INSTALLATION AND SETUP FOR WINLINK AIRMAIL
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(Revised 23 March, 2008 by Randall Dunning, KC5QHH)

This document is directed at users interested in working with the VHF Packet Client module within Winlink AirMail. AirMail allows peer-to-peer and peer-to-Internet e-mail with attachments. Once the user is familiar with this component of AirMail, it only requires a hardware change to move to HF Pactor and world-wide radio e-mail service. Another Winlink component, Paclink, allows similar peer-to-Internet capability using standard client e-mail programs, but does not, at this time, allow direct peer-to-peer e-mail communications.

Computer Requirements: Personal Computer running 95/98/XP/2000 Microsoft Window OS

TNC Requirements: Kantronics series (KPC-3, etc.), SCS PTC series and the Timewave/AEA units (PK-232, PK-900, DSP-1232 and DSP-2232).
Note that the VHF Packet Client module has a slightly more limited compatible set of TNC's than the HF Terminal module but the AirMail software developers are rapidly adding more TNC types to their compatibility list.   Fortunately, all the ARCHES TNC's, Kantronics 9612+, are compatible!

TNC/Computer/Radio Installation: Standard packet radio interconnection. Proper packet operation should first be checked using a terminal program like HyperTerm or WinPack.

AirMail Software Download:
Site: www.siriuscyber.net/ham/ or follow directions to the download site on the www.winlink.org site.   Download 3.2.022 (amhc32022.exe), a 3.5 MB self-extracting program. You can download this program to a file or to the desktop of your computer.

AirMail Software Installation:
Double click on amhc32022.exe to install AirMail. I would suggest putting the installation program in a folder or a CD in case you need to reload it at a later date.

AirMail Setup:
A large part of the AirMail setup has to do with the HF Pactor installation and can be ignored. When asked for call letters, put in your call <u>without any SSID,</u> you will get the opportunity to put in a SSID call in the VHF Packet Client Terminal Window. *You should also enter a password here. Pick one and remember it.* Just say yes if asked about a new frequency list. This has to do with the frequencies of the HF Pactor PMBO stations.   Questions about hardware TNC and radio control can be skipped or defaulted because they refer, once again, to the HF Pactor module. Once you get to the main AirMail window, pull down the *Tools* menu and click on *Options*. Go to *Settings* and confirm that your call, without SSID is shown. Next go to *Modules* under the *Options* menu (not the main menu) and <u>check</u> the VHF Packet Client box. Finally push the *setup* button in the VHF Client line. This will bring up the *Packet Setting* screen where you

enter the TNC type, the computer com port and the computer to TNC baud rate. If you have any Kantronics Packet TNC (KPC-2, KPC-3, KPC 9612+, etc.) just select KPC-3. Even the KAM selection seems to work. Typically, COM1 should be selected and the ARCHES system has been using 9600 baud as the communication baud rate. Click OK on both the *Packet Settings* and the *AirMail Options* windows and everything should be set. To check for proper TNC to Computer operation, turn on the TNC, verify proper RS-232 cable connection, and then pull down the *Modules* menu (main menu) and click on *Packet Client*. The Terminal Window should pop up and after a few seconds and a message will tell you if the TNC initialization was successful. Continue with the "Terminal Window" discussion below. If initialization fails, it is probably due to a baud rate incompatibility. Close the Packet Client window and open a terminal program to trouble shot the TNC to computer communication problem. I have typically found that I have to set the baud rate on the TNC with a terminal program to achieve communications.

Packet Client Window:
This is the transmit window and some similarities to the WinPack window. To access this window use the **Modules** pulldown and select ***Packet Client***. The packet client window will appear and if your configuration is correct the following message will display:

2006/09/03 13:45:38 Packet initialized OK

On the Packet Client window are *Connect To:* and *Connect As:* boxes where you put your call with SSID (connect as) and the station you wish to connect. Once you have entered a connect-to station it will be put in the pull down area for future use. The Packet Client window has two modes of operation: **PBB** (handshake) and **Keyboard** (little keyboard drawing). For sending email, select the PBB icon. To connect, push the green button. To disconnect, push the red, stop button. To send and receive email connect by pushing the green connect button. If you have posted a message it will send at this time. Below is an example of a successful send:

2006/09/03 14:22:53 Calling N5BYL-10, Connected at 14:22:55
*** CONNECTED to N5BYL-10
N5BYL-10 Telpac v1.2.7
N5BYL-10 Winlink 2000 TELPAC node. Parker,Tx (EM13qb)
Type H for Help, I for Info Telnet Logon OK

[WL2K-3.1.2-B2FIHM$]

Thanks for using the N5BYL Collin County ARES EmComm PMBO!

KC5QHH VIA N5BYL-10 DE N5BYL >
[AirMail-3.2.035-B2FHIM$]
; N5BYL-10 de KC5QHH (EM12qw) QTC: 1 172 158
FC EM 1034_KC5QHH 172 158 0
F> 05
FS Y
Sending "AirMail Test Message - Winlink 2000", 158 bytes (8% compressed)
FF
FQ
; N5BYL-10 de KC5QHH SK
*** DISCONNECTED
2006/09/03 14:23:40 Disconnected from N5BYL-10

If there is mail waiting for you a successful receive will look something like this:

```
2006/09/03 13:45:46 Calling N5BYL-10, Connected at 13:45:48
*** CONNECTED to N5BYL-10
N5BYL-10 Telpac v1.2.7
N5BYL-10 Winlink 2000 TELPAC node. Parker,Tx (EM13qb)
Type H for Help, I for Info Telnet Logon OK

[WL2K-3.1.2-B2FIHM$]

Thanks for using the N5BYL Collin County ARES EmComm PMBO!

KC5QHH VIA N5BYL-10 DE N5BYL >
[AirMail-3.2.035-B2FHIM$]
; N5BYL-10 de KC5QHH (EM12qw)
FF
FC EM EHPAPNUSM4YY 1007 631 0
F> 0F
FS Y
Receiving EHPAPNUSM4YY "User Notice"...Decoded OK
; N5BYL-10 de KC5QHH
FF
FQ
*** DISCONNECTED
2006/09/03 13:47:14 Disconnected from N5BYL-10
```

If there is nothing to send or receive the result of a successful connect will look something like this:

```
2006/09/03 14:30:00 Calling N5BYL-10, Connected at 14:30:01
*** CONNECTED to N5BYL-10
N5BYL-10 Telpac v1.2.7
N5BYL-10 Winlink 2000 TELPAC node. Parker,Tx (EM13qb)
Type H for Help, I for Info Telnet Logon OK

[WL2K-3.1.2-B2FIHM$]

Thanks for using the N5BYL Collin County ARES EmComm PMBO!

KC5QHH VIA N5BYL-10 DE N5BYL >
[AirMail-3.2.035-B2FHIM$]
; N5BYL-10 de KC5QHH (EM12qw)
FF
FQ
*** DISCONNECTED
2006/09/03 14:30:50 Disconnected from N5BYL-10
```

When you select keyboard, a transmit window will drop down below the receive window (just like WinPack). Like in the PBB mode, to connect, push the green button and to disconnect, push the red, stop button. Note that there is not an unproto mode. There is no provision for entering TNC commands or changing parameters. Under the *tools* menu there is a *dumb terminal* mode for this purpose. You must close the Terminal Window before going to the dumb terminal mode.

Telnet Client Window and HF Terminal Window

In addition to the Packet Client there is a Telnet Client which can be used with any Internet hookup visible to your computer. It is possible to use the Telnet client with an 802.11 network HSMM or an Ethernet wired network to send and receive emails. If you are having trouble getting registered in the WINLINK system you can send an email through the Telnet Client as an alternative way to get your callsign into the system.

The Telnet Client is set up as follows:

1. Pull down the **Modules** window and select **Telnet Client**
2. Select the **Settings** button.
3. Enter the folloing parameters into the popup menu:x
    Remote Callsign: ***WL2K***
    Remote Host: ***Server.winlink.org***
    Port: ***8772***
    Timeout: ***120***
    Local Call Sign: *<your callsign>*
    Password: ***CMSTELNET***
4. Press the Green Circle button to connect to Telnet.

Use of the HF Terminal Window is outside the scope of this Packet primer and will not be discussed further.

Main or E-mail Window:
This window, with the exception of the *tools* menu, is used to generate, read, and manage e-mail messages. Please see the .pdf document, Winlink Primer, on the www.tcares.org Web site or the TCARES Winlink CD, for an excellent discussion on message generation and transmission. To follow is a simplified version to get you started.
Window Structure: Note the AirMail window file structure on the left side of the window. Clicking on one of these files opens it on the right side of the window.   The *In* Box contains messages send to your call. The *Out* box contains messages you have posted for transmission or have transmitted. The *Transit* box contains messages sent by another station for continued transmission by your station.
Message Generation: To generate a new e-mail message, pull down *File* and click *New* or push the white sheet tool. In the center of the new message form is the address book. The addressing is a little more complicated that Internet e-mail, since Winlink can send messages by either Internet or radio and it also has a transit delivery capability that further complicates the path. Note that a single message can have multiple paths. The address book does not have to be used, and by pushing *Cancel* you can manually enter the address and routing. To manually route, enter in the *To:* box, the e-mail address (Internet- e-mail) or the radio call letters (in peer-to-peer) of the message recipient. To deliver an e-mail via an Internet connected packet station (Telpac), put WL2K in the *Post Via:* box.   To deliver the message directly to the recipient (peer-to-peer) put the recipient's call in the *Post Via:* box. Note that this must be the same exact call letters entered in the *Connect to:* box in the Terminal Window. Finally, if you cannot connect directly to the recipient, place the transit station's call in both the *Post Via:* and the *Connect to:* boxes.
Address Book: To add a new name to the address book, Push the *New* button and enter a name (tactical call) in the *Name:* box.   Then enter either the e-mail address or actual call letters of the recipient in the *To:* box. The posting path is entered in the *Post Via:* box.
Writing the E-mail: The *subject:* and e-mail message is entered the same as in other e-mail client software.   An attachment maybe added to the e-mail by going to the *Files* menu and clicking on *Attach File.*
Posting Messages: When each message is complete (with addressing) it must be "posted" for transmission. Simply push the "mailbox" icon on the tool bar to post the message. You may look at the message addressing in the *Out* box. Multiple messages

can be posted for transmission at one time.   In fact this saves considerable transmission time, since most of the transmission time is spent setting up the connection path.

Transmitting Messages: From the Terminal Window enter the recipient or Internet gateway station's call letters.   Verify that the Terminal window is in the PBB mode (no transmit window visible and handshake button depressed), verify correct transmit frequency, and then push the green button. Connection, transfer and disconnection are automatic. Messages will be pass both ways during a single connection depending on message addressing. New, unread messages, will appear in your *In* box and have "New" appended to them. Your *out* box will have green checks on all messages successfully transmitted.

This is a simplified discussion of message handling and more can be found in the Winlink Primer and AirMail help files.

Telpac Station Operation:

Sending and Receiving E-mail: You may send e-mail to any valid Internet e-mail address. Any Internet user may send e-mail to you. Once "know" to Winlink, your Internet e-mail address is *call@winlink*.org. A Winlink Telpac stations is simply a packet station running Winlink Telpac software and having either a dial-up or high-speed Internet connection. This station does not directly place your e-mail onto the Internet, but transfers it to a Winlink PMBO by Internet where it is finally placed on the Internet. A single Telpac station can typically handle ten simultaneous connections.   All connecting stations must have valid amateur radio calls (no tactical calls allowed). There maybe some transmission delay the first time a new amateur radio call is encounter by the Winlink system. The message will be accepted, but transmission will be delayed until the validity of the call is verified.   Once you are "known" to the Winlink system transmission is quite fast for most PMBO stations.

Digipeater Operation: If you cannot directly connect to a Telpac station, you can use either a Node or a simple digi to digipeat to the Telpac station. If you use a Node, it must have a valid amateur radio call not an alias.   SSID's are allowed. To connect to a digipeater, put the destination station <space> digipeater 1 in the *Connect to:* box. If additional digipeaters are necessary, use <space> V <space> digipeater 2, etc. after the first digipeater. Airmail software puts in the "Via" between the destination station and the first digipeater but you must add "V's" (Via) for all additional digipeaters. The digipeaters may have tactical alias calls.   To connect to a Node, first place the terminal window in the keyboard mode and put the Node's call in the *Connect to:* box.   Once the connection is made and the Node reports to you, type in the transmit window C Telpac station call (connect to the Telpac station). Finally, (quickly) go back up to the mode buttons and push the PBB handshake button. The message transfer should now progress the same as with a direct connection including automatic disconnect upon completion from both the Telpac station and the Node.

Telpac Station Information: I have the simplest Telpac station (W5IFQ-9) consisting of standard packet station with a hardware TNC (Kantronics 9612+) and a dialup ISP. There is more delay when someone uses my station but it works. Other stations in the area include KI5DR-5. He can be reached using AUSRLY-1 or LEAKA digipeaters or the 3M Node W3MRC-7.

I would like to encourage more local amateurs to install Telpac stations. The software and installation instructions can be found on the www.winlink.org web site. There are,

once again, significant hardware restrictions, but there are software solutions for the Telpac station installation.

Applications to ARCHES:
We are exploring using both the peer-to-peer and peer-to-Internet capabilities of AirMail to transfer patient information from local and regional hospitals to the EOC.
Before we can evaluate Winlink's applicability to ARCHES, we need a group of trained AirMail operators. I encourage you to install AirMail and start sending e-mail and connecting to other AirMail users (peer-to-peer). If you lack the proper hardware, any ARCHES station can quickly become an AirMail station by loading the AirMail software as discussed above. The existing packet capability of an ARCHES computer using Winpack is not affected.

HF Pactor E-mail:
Once you have learned VHF Packet Client AirMail operation, there is only one hardware step to achieve world-wide Winlink HF radio e-mail service. All the screens operate the same way; you simply use the HF Terminal window under Modules rather than Packet Client. The station call, calling frequency(s), dial setting, etc. are all provided in this terminal window.   A 100 watt HF SSB station running Pactor will typically get your e-mail to a PMBO from any location in the world!

Trouble Shooting

RF Link Connectivity

If attempting to connect (pushing the green button) produces the following message:

2006/09/03 14:59:48 Calling N5BYL-10*** retry count exceeded
*** DISCONNECTED
, no answer

You do not have RF connectiveity

Possible Causes
1. Wrong frequency. Check to make sure the your radio is set to the correct frequency. A common frequency is 145.090 simplex. Also make sure the radio is not using a + or – repeater split.
2. TNC and Radio are not properly connected. Check to make sure the TNC is transmitting and the radio is also transmitting.
3. The Winlink station is out of range. Check to see if the radio is receiving and the receive indicator on the TNC is indicating packets are being received.

Computer to TNC Connectivity

If bringing up the Packet Client window produces the following message:

2006/09/03 15:16:56 Packet initialization failed

there is a connectivity problem between your computer and the TNC. Check the cable first and if that appears to be in order then check the serial port parameters and also make sure the TNC is turned on. If none of this works, use a terminal client and diagnose the

TNC operation using procedures provided by the manufacturer and/or users group publications. Once the problem is corrected, close the Packet Client (use the X close button not the HIDE button) and reopen it from the Modules pulldown. If you don't do this the Packet Client will become confused and when you try to connect.

If attempting to connect produces the following message:

2006/09/03 14:59:48 Calling N5BYL-10

and the session appears hung, it is possible that the serial port has failed or become disconnected. To check this, close the Packet Client window and reopen it. If you receive the message:

2006/09/03 15:16:56 Packet initialization failed

there is no serial connectivity between the computer and the TNC. Diagnose and correct this as mentioned above.

Cannot Send or Receive Emails

When you attempt to send an email and you receive the following:

2006/09/03 14:30:00 Calling N5BYL-10, Connected at 14:30:01
*** CONNECTED to N5BYL-10
N5BYL-10 Telpac v1.2.7
N5BYL-10 Winlink 2000 TELPAC node. Parker,Tx (EM13qb)
Type H for Help, I for Info Telnet Logon OK

[WL2K-3.1.2-B2FIHM$]

Thanks for using the N5BYL Collin County ARES EmComm PMBO!

KC5QHH VIA N5BYL-10 DE N5BYL >
[AirMail-3.2.035-B2FHIM$]
; N5BYL-10 de KC5QHH (EM12qw)
FF
FQ
*** DISCONNECTED
2006/09/03 14:30:50 Disconnected from N5BYL-10

and don't see any email received or sent.

Possible Causes:

1. *Connections are Temporary*: Unlike traditional email you do not connect first and compose email. The connection to the Telpac Node will only stay up for about a minute to allow other users access. If there is nothing to send or receive the node will log you off. This is NOT an error but the normal operation of the Telpac Node. Compose email "off line" and after posting it (mailbox button) press the green connect button on the Packet Client window.
2. *Registration*: You are not registered in the WINLINK 2000 system. Send an email and wait for your callsign to be verified. You can try using the Telnet Client window and send email over your wireless or wired LAN to get into the system if, for some reason the Telpac Node will not let you in.
3. *No password*: Check to see if you have entered a password during setup.

4. *Failure to post*: After composing email, make sure to press the little mailbox icon to "POST" your email. Failure to do this will cause connection cycle with nothing to be sent.
5. *No Mail*: If there is no email waiting on the server for your callsign there will be nothing to receive. Send your self an email from another computer or email account and wait about 5 to 15 minutes for it to make it onto the server then try again.