each station you want to Relay.

- (1) In the “Received Via” column, put “HF”
- (2) In the “Addressed To” column, put “StationCallsignA”
- (3) In the “Post To” column, put “StationCallsignA”

Note: do not make any entry for your BBS StationCallsign

Messages Received will be Posted and placed in your Transit Folder, for later Pickup

**Q6315** I would like to act as a packet “BBS” station, using AirMail. What do I put in the Routing Table?

A6315 See A6310, except use "PKT" instead of "HF".

**Q6320 I would like to send a message to another station, for relay through a pactor or packet "BBS" station. How do I compose the message?**

A6320 Make a new message (or Forward another message).

- (1) In the "To" line of the message, put "OtherStationCallsign". If it is ok for either of several stations to pick up the message from the BBS [first one there gets it], put all of those OtherStationCallsigns in the line (separated by a comma, with no spaces, no quotes).
- (2) In the body of the message, note that the message is coming from you. This is needed because when OtherStationCallsign picks up the message from BBSStationCallsign, the message will show as coming from BBSStationCallsign.
- (3) Post the message to "BBSStationCallsign". Send. [The first station to access the BBS Transit Box will get the message; other stations will not get the message.]

Note: The BBS Station must have appropriate Routing Table entries. See Q6310.

**Q6330 I would like to send the same message (like a cc) to several other stations, for relay through a HF (pactor) or VHF (packet) "BBS" station. How do I compose the (single) message?**

A6330 Make a new message (or Forward another message).

- (1) In the "To" line of the message, put "<OtherStationCallsign1>,<OtherStationCallsign2>,<OtherStationCallsignN>" Note: no quotes, no spaces
- (2) In the body of the message, note that the message is coming from you. This is needed because when OtherStationCallsign picks up the message from BBSStationCallsign, the message will show as coming from BBSStationCallsign.
- (3) Post the message to "BBSStationCallsign". Send. [All stations on your list will get the message when they access the BBS Transit Box.]

Note: The BBS Station must have appropriate Routing Table entries. See Q6310.

**Q6340 Can I make an entry in my Address Book to handle cc messages described as in Q6330?**

A6340 Yes, Open the Address Book and make a "New" entry.

- (1) In the "Address" line, put something to describe the group of stations, such as "ARES Incident Stations".
- (2) In the "To" line of the message, put "<OtherStationCallsign1>,<OtherStationCallsign2>,<OtherStationCallsignN>" Note: no quotes, no spaces
- (3) In the "Post Via" box, put BBSStationCallsign
- (4) In the "Subject" box, enter an appropriate Subject



- (5) In "Message Text" box, enter appropriate text; also noting that the message is coming from you. This is needed because when OtherStationCallsign picks up the message from BBSStationCallsign, the message will show as coming from BBSStationCallsign.
- (6) Select "OK" to Save the Properties of this Address entry.
- (7) Send the message.

Note: The BBS Station must have appropriate Routing Table entries. See Q6310.

## Paclink – Setup - General

### Q7000 What is Paclink?

A7000 Paclink is a third-generation version of Paclink AGW, and Paclink MP. It has the ability to send and receive messages using packet and pactor 1, 2, or 3, when using an appropriate TNC. Another significant addition is the ability to use many TNC's directly, without the need for the AGW software.

NET 3.5 also needs to be installed (available free from Microsoft). Be sure NET is enabled (See Control Panel > Programs > Turn Windows Features On and Off.

See <http://www.winlink.org/ClientSoftware> for free download information. Click on "Paclink" at the top of its column.

Paclink has replaced Paclink MP and Paclink AGW; the earlier software is not supported.

### Q7005 I have one of the new Kenwood radios (D700) with a built-in TNC. Will it work with Paclink?

A7005 Yes, see Q7016.

### Q7010 What kind of computer operating system do I need to run Paclink?

A7010 Windows Vista is the "minimum" operating system. See Q500

### Q7013 Is there a version of Paclink that I can use with Linux?

A7013 Yes, see Q920

### Q7015 I would like to use my SCS TNC for Paclink. Can I?

A7015 Yes. Paclink directly supports all the late-model SCS modems.

### Q7016 How do I configure the Paclink software to be used with the Kenwood or Alinco radios , using a built-in "Tasco" TNC?

A7016 The easiest way is to select one of the new KISS drivers (within the revised Paclink software), especially written for the "Tasco" built-in TNC radios.

It is even easier to use the newer "built-in packet TNC radios with Winlink Express. See Help files for Winlink Express.

K7CPO has also had good results with the following setup procedure, applied to Paclink. AGWPE or AGW Packet Engine Pro is needed. It has been successfully tested with several RMS Pactor stations, both directly and via Nodes.

If your computer is "old and slow" it may not have enough cpu speed to handle the needed software. It works fine with a Pentium 4, 3.2 GHz.

Edit the appropriate Paclink AGW Channel Configurations. Set Packet Length =126; Maxframes=1. Save the file.

Use a DB-9 male/female cable between the DR-135 and the serial port (or serial/usb adapter) on your computer.

The Port setup for AGWPE or AGWPE Pro is:

9600 baud radio to computer  
TARP TNC2 [blank]  
KISS ON  
RESTART

Kiss Simple                      ExitKISS on Exit

Single Port

Persist=200                      Frack=4  
Slottime=15                      RespTime=2  
MaxFrame=1                      Check Every 120  
Retries=10  
TxDelay=55  
TxTail=4

1. Use the VFO to determine the packet frequency
2. Turn on the radio; get into the Data mode by pushing the Function key, then the Squelch key.
3. Start AGWPE
4. Start Paclink
5. Operate Paclink as "normal".
6. It is VERY helpful to use the "monitor" part of AGWPE to monitor the health of the software, hardware, and packet frequency activity.

The radio/software will "lockup" if any of the following (there may be others) are done:

Changing power level

Changing from Data to Voice to Data

To recover: restart the radio; restart the software.

### **Q7018 I am having trouble with Paclink working with my TNC and AGWPE. Do you have any troubleshooting suggestions?**

A7018 Forget about AGWPE and Paclink until you can confirm that your TNC/AGWPE works on AGW Terminal; and you can make a connection to a packet station using AGW Terminal.

Some simple rules to get AGW to work:

- 1) ALWAYS start AGW with the TNC in normal Terminal mod(command prompt) and at a fixed baud rate.
- 2) Check the manual for your TNC to make sure AGW is sending the correct commands. The default command AGW puts in are often (but NOT always) correct. Check your TNC Manual and use the commands necessary to put the TNC in KISS mode. (e.g. I found my older KPC3 required a different command sequence than what AGWPE defaulted.
- 3) Set up the TNC and radio correctly for either open squelch or normal squelch before starting AGWPE.
- 4) Always have AGW set to "exit KISS on exit" ...this returns the TNC to terminal mode.

Finally, if you can't make AGW work with AGW Term you are setting up something wrong. Try AGW Pro (easier to set up) at least the 30-day demo. IMHO it is worth the \$50 for the simplicity and better support ....but AGWPE (free) will work.

**Q7020 What is a "Telnet" connection?**

A7020 Telnet is an Internet protocol that allows the user to connect to a remote computer. Paclink has a communications module called the "Telnet Client". This module enables the Paclink user to send and receive messages with a Common Message Server, using an internet "non-radio" path. This results in a much faster throughput speed.

**Q7030 What is a Tactical E-mail Address? How do I get one?**

A7030 A Tactical Address is something like "REDCROSS-22@winlink.org". A tactical address may consist of alpha characters only, or alpha characters, followed by a dash, followed by alphanumeric characters. An address name may not exceed 12 characters (including the - ). Valid tactical address examples: MLBSHELTER, RedCross-123, Police-99A.

More information about Tactical E-mail Addresses at [https://winlink.org/content/tactical\\_addresses](https://winlink.org/content/tactical_addresses). Info is also included in the Paclink Installation Instructions.

or from a file by K4CJX <http://www.felge.us/TacticalAddresses.pdf>

**Q7040 Is a Tactical Address good forever?**

A7040 No. It lasts for 6 months after its last use. See Q360.

**Q7050 I am having trouble getting AGWPE to talk to my computer com port. Any suggestions? I am using a serial to USB converter between my computer and the TNC.**

A7050 See Q1010

**Q7060 I have the Paclink configured, but I can't seem to be able to connect to ANY RMS Packet stations. Help!!!**

A7060 See A3020

**Q7080 Is the Icom D-Star equipment compatible with Winlink 2000?**

A7080 Yes, it can be used with the Paclink software and AirMail using setups for connections with CMS and RMS Packet. Another way is to use Paclink as a POP/SMTP server in a high-speed D-Star LAN. D-Star users with DD mode can connect directly to the Paclink server using their e-mail client software with tactical e-mail addresses. With good design of the local high-speed network, extremely efficient and fast radio e-mail service can be expected.

**Q7100 I am trying to use my KPC3+ with Paclink and AGWPE. How can I get it into the KISS mode?**

A7100 Using the AGWPE software, on the TNC Setup page under Properties (for the com port being used):

"Tnc Sub Type": XKISS (Checksum)

Under "Tnc Control Commands":

"IniKiss1": XKCH ON

"IniKiss2": INTFACE XKISS

"IniKiss3": RESET

"ExitKiss On Exit": box is Checked  
[from KF4BXT]

**Q7140 Can I use Paclink with my CompuServe account? If so, how?**

A7140 The only interaction possible between the Winlink 2000 system (including the use of Paclink) and CompuServe would be to exchange emails between your WL2K address and CompuServe email addresses.

**Q7160 I have heard that there may be problem, using my Icom 706MkIIG with Pactor 2?**

A7160 See Q2533

## Paclink – Use (VHF/UHF Packet)

**Q7500** How do I find a working RMS Packet Station in my local area?

A7500 See A3500

**Q7505** Is it ok to try to connect to a RMS station if I can hear someone else using the frequency?

A7505 **No.** See Q11520

**Q7515** My “Connect Script” times out, with a resulting Dirty Disconnect. How can I fix it?

A7515 Try shortening your Script lines, such as:

```
C NODEONE  
CONNECTED  
C NODETWO  
CONNECTED  
C N1XYZ-10  
CONNECTED
```

**Q7530** Can I do “Peer-to-Peer” communications with Paclink?

A7530 No, Paclink is only used to exchange messages with a RMS Packet station, a RMS Pactor station, or directly with the CMS. Peer-to-peer is being considered as an addition to a later version.

**Q7540** Can I use Paclink on HF pactor?

A7540 Yes, Paclink is useable on pactor, with the appropriate TNC.

**Q7560** Using Paclink, how can I send a “Position Report” message, similar to what can be done with AirMail?

A7560 Create and send a message, according to the following template:

```
To: QTH@winlink.org  
Subject: Position Report [do not include //WL2K]
```

```
Time: 2009/11/19 01:23  
Latitude: 47-42.00N  
Longitude: 117-16.39W  
Comment: Home in Spokane  
-----
```

Note: There seems to be a problem when using this process with the Thunderbird email client. A "workaround" is:

Compose a position report message and address it to your regular Winlink email address. Before connecting Paclink to CMS or RMS, go to the "Paclink" folder, open the "TO WINLINK" folder, and bring up the associated .mime file with Notepad. Edit the "TO:" address to be "QTH@winlink.org".

Save the .mime file and exit Notepad. Then, connect to the CMS; the message will be sent and acknowledged by the Winlink CMS.

**Q7565**      **It has been a while since I accessed my Winlink account with Paclink. Outlook Express seems to be hanging up. Why?**

A7565      If you use Outlook Express with Paclink make sure you never leave more than 200 e-mail messages under the Paclink account folder Outlook Express will hang when trying to get new messages and never transfer all the messages to the In Box.

**Q7580**      **How can I get a "Catalog" of Help Files and Worldwide Weather bulletins, which is available with the AirMail software?**

A7580      From Paclink and using Outlook, Outlook Express, or whatever you are using with Paclink as a user interface, send a message as follows:

To: INQUIRY@winlink.org

SUBJECT: REQUEST

In the message body on a new line, type the word, LIST, and nothing else.

Send that message. Wait about 1 to 3 minutes. It WON'T work to send a request over the Internet using normal e-mail; just through a RMS station (or using Telnet to the CMS) using the WL2K system pathways.

Either wait until your automatic poling takes place, OR manually connect with Paclink. You will get a large (about 70K) text file with all the catalog items. The first column will be the "category" and the second column will be what you request.

**Q7650**      **How can I change the value of my Message Size Limit, and other Options?**

A7650      Send the following message, from your Paclink software [or Keyboarding] (just include in the body of the message the information you want to change):

:

To: Options@winlink.org

**Subject:** Options    [do **not** include //WL2K]

ALTERNATE: SMTP:    *[alternate email address]*  
MAX SIZE:            *[compressed maximum message size in bytes]*  
PREFIX:              *[use this out-of-country prefix with my callsign]*  
SUFFIX:              *[use this out-of-country suffix with my callsign]*

**Paclink – Use (Telnet via internet connection)**



## Keyboard Access – Setup

### **Q8000 What is the “Keyboard Access” method all about?**

A8000 It enables a user to send and receive messages (without Attachments), using very basic packet or Pactor software. It is VERY SLOW, compared to the normal Winlink Express, AirMail and Paclink software “Handshake” protocol. It should only be used on HF Pactor for special situations, such as deleting a very large message before it is downloaded. See Q585. The method is acceptable for normal use on VHF/UHF packet. Users are STRONGLY encouraged to receive increased communications benefits by upgrading to either Winlink Express, AirMail or Paclink.

Data is not compressed, so a casual listener will be able to easily see all data being transferred.

If possible, please use Paclink, Winlink Express, or AirMail (Handshake mode). They are faster, give more features, don't make syntax errors and use up fewer system resources. 99% of all the WL2K system problems are due to keyboard entry and keyboard users make up less than 1 percent of WL2K users.

### **Q8020 What kind of computer operating system do I need to use Keyboard Access?**

A8020 Most any computer and operating system will work (with packet). Some folks have used Palm devices.

### **Q8100 When I try Telnetting to the cms.winlink.org Telnet server, I get an error message saying that 'transparent mode' is required. This occurs with the default Telnet that ships with my Mac's OS X operating system. I've tried some other Telnet applications off of the internet, but get the same message.**

**I tripped over a note on the Outpost webpage that indicated that placing a '.' in front of my callsign can work around a 'transparent mode' problem. And indeed, when I did this, I was able to log in to server.winlink.org.**

**I only see this documented in the Outpost release documentation.**

**While I don't intend to use the Telnet interface for long, it'd be nice to know if this is a solution advocated by winlink.org, or whether I need to find another Telnet client on OS X that doesn't have the 'transparent mode' problem.**

A8100 The Telnet RFC requires that the User name be preceded with a "." if the connection is to be in transparent (8-bit binary) mode rather than 7-bit alpha mode. Since the CMS Telnet server requires an 8-bit binary mode to handle the B2F protocol the initial login requires the "." in front of the users callsign when logging in.

Client programs such as AirMail, Winlink Express, and Paclink take care of adding the "." automatically. If you are using a simple Telnet client terminal program you need to add the "." yourself.

## Keyboard Access – Use

**Q8500** How do I find a working RMS Packet Station in my local area?

A8500 See A3500

**Q8510** How do I access the WL2K system, using Keyboard Access?

A8510 Connect to a RMS Packet Station (you will be asked to supply your radio secure password):

LM List all messages for me.  
RM Read all messages for me.  
KM Kill (delete) all messages for me.  
R xx Read content of message number xx.  
K xx Kill message number xx. (don't forget any underscore which may be in the number!)  
SP Send a message (see A8520)  
H Help File (very condensed)  
Bye Disconnect

**Q8515** Are there any special Keyboard restrictions when using pactor?

A8515 Yes, it is not possible to Read or Send a message when using keyboard pactor. This is because of the VERY low throughput speed of pactor, when using Keyboard. The Keyboard feature is included with HF pactor primarily to enable a User to Delete a message that is "clogging" his mailbox. See Q1500. The commands which are available are:

H (yields a special pactor help file)  
LM List mine  
K xx Kill message number xx (don't forget any underscore which may be in the number!)  
B Disconnect

**Q8520** How do I send a message, using Keyboard Access?

A8520 SP or SENDPERSONAL <Destination(s)> Send a personal text message to the destination(s) indicated. Destinations may be a Radio callsign (without H-route) known to the WL2K system or "SMTP:<email\_address>"

Multiple destinations should be separated by ";" or ","  
e.g. SP W4ABC;SMTP:Johndoe@aol.com

Be careful to enter addresses correctly and include the required prefix "SMTP:" in front of any e-mail address.

You will be prompted for a subject of the new message: And then prompted for the message body:  
For the message body enter any text. use Cr for multi-line. End with /EX on a separate line. No attachments.  
Acceptance of the message will be confirmed.

Attachments are not supported by Keyboard Access.

**Q8530** I have connected to a RMS Packet Station, using Keyboard Access. Nothing is happening on the screen. Why?

A8530 The software does not have many “prompts” to let you know what to do next. You need to take the lead. It will not tell you if there is mail for you unless you type LM.

**Q8540 I made a typing error. The program apparently does not coach me about my errors?**

A8540 Your assumption is correct. If you type something and you do not get a response within a minute, assume you made a typing error. Correct the error and try it again. If that does not help, then Disconnect and start over.

The “Keyboard Access” program was meant to be a VERY SIMPLE, intro type program. It is not intended to be a heavy-duty message transfer program, like AirMail or Paclink. Programming enhancements to this software should not be expected. However if you have programming skills and have time to donate for such a project, contact K4CJX.

If possible, please use Paclink, Winlink Express, or AirMail. They are faster, give more features, don't make syntax errors and use up fewer system resources. 99% of all the WL2K system problems are due to keyboard entry and keyboard users make up less than 1 percent of WL2K users.

**Q8550 In my terminal program MyCall has been defined as W6ABC. When I originate and send a message via WL2K, using Keyboard Access, it arrives at the other end as coming from W6ABC-15@winlink.org. Why?**

A8550 You are probably using a packet Node to get to a RMS Packet station. The Node is changing your callsign to W6ABC-15, which is what the RMS Packet station sees. The WL2K system sees W6ABC@winlink.org and W6ABC-15@winlink.org as two unique e-mail addresses.

The “workaround” procedure which will enable you to send messages from MyCall@winlink.org, and to download messages for MyCall@winlink.org is:

prior to starting your terminal program, change MyCall to MyCall-15. This will enable you to Send messages from MyCall@winlink.org and Receive messages for MyCall@winlink.org.

## **RMS Packet Station – Setup**

### **Q9000 Just what is a “RMS Packet” Station?**

A9000 It is an amateur radio station which provides a communications path between a VHF or UHF packet “WL2K user” and the Winlink Common Message Server (CMS). The RMS Packet station normally does not store any information. It is not a BBS. It is not a Node.

You do not need to install RMS Packet on your computer in order to send and receive messages via the WL2K system.

The RMS Packet software replaces the Telpac software. Effective March 1, 2009 support for the Telpac software ceased. The CMS will no longer accept Connects from Telpac software.

### **Q9010 Just what is “RMS Relay”?**

A9010 “RMS Relay” is optional software which may be used in conjunction with RMS Packet or RMS Trimode. Its primary purpose is to enable many of the features of RMS Packet or RMS Trimode to continue if the internet connection to the CMS is lost. See Q10020.

### **Q9020 What kind of computer operating system do I need to run the RMS Packet software?**

A9020 Windows Vista is the “minimum” operating system. NET 3.5 (or later) is needed. Be sure NET is enabled (See Control Panel > Programs > Turn Windows Features On and Off).

### **Q9100 Is there a version of RMS Packet available for Linux operating systems?**

A9100 Yes. DL5DI and W3SG have a working Linux RMS Gateway using the Linux operating system. More information is available from:

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

### **Q9120 I am a casual user of the WL2K system. Do I need to install the RMS Packet software on my computer?**

A9120 No. You only need to install Winlink Express, AirMail, or Paclink to send and receive messages. RMS Packet is for advanced WL2K users, who want to provide something back to the WL2K System; that being a VHF/UHF Gateway for access from local WL2K users.

### **Q9140 If I decide to install the RMS Packet software, do I have any obligations to the WL2K system?**

A9140 No. You can choose to operate it as many hours a day as you want. 24/7, As Needed, etc.

### **Q9160 What call letters should I use for my RMS Packet station?**

A9160 If possible, use a quasi-standard of yourcall-10.

**Q9170 Are there any tips to install VARA FM with my RMS Packet?**

A9170 See Q11215 and Q11223.

**Q9180 Are there any frequencies that I should avoid for my RMS Packet?**

A9180 The WL2K Development Team recommends that you avoid 144.39 MHz, which is a common frequency for APRS use. If possible, coordinate your frequency choice with other local packet users.

Winlink Express, AirMail, and Paclink, if in use, require a very intense use of a channel. They both work best if they are not competing for channel use from other users.

Winlink Express, AirMail, and Paclink will both work with a Digipeater and a Node. In order to maximize throughput for all users, all WL2K users of the digipeater should refrain from connecting when another WL2K user (using AirMail or Paclink) is connected.

If possible, stay off of frequencies which have heavy use of DX Clusters.

An ideal community arrangement would be to have multiple RMS Packet Stations on different frequencies, using different internet service providers, located in diverse parts of the local geographical area.

**Q9200 Can I run more than one RMS Packet station on a single computer?**

A9200 Yes, if you are using AGW Packet Engine with your RMS Packet software, you can operate multiple RMS Packet stations, on different frequencies, **all with the same callsign**. The RMS Packet "AGW Packet Engine Configuration" screen enables you to define multiple AGWPE ports, all using the same callsign, such as K7ABC-10.

Several "instances" of the RMS Packet software can be running simultaneously if there is enough memory and horsepower in your computer, and you would like to use different callsigns for each RMS Packet station. There is a protection mechanism to keep from running multiple copies of the same instance number. For each separate instance you will have a completely independent setup (call sign, TNC parameters, log file, etc.). Each instance must of course refer to a different Com Port and TNC/radio when you are using direct modem control. Each instance must also have its own .aps file and own sign-on banner file. For example, the filenames for a KAM TNC aps file for instance 2 would be KAM\_2 aps. The sign-on banner for instance 2 would be the file banner\_2.txt.

Setting up a second "instance" is described in detail in the Help section of the RMS Packet software.

**Q9220 It is possible to install the RMS Packet software on a laptop and use it to run a "portable station".**

A9220 Yes, that is an excellent application. With the addition of a WiFi card and external antenna, these stations can be deployed to any hotspot (or, heck to any neighborhood or commercial area where connections may be found easily these days) to set up an instant gateway for other Paclink or AirMail stations.

Having your free hotspots pre-surveyed and several operators capable of deploying portable RMS Packet stations is a very viable strategy that can bring depth and flexibility to organizations that can afford little permanent infrastructure.

If your cell phone is capable of "Broadband" and you can connect your cell phone to your laptop, then your portable RMS Packet station is ready for action!

**Q9230 Is it possible to use "Raspberry Pi mini-computer to create a portable RMS Packet station?"**

A9230 Yes, See <http://www.pigate.net>. Keep in mind that this RMS needs to be approved by the WDT prior to an "emergency", and on-line most of the time.

**Q9260 I need to change some of the station description information about my RMS Packet, which was given when I originally registered the station. How do I change the information?**

A9260 Update the "Site Properties" page in your copy of RMS Packet.

A new Linux client gateway version is needed that matches the status and registration methods implemented in RMS Packet. Please correspond with Lee (K0QED) ([lee.inman@gmail.com](mailto:lee.inman@gmail.com)) to work on facilitating these changes.

**Q9290 I am having trouble getting my TNC to work with RMS Packet. Help?**

A9290 RMS Packet may not be using the correct Initialization files. See RMS Packet ... Help ... Configuration ... TNC Initialization Files.

**Q9320 My RMS Packet software is running 24/7 and seems to "go to sleep", with an associated shutdown of the software. Any suggestions on a solution?**

A9320 It may be caused by the "Power Management" switch on your serial or usb connection going into a sleep mode (independent of the "Power Options via the Control Panel).

The serial and usb Power Management switches can be turned off via Control Panel....System....Hardware....Device Manager....Universal Serial Bus Controllers....USB Root Hub....Properties....Power Management.

**Q9350 I am using a KPC3+ as my TNC, with the "direct" RMS Packet software option. Our local node operator says that my RMS Packet is sending out a beacon with a call alias of DISABL, which messes up the Node Table on the Node. How do I get that turned off?**

*[info from KB5WBH and KG4VUB]*

The beacon comes from the setting for NETCALL. NETCALL is associated with the K-Net feature of the TNC (firmware newer than 8.3). This feature enables the TNC to become part of a network of Nodes.

The default factory value is lowercase "disabled" >> NETCALL disabled <<

When RMS Packet initializes and reads the original TNC settings, it saves that setting in the registry as "disabled". If you select "restore TNC settings on exit" in the RMS Packet settings, then RMS Packet will issue the cmd "NETCALL DISABLED" when you close the program (along with restoring all the other saved settings.)

The TNC sees the value "DISABLED" for the NETCALL cmd and sets that value, thinking it's a node alias. This turns on the K-Net feature in the TNC and results in the automatic beacon DISABL . I guess it only holds 6 chars for the alias.

According to a phone call with Kantronics, the only way to turn it off is with a hard reset.  
cmd: restore -d

In RMS Packet just make sure "restore TNC settings on exit" is unchecked.  
Another sure way to solve the problem (from KE6AFE) is to modify the aps file, including the following:  
IDINT 0 ; this disables the Node ID timer  
NETCALL % ; this clears both the nodes and routes tables

Finally, another way to solve the problem is to run RMS Packet with AGW. This also lets you use AGW Term for keyboarding on the same radio/tnc as the RMS Packet. The Monitor function of AGW is also available to monitor all activity on the frequency

**Q9360 I am using a KPC3+ as my TNC, with the "direct" RMS Packet software option. When I start RMS Packet, it hangs up, just after the first item of the aps file, "8bitcon ON". There is no response from the TNC, it just freezes. RMS Packet has to be shut-down by CTL-ALT-Delete. I have tried a different KPC3+, a different aps file, and reinstalled RMS Packet. How can this be corrected?**

A9360 This problem has been solved by installing "Port Monitor" software on your computer.

**Q9400 The "autoupdate" feature of RMS Packet is giving me fits! How can I get updates without having my computer shut down?**

A9400 On a regular random basis Microsoft will contact their update servers and download the latest OS updates, patches and security updates if "autoupdate" is turned on. In most cases when the OS is patched your system will reboot itself. Unless you configure your system to automatically log in a privileged user and start all the applications, it will appear just as was reported.

There are numerous ways to configure your system to come up online and operating after a reboot. This is a good thing to do, not only to support automatic updates (you can turn it off, but that leaves your system vulnerable to security issues--NOT recommended), but also to facilitate remote administration and remote rebooting.

Do a web search for "setup auto login windows 10 registry". This will give instructions on setting up the process.

Windows should be set to use an NTP server to set the real-time clock in the computer. Search Windows help for "NTP" and choose an item named "Synchronizing the time clock" or something similar, where you will find directions on how to do this in windows. There are also third-party applications that will do this. We like to use one of the Naval Observatory servers on the internet to synchronize with.

Afterwards, move shortcuts for all applications (RMS Packet, RMS Relay, etc.) you want to run to the "startup" folder. Make sure all shortcuts work properly first.

Last, add the Remote Desktop server to the system so that you can administer the system from a distance over the internet connection. See the Windows Help documentation on "Remote Desktop" or "Remote terminal" or "terminal services" for information.

There are many other ways to accomplish the same result, but these are the painless ways and the ones most available users with average Windows skills.





## RMS Packet Station – Use

**Q9520 I have been getting intermittent “hang-ups” from RMS Packet, with multiple users. I have reviewed all the literature but can’t solve the problem. What should I do next?**

A9520 Save the RMS Packet Log of events prior and during the incidents. Send the Log to KN6KB.

**Q9540 I have a RMS Packet Station up and running. I can't seem to figure out how to "monitor" or audit the content of the messages, due to the compression of each message; in order to comply with FCC Rules. Or has that duty been delegated to someone else in the WL2K organization that is able to see the actual words?**

A9540 No. - §97.219(c) provides protection for licensees operating as part of a message forwarding system. "...the control operators of forwarding stations that retransmit inadvertently communications that violate the rules in this Part are ***not accountable*** for the violative communications. They are, however, responsible for discontinuing such communications once they become aware of their presence.

[RMS Packet stations in non-USA countries are bound by the rules and regulations of their country]

**Q9550 A User of my RMS Packet Station timed out during a session. He was downloading a large message. Why did that happen?**

A9550 It probably happened because the “Connection Timeout” number in your RMS Packet Setup refers to the time between interactions of your RMS Packet station and the Common Message Server that you are using. In this case the entire message was moved from the CMS to your RMS Packet very quickly. Then the process of moving the message to your User began. During that process your RMS Packet had no interaction with the CMS, hence the timeout.

Your User can obtain the entire message after you increase the Connection Timeout value.

**Q9570 I noticed the WL2K map position of my RMS Packet station is incorrect. How do I change it to show my correct position?**

A9570 Positions of RMS Packet stations are calculated by the CMS servers and plotted at random positions within the 6-character grid square configured in the RMS station's packet channel. This is done so that stations each other do not overlap on large scale displays, and to make them quickly distinguishable.

The real-time RMS maps are intended as tools for users to find on-air stations to contact, not as an exact location marker for sysops and their stations.

If your map position is outside your grid square, then correct the grid square information in the Packet Channel dialog of your RMS software. All reported information about your RMS station is controlled by editing the Packet Channel and Site Properties dialogs in the RMS software.

## RMS HF Station – Setup

Q9700 How do I select frequencies for my RMS HF Station?

A9700 About 20 years ago K7BFL, Pacific Northwest RMS stations, and NTSD users did some factor 3 "frequency coordinating" on 80 meters. We ended up with 3587 3589 3591 3593 3595 3597 3599 (Center). With a goal of maximizing the 80 meter sub-band data throughput rate 2 kHz spacing was optimum, based on 4-station simultaneous Connects using factor 3. Based on those tests consider using these guidelines for selecting your factor (3 and 4) RMS frequencies on all HF bands, **with the high level objective of maximizing the Band simultaneous throughput rate (bytes/minute/channel width) of WL2K Users.**

If you are offering WINMOR, ARDOP, or VARA services, consider a frequency for them not in the sub-band which is the only available spectrum for factor 3 (and sometimes factor 4). This is especially important for efficient utilization of the 7100-7105 USA "automatically controlled" sub-band. If possible, select this "low bandwidth" frequency in the upper part of the "data band" away from popular CW frequencies.

Encourage WINMOR users to switch to ARDOP or VARA. Consider not offering WINMOR services. See Q170.

If you are using a single radio for your RMS, limit your number of scan frequencies to 1 or 2 for each main amateur Band.

On a given Band, review the present list of RMS stations. Concentrate on those stations which you can probably hear AND which a potential User would view as an option to using your RMS. Select your potential frequency, either at least 2.0 kHz away from all of those "option" RMS, or exactly on the frequency of one of the "option" RMS (maybe the one who is used the least). It is OK, and necessary, to share frequencies. It is the responsibility of WL2K users to attempt a Connect ONLY on a "quiet" frequency. The "Frequency Busy" software works better if 2 kHz spacing is used.

PTP, WL2K, NTSD, RRI, ALE, CW, SSB, RTTY, beacons, etc. may share your frequencies. No exclusive Reservations. No Connects should be attempted by Users on or near a "busy" frequency.

Do not select a frequency on or near established "Beacon" frequencies, such as 14.100, 18.110 MHz, 21.150 MHz, 24.930 MHz, and 28.200 MHz.

by K7BFL

Q9720 What callsign should I use for my RMS HF Station?

A9720 Use your base callsign (not with a SSID, such as KK9AB-10).

## RMS Relay – Setup

### Q10020 What is “RMS Relay”?

It is installed as a “not required” enhancement for RMS Packet or RMS Trimode.

RMS Relay is a special program that provides local store and forward message handling, and it enables the station to be (optionally) part of the “Hybrid Radio Network” that forwards messages via (pactor) radio from RMS to RMS, when no Internet access is available to connect to the CMS.

It is normally used in conjunction with one or more instances of RMS Packet or RMS Trimode located on the same computer or local area network. If used, RMS Packet version 2.0.0.0 or later must be used and will need to be configured using the RMS Packet site properties dialog to access RMS Relay. If used, RMS Trimode must be version 1.2.4.0 or later. The minimum operating system is Windows Vista. NET 3.5 (or later) is needed. Be sure NET is enabled (See Control Panel > Programs > Turn Windows Features On and Off. RMS Relay software is free.

RMS Relay uses the [B2F](#) protocol; supports attachments, multiple addresses, and tactical addresses.

RMS Relay can alternatively be set up as a “radio only message hub” using its own local database. In such a configuration RMS Relay and the supported server are not part of the WL2K system and do not connect to the WL2K CMS. In that case the users can exchange messages with each other without using the internet.

RMS Relay has three modes of operation (one of which is selected by the Sys Op, (one of which is selected by the Sys Op PRIOR to an local internet outage, since the CMS makes decisions based on the mode and internet connectivity to the RMS):

\* Normal -- If an Internet connection is available, RMS Relay acts as a conduit from the RMS Packet or RMS HF program to the CMS. If the Internet connection is down, RMS Relay refuses connections to the RMS program, so the program rejects connections with the message "No CMS available".

\* Radio-only, local message hub -- When this mode is selected, RMS Relay does not forward messages through the Internet even if it is available. All messages are stored in a local database. The primary use of this option is to provide a store-and-forward Radio Message Server that can serve as a message hub for a set of stations. If station A leaves a message for station B or C, the message can be retrieved by stations B and C if they connect to the hub. Since messages are not sent to the CMS; messages can be exchanged only between stations connecting to this hub. These features are very similar to that of a packet “BBS”, with the addition of being able to “cc” a single message to multiple recipients.

\* Hold for Internet access -- RMS Relay detects no internet service to the CMS, RMS Relay stores messages in a local database until the Internet connection is restored, at which time it sends them to the CMS.

*Caution: since connecting stations do not know when the Internet connection is restored, any messages they send through that RMS Packet or RMS HF station will be held and delayed until the Internet connection is reestablished. This may cause unexpected delays that might be unacceptable for emergency messages.*

When in either the “radio-only” mode or the “hold” mode, RMS Relay acts to exchange messages locally between users that can access that RMS gateway station.

*Note: if messages are stored locally at the RMS station, AND the RMS operator manually decides to access another RMS Pactor station which DOES have internet access, those messages will be Moved to the CMS level and messages (at the CMS) for recent local users will be Copied from the CMS to the local RMS station.*

**Q10040**      **What callsign should I use for “RMS Relay”?**

A10040      In the “RMS Relay Site Properties” screen, use the callsign associated with your RMS Packet callsign, something like “MyCallsign-10”.

## RMS Relay – Use

### Q10500 How does RMS Relay operate if the “Normal” mode is used by the Sys Op?

A10500 If an Internet connection is available, RMS Relay acts as a conduit from the RMS Packet program to the Internet and the CMS.

If the Internet connection is down, *depending on how long the Internet has been lost*:

RMS Relay refuses connections from the RMS Packet program, so the program rejects connections with the message "No CMS available...connection refused"

or

RMS Relay will tell you "\*\*\* Unable to connect to RMS Relay at Localhost"

or

"No CMS connection is currently available. Messages will be held until the Internet connection is available and then forwarded".

### Q10520 How does RMS Relay operate if the “Radio-only, local message hub” mode is used by the Sys Op?

A10520 RMS Relay does not forward messages through the Internet even if it is available. All messages (*including messages to non-Winlink addresses*) are stored in a local database. After Connecting, you will get the following banner message:

"This is a radio-only hub. Messages will not be sent through Internet. Using the local XXXX-X database"

The primary use of this option is to provide a local store-and-forward Radio Message Server that can serve as a message hub for a set of stations. If station A leaves a message for station B or C, the message can be retrieved by stations B and C if they connect to the hub. Since messages are not sent to CMS, messages can be exchanged only between stations connecting to this hub.

*Note: If the Sys Op should ever change the mode to either of the other two modes, AND an internet connection is available, then all remaining locally stored messages will be immediately forwarded to the CMS.*

### Q10530 How does RMS Relay operate if the “Hold for Internet access” mode is used by the Sys Op?

A10530 If an Internet connection is available RMS Relay passes the message through the Internet to the CMS.

If the Internet connection goes down, RMS Relay stores messages in a local database until the Internet connection is restored at which time it sends them to the CMS. You will get the following banner message:

"No CMS connection is currently available. Messages will be held until the Internet connection is available and then forwarded"

RMS Relay acts to exchange messages locally between users that can access that RMS gateway.

*Caution: since connecting stations do not know when the Internet connection is restored, any messages they send through that RMS Packet or RMS HF station will be held and delayed until the Internet connection is reestablished. This may cause unexpected delays that might be unacceptable for emergency messages.*

**Q10550 When the internet is down, how can RMS Relay get messages to and from the CMS?**

A10550 If the “Radio-only, local message hub” mode or the “Hold for Internet access” mode is used, AND there is not Internet connection, the Sys Op of the RMS gateway may manually intervene:

- a) The operator initiates a pactor 3 Connect to any RMS Pactor station (which has a working internet connection).
- b) Messages residing locally (as received FROM Users) will be sent TO the CMS, via the RMS Pactor station; then removed from local storage.
- c) Messages residing on the CMS for Users which have Connected to the RMS station in the past 21 days will be downloaded from the CMS to RMS Relay local storage. These messages are NOT deleted from the CMS.

**Q10580 How is the RMS Relay software started?**

A10580 The RMS Relay and RMS Packet software are unique and separate packages. Each needs to be Started.

**Q10600 In the main operating screen for RMS Relay; what is the information shown?**

A10600 The middle of the screen shows a list of **currently** connected stations, **if any**.

**In the** lower left-hand corner (**left part of the status bar**), there are 4 numbers, separated by a /:

- Number of Current Connected stations
- Number of Current HF connected stations
- Number of Peak connection count
- Number of Total connection count

- ----

## Winlink Express and Sound Card Devices – Setup

### Q11000 Why do I need the Winlink Express software?

A11000 Generally, it is the only software available if you intend to use the “WINMOR, ARDOP, VARA, or VARA FM protocols. It is also designed to provide most all features available from the AirMail and Paclink software packages. Winlink Express can be used for Peer-to-Peer, direct Internet Access (Telnet), AX.25 packet, Pactor, and Catalog access. If you are using WINMOR, please consider changing to ARDOP or VARA; they are much faster. See Q500.

### Q11020 What are the System Requirements for using Winlink Express?

A11020 Sound Card protocols may require a faster CPU computer. 32 or 64 bit Windows OS (Windows 7 or newer), or under Windows on the Mac using a VM engine or dual boot arrangement. .NET Framework 3.5 (or later) is required. It's best if you go to the Microsoft site and download the .Net Framework, instead of via Windows update. Be sure .NET Framework is enabled.

In Windows 10:

Open Settings.

Click on System.

Click on Apps & features.

Click the Manage optional features link.

Select the feature you want, and you'll notice a button to Uninstall or Manage, which will redirect you to the settings...

### Q11030 How do I get the Winlink Express software?

A11030 Go the “Client Software” part of [www.winlink.org](http://www.winlink.org)

Click on the “Winlink Express” at the top of its column

### Q11040 How do I connect and configure my sound card “Signalink” device to work with Packet, WINMOR, ARDOP, VARA, VARA FM ?:

A11040 Download these “How To” instructions:

(by (by Oliver K6OLI)

[https://winlink.org/content/how\\_set\\_guide\\_signalink\\_packet\\_radio](https://winlink.org/content/how_set_guide_signalink_packet_radio)

(by Rick Frost K4REF)

[https://www.winlink.org/content/how\\_set\\_signalink\\_sound\\_levels\\_video\\_how\\_to](https://www.winlink.org/content/how_set_signalink_sound_levels_video_how_to)

(by Asa Jay Laughton (W7TSC)

<http://felge.us/SoundCardW7TSC.pdf>

### Q11045 I am having trouble with my Yaesu FT-991(A) radio to work with Winlink Express. Any suggestions?

The format of Yaesu HF commands is different when sent through a Pactor modem to the radio rather than directly from the computer to the radio. This issue is unique to Yaesu. These commands are needed to enable the frequency of the radio to be controlled by Winlink Express via the modem or Sound Card device. Because of this non-standard firmware Winlink Express does not support radio frequency control through a Pactor modem, using this radio.

Martin, HB9AUR has written the following instructions which may be of help to you.

[https://winlink.org/content/ft991\\_sound\\_card\\_doc](https://winlink.org/content/ft991_sound_card_doc)

The above file enables success if you are using a FT-991(A) and its built-in soundcard for use with the Winlink soundcard TNCs. Martin has been using the described setup on HF for VARA, ARDOP, and WINMOR; and on VHF for VARA FM (mode '1200') and for PR1200 using the UZ7HO soundmodem.

The soundcard of the FT-991(A) cannot be used for direct FM modulation as VARA FM in mode '9600' and PR9600 would need it.

Suggestions for improvement of the text or for clarifications are welcomed by Martin.

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*From Tyler K7OTR (tdinsmoor13at gmail dotcom) regarding setup for FT-991, ARDOP, Rig Control (ARDOP/Packet, etc.)*

Note that with these settings, the radio does not automatically tune. As far as I know, there's no way to automatically control the radio during packet WL2K for frequency and mode.

Additionally, you must place your direwolf.conf in the directory of RMS Express, not your direwolf installation, otherwise it'll just use defaults.

*This is for getting ARDOP working ONLY. It may work with other modes.*

ARDOP Winlink Session Settings>Radio Setup:

- Select Radio Model: Yaesu FT-891 (NOT FT-991A. For some reason this doesn't work!)
- USB Digital Selected
- Radio Control Port: (enhanced port) Baud 38400, RTS/DTR checked
- PTT Port (Optional): External (We're using VOX)

Settings>ARDOP TNC Setup

- Set capture and Playback device to USB Audio CODEC

Radio MENU

031 CAT Rate: 38400

060 PC Keying: DTR

062 DATA MODE: Others

072 DATA PORT SELECT: USB

106 SSB MIC SELECT: REAR



109 SSB PORT SELECT: USB  
142 VOX SELECT: DATA  
114 VOX DELAY: 30msec

Radio "F" Menu  
Turn on VOX. (very important)

I hope this helps someone. Please let me know if it does.

**Q11047 I used to have good success with VARA 3, Connecting to RMS stations. Now no RMS will Connect to me. Why?**

A11047 Most all RMS offering VARA services are now using later versions of VARA. The latest version of VARA is not compatible with earlier versions.

**Q11050 What is WINMOR?**

A11050 WINMOR stands for Winlink Message Over Radio and is a new HF radio transmission protocol by Rick Muething, KN6KB, of the Winlink Development Team. WINMOR was introduced at the 2008 ARRL / TAPR Digital Communications Conference in Chicago on September 26-28, 2008. Unlike Pactor, only a simple computer soundcard-to-radio interface is required, and it runs as a "virtual TNC" (the WINMOR TNC application) together with host software. The protocol (not the software) is fully documented as an API and is without restrictions or license issues preventing anyone from implementing the protocol in other software.

While WINMOR is faster than pactor 1, it is slower than the other HF protocols. If initial cost is important, ARDOP and VARA are better alternatives than WINMOR. See Q170.

See the User Software page to download the Winlink Express client software, which includes the virtual WINMOR TNC software, and additionally supports Pactor 1-3, AX.25 packet and Telnet protocols using a wide variety of TNCs and multimode controllers. Support for WINMOR will be phased out, beginning July 10, 2020.

**Q11070 What is a "WINMOR TNC"?**

A11070 WINMOR TNC is a Windows "helper application" that creates a virtual WINMOR HF MODEM (TNC) using a standard PC sound card. It is intended to be used by developers who create complete end user Client or Server host applications. Examples of such programs are Winlink Express (Radio client) and RMS WINMOR (Radio Server).

The WINMOR TNC software license is provided in the Help files of the downloaded program and is not in the public domain. Please see these files for details.

All the latest versions of the files for the WINMOR TNC helper application are available for free download from the Winlink FTP site.

The "WINMOR TNC" seamlessly installs as part of the Winlink Express software.

**Q11215 How can I install and use “VARA FM”?**

**A11215** VARA FM is a different program than VARA. VARA FM is used on UHF and VHF, VARA is used on HF. Download info from the Book of Knowledge.

[https://winlink.org/sites/default/files/RMSE\\_FORMS/quick\\_setup\\_guide\\_for\\_vara\\_fm\\_for\\_winlink\\_with\\_signalink\\_on\\_windows\\_20181121e.pdf](https://winlink.org/sites/default/files/RMSE_FORMS/quick_setup_guide_for_vara_fm_for_winlink_with_signalink_on_windows_20181121e.pdf)

**Q11223 I recently updated Windows 10 to version 2004. The VARA FM part of my RMS Packet is now not working. Any suggestions for a fix?**

**A11223** The update once again touches the sound settings on Windows and changed the order of the sound devices. This requires going back into Vara FM sound card settings and correcting the device settings (oddly enough, just opening the settings menu seems to correct it).

If you are upgrading to this level, be sure to check your operations once the upgrade completes. This may affect client applications as well (Winlink Express).

**Q11230 How do I configure Winlink Express to be used for packet with a Kenwood or Alinco radio using a built-in “Tasco” TNC?**

**A11230** Select one of the new KISS drivers (within the revised Winlink Express software), especially written for the radios with a “built-in” TNC.

**Q11260 Can I change the font used by Winlink Express?**

**A11260** Yes. In Winlink Express go to Settings, then to “font for text” or “font for lists”

**Q11280 I am having trouble getting my KPC3+, IC-7000, Winlink Express combo to work correctly. Do you have any suggestions?**

**A11280** In addition to correct radio settings and interface to the KPC3+, remove the battery from the KPC-3, do a Hard reset, and do not reinstall the battery. This essentially makes it a KISS TNC. Also make sure you have the KPC-3+ configured correctly in Winlink Express.

**Q11300 Any tips about setup of WINMOR with the Elecraft KX-3 and the Signalink sound card device?**

**A11300** Yes....(by Bud Thompson (NOIA), August 8, 2013)

Firmware Revisions:  
MCU 1.54 (beta)  
DSP 1.21

Initial Settings  
Signalink RX and TX controls at mid-point; DLY full CCW.

KX3 Settings  
AF/RF volume 10/1 - about right for mid-point on Signalink RX control

NB Off

AGC -S

PRE On

PBT BW 2.4 KHz FL 1

PWR (Push- temp hold Keyer/Mic knob to get menu ) set for 7 watts maximum

Elecraft KX3 and Winlink Express WINMOR Session

Adjust Signalink RX control as needed for about mid Green level on WINMOR TNC Rec Level with no signal present.

Adjust Signalink TX control for 7w during TX level test. This will indicate one, but not more than two bars on ALC meter and no compression. (Signal looks good on my Trimode WINMOR TNC.)

Here are some preliminary observations:

I suggest using filter FL1 and keeping PBT Bandwidth at 2.4 kHz. BW much narrower than 1.4 KHz results in Channel Busy ON all the time. (WINMOR TNC likes to look at the whole picture!)

When Winlink Express WINMOR Radio Set up is configured for "USB Digital" the radio is put into USB DATA mode so far as I can tell. A tap on DATA then changes to USB DATA A mode.

The TX/RX changeover Latency is not consistent (at least the measurement reports indicate that.) When calling a station that does not respond most of the measurements result in "Timeout in TR > RX Latency Measurement" presented in orange window. When a measurement is presented it is usually quite good- less than 100, sometimes under 50 which, if consistent, would be great. Few actual measurements are presented, indicating that overall latency is not good for WINMOR. This does not change when using "USB" or "USB DATA" or "USB DATA A" mode with Winlink Express.

However, links can be made - files transferred, and of course with a 10 watt radio peaking at 5-6 watts, who knows how good the link really is; but it would be best for Latency to actually be under the maximum most of the time. I can't find any likely menu options that would affect this on SSB. Certainly the QSK CW TX/RX change-over is excellent.

Comments welcomed - especially those that can improve the application.

*[Note: when running 10 watts or less -- it is ALL ABOUT antenna!]*

### **Q11400 How can I get help with installing Winlink Express?**

A11400 Use the extensive "Help" files available with Winlink Express.

Do a Search on YouTube for "K4REF". You will find several nice videos regarding how to install and use Winlink Express.

Use the many primers and help articles available at [www.winlink.org](http://www.winlink.org)

See Q920.

## Winlink Express and Sound Card Devices – Use

**Q11520 Is it ok to begin a Session if I can hear another station on the frequency?**

**A11520 No.** If you can hear them, they can probably hear you (and the other station to which you may get a Connection. Your transmissions will probably “ruin” their conversation. Such an operating practice is rude and offensive. It indicates that all WL2K users may also not be courteous and willing to share the frequency with other users; leading to an opinion that WL2K is “bad” for amateur radio. Other users (with the same legal right to “use” the frequency) include other WL2K users, CW, PSK, RTTY, AM, SSB, beacons, etc.

If you hear someone else using the frequency either move to another frequency which is clear or postpone your Session until the frequency is clear.

This applies to both Winlink and Peer-to-Peer Sessions.

**Q11570 How can I get a list of the callsigns and frequencies used by RMS stations which will accept Connects from “sound Card” protocols such as ARDOP or VARA?**

**A11570** Winlink Express maintains an up-to-date listing of stations available (with frequencies) for WINMOR, ARDOP, VARA, pactor, and packet Connects. The list can be updated via Telnet (Internet Access) or via radio, using the Winlink Express software.

It is advised to update your channels list regularly or before a (sailing) trip; every now and then a new RMS pops up.

The real-time status of these RMS HF stations is available from:

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

**Q11575 Using Winlink Express, how do I create and send a new message to an email address, using a template?**

**A11575** Select Message....New Message. If needed, select an appropriate Template.

Use the drop-down menu for “Select Template” to select one of the many “Standard Templates” or one of your own design. The standard Templates group is automatically updated whenever you Open Winlink Express and your computer has an internet connection.

*Mike Burton XE2/N6KZB is the Template Program Manager and WDT member responsible for the forms database. Greg Kruckewitt KG6SJT is also a WDT member and the primary forms writer. Any issues or form questions direct to KG6SJT@winlink.org*

Add Attachments.

Do either of the following:

- (a) Type in the email addresses and/or callsigns (if WL2K addresses).
- (b) Select the "To:" or "CC:" box. This will bring up the "Select Destinations" window; select and add individual addresses or Groups. When finished, select "Complete".

"Post to Outbox" or "Save in Drafts Folder"

Double click on the message. Verify that the "Group" (if used) expanded to include the addresses in the Group.

All messages in the "Outbox" folder (and only that folder) will be sent during your next communications "Session". After a message is Sent it is moved to the "Sent Items" folder.

**Q11580 I saved a message in the Draft Folder. Now I can Open it, but I can't edit the message. Why?**

A11580 Select the message, but don't Open it. Go to Messages.....Edit.

**Q11585 I saved a message in the Outbox Folder. It seems to have quickly disappeared from the Outbox. Why?**

A11585 You have Telnet Setup configured to automatically Send (via Telnet) all messages in the Outbox. If this is not what you want to happen, go to Open Session (Telnet Winlink) [actually Open a new session] ... Settings. Uncheck the box for "Send all messages in Outbox". Review the other items in that setup window.

**Q11590 How do I print a message, using Winlink Express?**

A11590 Select the message. Double click to Open the message. Select "Print" from the menu containing "Close Print View Attachments Reply Reply All Acknowledge Forward Delete"

**Q11610 Using Winlink Express, how can I send a "Position Report" message, like what can be done with AirMail?**

A11610 Go to Files....GPS / Position Report

Fill out the form, Post, and Send

**Q11630 Using Winlink Express, how can I get an updated "Catalog" of Help Files and Worldwide Weather bulletins, which is available with the AirMail software?**

A11630 Yes, Winlink Express comes installed with the Catalog. If you have selected the "autoupdate" feature in the setup for Winlink Express, the Catalog will be updated whenever you have an internet connection and you Open Winlink Express.

To get interim Catalog updates, you need an internet connection:

Go to Files.....Winlink Catalog Requests.....Request Catalog Update

Winlink Express will interact with the CMS to update your Catalog

**Q11640 Using Winlink Express, how can I request a message from the Catalog?**

A11640 Go to Settings...Winlink Catalog Requests.

Elect a message you want from the Catalog. Pay attention to the estimated size of the message. Is it too large for your download method? Double-Click your selection.

Repeat for other messages you want from the Catalog.

Select "Post Request". A "Request" message should now be in your Outbox.

Open a Winlink Session. Start a Session. Your Request message will be sent.

Reconnect to the CMS/RMS in a few minutes; the messages will be downloaded to you.

**Q11650 Using Winlink Express, how can I change the value of my Message Size Limit, and other Options?**

A11650 Go to Files...Update User Options. Fill out the form, Post and Send.

If that does not work, send the following message, from your Winlink Express software (just include in the body of the message the information you want to change):

**To:** Options@winlink.org

**Subject:** Options [do **not** include //WL2K]

ALTERNATE: SMTP: *[alternate email address]*

MAX SIZE: *[compressed maximum message size in bytes]*

PREFIX: *[use this out-of-country prefix with my callsign]*

SUFFIX: *[use this out-of-country suffix with my callsign]*

**Q11655 Is it possible for the CMS to temporally Forward all my incoming messages to another email address?**

A11655 Yes. Go to Winlink Express ... Settings ... Update User Options. Make the change, Post and Send your update message. This change will remain until you change it again. To cease Forwarding, remove the destination email address from the "update User Options" window. See A585.

**Q11660 Using Winlink Express, how can I send a message to a "list" or group of email addresses?**

A11660 The easiest way is to create a "Group". This is a list of multiple email addresses or callsigns (if the address is [xxx@winlink.org](mailto:xxx@winlink.org)).

Make sure all Session windows are closed.

a) Go to Files...Group Addresses. Type in a "Group ID" name. A group address name may be any character combination that follows the same format rules as a radio or tactical address. Just be careful that you don't choose a name that is the same as a call sign or tactical address that you might need to send a message to.

- a. You can either type the list of callsigns (if WL2K addresses) and email addresses in the box to the right of "Group ID", or Copy and Paste the list from an external file (such as an Excel or Word file). Select the "Update" button at the bottom.
- b. When you compose a new message, just select the name of the Group from the Contacts list and put it in the "To:" box (or the "CC:" box).

[You may need to restart Winlink Express before the new Group name will appear in the Contacts list.] See Q11575.

**Q11665 What is the difference between Abort, Stop, End Link, and Disconnect?**

A11665 There is a difference between an ABORT and a STOP, END LINK or DISCONNECT.

Abort normally requires no response from the remote end. It will end the local link with a disorderly shut down but ALWAYS works immediately.

A STOP, END LINK or DISCONNECT initiates a disconnect request/sequence that is a more controlled ending and affects both sides of the link. Pactor and packet have similar mechanisms.

*You need to have both types, but good operating practice is to not use an Abort unless absolutely necessary because by definition it leaves the other side in an unknown state requiring the remote end to use a timeout mechanism to reset things.*

*If you have sent some messages before doing an "Abort", you might consider re-sending those messages; the CMS may not have the complete information about those messages.*

**Q11680 There seems to be a very large message trying to download to me. My message pipeline is plugged! It will take too much time to download. How can I delete the message before it downloads?**

A11680 Start Winlink Express. See Files...Review Message List before Downloading. Check this option.

Connect to a RMS with Winlink Express. During your Session, a screen will appear for you to make a choice about the "problem" message: "Delete before downloading" or "Hold for Later Downloading". Make your choice and proceed. This is a nice feature of Winlink Express.

For other options, see Q1500.

**Q11690 I understand that Winlink Express has a "database backup" feature. How does it work?**

A11690 One of the new features in Winlink Express version 1.2.8.0 is automatic daily backups of databases. If something happens that causes your message or contacts database to get deleted or corrupted, you can restore an earlier version.

The backup is done automatically once a day when Winlink Express is closed. The backed-up databases are stored in the Data\Backup folder under the folder with your call sign. If you have multiple call signs, there will be a separate backup folder for each call sign.

To restore databases or do a manual backup, click Files on the main menu bar followed by Backup and Restore Databases. On the Backup/Restore control screen you can set the backup interval, force a manual backup or restore databases from an earlier date.

Since the backup is done within the Winlink Express folder, this does not provide any protection against deletion of that folder or a catastrophic disk failure. If you use a backup system like Carbonite, it is recommended that you use it to back up your Winlink Express folders.

**Q11695 How can I transfer my Winlink Express messages, personal folders, Contacts, and Setup information to another computer?**

A11695 Copy the entire RMS Express folder to your new computer. Create a shortcut to the .exe to your Desk Top.

**Q11697 Is it possible to run Winlink Express, AirMail, etc. from a Cloud?**

A11697 Yes. They will run with Dropbox, OneDrive, and probably other Cloud services. A Thumb Drive can also be used. Store the App and associated folders/files on the "Drive in the Sky", but be sure that it is also synced and stored on your local DeskTop, Laptop, Tablet, etc.; up-to-date and useable when your ISP fails.

**Q11700 How does the "message template" feature of Winlink Express work?**

A11700 One of the features in Winlink Express is a Message Template Manager and built-in editor for creating or modifying templates.

A message template can be used to provide information for a message by clicking "Select Template" on the screen where you enter the text for a message you're composing. Templates can fill information such as the destination address, CC address, subject, WL2K/peer-to-peer, current time, call sign, GPS position and many other items. This is described in the Winlink Express help file.

To manage templates, click "Message" on the main menu bar followed by "Templates...". This will open the Template Manager screen. If you have created any templates, they will be listed. On this screen you can add new templates, edit existing templates or remove templates. The screen where you add or edit a template has a Help button that will provide quick help about items that can go into a template.

*Mike Burton XE2/N6KZB is the Template Program Manager and WDT member responsible for the forms database. Greg Kruckewitt KG6SJT is also a WDT member and the primary forms writer. Any issues or form questions direct to [KG6SJT@winlink.org](mailto:KG6SJT@winlink.org)*

One of the features in Winlink Express is a Message Template Manager and Built-in editor for creating or modifying you own simple templates, that you keep in the Global > Templates directory.

A message template can be used to provide information for a message by clicking "Select Template" on the screen where you enter the text for a message you are composing.

Templates can provide assistance to fill in information such as the destination address, CC address, subject, current time, call sign, GPS position and many other pre desired items.



These HTML forms are in a directory called Standard \_Templates. They are auto updated via the Internet when a new or revised template in "Standard Templates" version Zip Pack is by design.

They are used between Winlink Express users to render an HTML. The information is also in plain text for non Winlink Express users.

You can pre-assign 4 of your favorites forms to be used quickly from the Message window. Within the Winlink Express Help files is information on Templates and HTML forms.

**Q11720 I have a new PTP message in the Outbox. It will not Send. Why?**

**A11720** The message must be initially created as a P2P message in the "Send as" drop down menu.

Then you must do a P2P session type.

Only P2P messages are sent during a P2P session. If you create a "Winlink" message, then try a P2P session, the Winlink message will stay in the Outbox.

**Q11750 Are there any keyboard commands built into the software?**

**A11750** Yes, ALT H followed by RETURN will open a new window with extensive indexed Help file.

**Q11770 I am having trouble getting Connections using my new Sound Card setup; FT8 works fine. Suggestions?**

**A11770** Are you using USB and the correct frequency?

Check the ALC meter when you are transmitting. For WINMOR and ARDOP you should have just a tiny bit of ALC action. For VARA it is more like 1/3 to 1/2 scale ALC. Adjust your drive accordingly. Check the power meter to make sure you are actually transmitting something.

Most RMS gateways are scanning several frequencies. It is possible to have bad timing and not connect on the first try. It may take several attempts. It is also possible that the gateway you are trying to connect with is currently working another station, possibly on another band/mode. You will have to wait until it completes (which could be many minutes, even 10s of minutes).

Propagation to your intended RMS on your selected Band may be poor. Try another Band. Try changing the polarization of your antenna. Try an antenna with higher gain.

See a short paper by K7BFL about creating a Communications "[Sweet Spot](#)".

FT8 is a weak-signal mode; WINMOR, ARDOP, and VARA are not. Successful FT8 connections are not necessarily a good indicator that Winlink connections are possible.

When you get your equipment working fine, capture Settings photos with your cellphone.



## Emergency Communications Networks – Design and Use

**Q20100** What are some things to do before and during an “Emcomm” event to tend to maximize your digital messaging capability?

A20100

Be Prepared; see Q112. Include in your Go Kit a USB Flash Drive, containing a complete up-to-date copy of AirMail. See Q1080. What would be a quick way to use AirMail (and WL2K) on an agency computer.

Become acquainted with local persons with WL2K and SHARES capability. SHARES users may use pactor 4 (about 2x speed of pactor 3; figure out how to use that capability).

Use your commercial email service, if possible.

If possible, use the WL2K system instead of peer-to-peer. PTP does not support cc.

Participating stations should, if possible, use a RMS which is not being used by another participating station.

Participating stations should, if possible, use a frequency which is not being used by another participating station.

Use communications methods with the highest available throughput rate. See Q170.

If you are providing digital messaging support for a “served agency” recruit someone from that agency (on site with you) to compose new messages and distribute incoming mail to agency personnel. Outgoing messages should include the name of your agency Partner, your name, your Winlink address, and a brief description of your role in helping the agency. You are responsible for Sending and Receiving messages. Messages to other agency personnel should use as is practical, the agency’s forms, procedures, and protocols. You “work” for them.

Unless you are very skilled at easily moving data between computers, use a single computer. See Q1080.

Templates and forms are nice, but many times a simple email answering the “Who, What, When, Where, Why” questions are quite adequate. cc as needed. WL2K will not accept messages with bcc. See Q290. Keep It Simple.

Keep message size as small as possible without sacrificing message quality. Before sending an Attachment pdf file, consider converting it to a html or htm file.

Reduce the number of messages Posted for a single Connection. Post and Send high priority messages first.

**Q20200** Is there a “good” way to utilize several local RMS Packet stations during a “high loading emergency event”?

A20200

Use a Voice Net to coordinate and distribute the use of RMS Stations. Ask packet stations to change two of their Winlink Express packet Setup parameters; Packet Length=255, Maxframes=7. This will increase the Sending Throughput rate by up to 2x; close to the speed of pactor 3 when sending large files. This is only doable if the packet RF path is solid and has a single user. See Q20350.

Use Reply, Forward, “Copy and Paste” to minimize typo errors.

Use the cc ability of AirMail, Winlink Express, and Paclink to send copies of a message to multiple recipients.

Encourage Users to use the commercial internet (or Winlink via Telnet) if available.

If you have local internet access, use the WL2K System, instead of doing peer-to-peer message transfers.

If local RMS Packet stations are “overloaded” and if some Users have WL2K HF (pactor, ARDOP, VARA) capability, encourage them to use a HF RMS Gateway, instead of a local RMS Packet station.

Users should be encouraged to NOT use the same RMS, unless that RMS is providing needed “Hub” services for you. See Q103.

Pactor 1 Users should be encouraged to use VHF/UHF packet or higher throughput rate protocols on HF, if possible.

If possible, access RMS Packet stations directly, instead of through a Node.

Encourage Users to monitor (by ear) packet activity. Things go quicker if a RMS Packet station is servicing one User at a time, even though they may be programmed to handle many simultaneous Connects. The activity level of Paclink, AirMail, Winlink Express, and RMS Packet is very quick and intense, compared to keyboarding BBS type activity.

Ask RMS Packet SysOps to consider reducing the “Maximum Streams” for each Channel to one. This will give a Connected User exclusive use of the RMS (on that Channel).

If you have more than one RMS Packet station in the area sharing a frequency, ask the SysOps to consider putting them on different frequencies.

Temporarily change the frequency of a RMS Packet station to a non-Node frequency.

Decrease the MAXFRAME value to 1 for all users of the Node, including the RMS Packet Stations.

**Q20300** **During a recent Emergency Drill several of us were simultaneously trying to access a local RMS Packet station through our local Node. We each experienced lots of Retries. What can be done to solve this problem?**

A20300 See Q20200

**Q20350** **What are some things to do to maximize coordination of digital messaging activities during an Emcomm event??**

A20350 Most every Emcomm event is coordinated by a Voice Net

a. Listen to that Net to determine who is coordinating Digital Messaging ([Digital Command](#)).

b. Compose and send a message to that person. Describe your location, maximum message size accepted (bytes), capabilities (Bands, Modes (voice, CW, Winlink, PTP, FLDigi, etc.), Protocols (packet, pactor, ARDOP, VARA, etc.), [Red Phone](#), Printer/Scanner capabilities. Include voice frequencies that

you will monitor, including 2 meter and 70 cm. It is very difficult for most people to successfully monitor more than 2 busy frequencies.

c. Note Winlink callsigns associated with the voice stations on the Voice Net. Voice and digital messaging may be different callsigns (at the same location).

d. If you need to send a ptp message, arrange the "how, where" details via the Voice Net. Select a ptp "data" frequency NOT in the "sub-bands used by pactor 3 RMS stations. USA ptp Connections are not considered by the FCC to be "automatically controlled". See Q580. Connect when the frequency is clear. It is amazing how quickly ptp messages can flow between several stations on a single ptp frequency.

e. If you cannot simultaneously do digital and monitor the Voice Net, let the NCS know when you leave and return to the Voice Net.

f. Check your Winlink In Box often. Use of "auto-check" is not recommended; it uses too much on-productive airtime which could be used by others.

g. Keep the [Digital Command](#) updated (via email) with the RMS stations, Bands, and protocols which are giving you successful Connects.

**Q20400 Is there a way I can easily report an Earthquake event to the USGS. using Winlink?**

A20400 Yes. There is a special message form available with Winlink Express. See Winlink Express ... Messages ... New Message ... Select Template ... Standard Templates ...USGS ... USGS DYFI.txt or DYFI espanol.txt (Spanish version).

If you have internet service, the form will direct you to the USGS "Did You Feel It" web page; otherwise out the form, Post to the Outbox, select a RMS, Connect, Send.

It is important that you keep the "Standard Forms" data updated by accepting the auto-updates when they are available. See Q11575.