

Paclink AGW... A Windows Packet Radio E-mail Client for the Winlink 2000 (WL2K) System Installation and Basic Operation

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Scope:

This document will take you through the installation of Paclink AGW and its basic operation. The basic setup of Paclink AGW's companion programs, AGW Packet engine and MS Outlook/Outlook Express is also covered in Appendices A-C. Using Paclink AGW with Kenwood radio built in TNCs is also covered in appendix D. This document also includes the installation and setup for the Paclink Postoffice that is a common component of all new Paclink clients.

Legal Stuff:

Paclink AGW is licensed only for use in amateur radio applications. Paclink AGW may not be used for any commercial purpose without the express written consent of the authors. Paclink AGW is provided on an "as is" basis and no warranty is expressed or implied about the suitability of this product or its' performance. By accepting the license you agree to hold harmless the developers of Paclink AGW and insure to the best of your ability it is used in compliance with all applicable amateur radio regulations.

The Paclink CD:

The Paclink Installation CD includes all the installations necessary for:

- Paclink AGW

- Microsoft .NET Framework (if not already installed on your computer)

- AGW Packet Engine or Packet Engine Pro

In addition, you will need to have a standard E-mail client like Outlook or Outlook Express available for testing and operation. Initially this should be on the same computer as Paclink but once installation is complete other E-mail clients (compatible with standard POP3 and SMTP servers) can be used on other computers networked to the Paclink AGW computer. Outlook Express normally ships with all Windows versions and is part of MS Internet Explorer 6.0. You can also operate Paclink AGW from other mail clients like Netscape or Eudora but these programs may have some restrictions on multiple accounts. Windows 2000 or Windows XP (Pro or Home) is recommended for Paclink AGW. .

Computer Requirements:

Paclink AGW runs as a .NET application and will require the installation of the .NET Framework version 1.1 (or later). The table below are the requirements as suggested by Microsoft but our experience has shown more reliable operation with Windows 2000 or Windows XP operating systems.

Minimum Requirements	
Processor	<ul style="list-style-type: none"> • Client (a computer not working in a server capacity): 90-megahertz (MHz) Intel Pentium-class processor • Server (a computer working in a server capacity): 133-MHz Intel Pentium-class processor
Operating System	<p>The .NET Framework 1.1 Redistributable is supported on the following platforms:</p> <ul style="list-style-type: none"> • Microsoft Windows® Server 2003* (.NET Framework 1.1 is installed as part of the operating system) • Windows XP Professional* • Windows XP Home Edition • Windows 2000* • Windows Millennium Edition (Windows Me) • Windows 98 • Microsoft Windows NT® 4.0 Service Pack 6a <p>Notes: ASP.NET Web applications and XML Web services can only be hosted on Windows XP Professional, Windows 2000, and Windows Server 2003</p> <p>The .NET Framework 1.1 Redistributable cannot be installed on 64-bit computers; Windows NT 4.0 Terminal Server is not supported</p>
Memory	<ul style="list-style-type: none"> • Client: 32 megabytes (MB) of RAM, 96 MB recommended • Server: 128 MB of RAM, 256 MB recommended
Hard Disk	110 MB of hard disk space required, 40 MB additional hard disk space required for installation (150 MB total)
Display	800 x 600 or higher-resolution display with 256 colors
Input Device	Microsoft mouse or compatible pointing device
Other	<ul style="list-style-type: none"> • Microsoft Internet Explorer 5.01 or later is required . • Microsoft Data Access Components 2.6 is required for data scenarios. (not required for Paalink) • Install the latest Windows service packs and critical updates from the Windows Update site. • Installation of the .NET Framework 1.1 is split into two parts: the core and language packs. The core contains everything you need to run .NET Framework applications; all dialog boxes and error messages will be in English. If you want dialog boxes and error messages in another language, you must also install the corresponding language pack. For more information, see the .NET Framework Downloads page.

Installation Overview:

To operate Paclink AGW there are a number of support installations required. Some of these may already be installed on your computer. The following must be installed to operate Paclink AGW and should be installed in the following sequence:

Microsoft .NET Framework If this has already been installed as part of the installation of any other .NET application or your OS this step can be eliminated.

For Paclink AGW packet operation the AGW Packet Engine or Packet Engine Pro is required along with a suitable TNC or sound card TNC. (see appendices A and B)

An E-mail client with multiple account capability. Microsoft Outlook or Outlook Express is recommend. Paclink AGW includes a setup wizard to simplify setup of Outlook Express. If you are using Outlook or Outlook Express for your normal E-mail you can simply add accounts needed for Paclink AGW. (see appendix C)

Paclink Postoffice This is a separate companion program that is used by all Paclink Clients.

The actual Paclink AGW program.

Installing the .NET Framework.

Paclink is written in VB.NET and requires the .NET Framework to run. Version 1.1 of the Framework is included on the Paclink CD. If you have already installed this for another application you do not need to install this. If in doubt simply try to install the .NET Framework. To install the .NET Framework find the "DOT NET Framework" directory on the CD and double click on the program "dotnetfx.exe". This will take several minutes...it is a big installation but once done it will support any program written in .NET. You may be asked to update your Windows configuration. The newer operating systems (e.g. MS Windows XP) normally come with .NET installed.

Installing the Packet Engine:

If you are going to use Paclink AGW for packet ports you will need to install the AGW Packet Engine and then configure the Engine for one or more TNC ports. Included on the CD are both the older version AGW Packet Engine (that can be run unregistered), or, the easier to use Packet Engine Pro (which has a 30 day trial registration and \$49 registration fee). Details of the installation and testing are included in Appendices A and B. Be sure and get the configurations correct and confirm the TNCs are communicating with the Packet Engine *before* trying to run Paclink AGW (one step at a time!).

Configuring The E-Mail Client for Paclink AGW:

Paclink AGW does include a basic keyboard mode for testing that does not require an E-mail client program. However the real power and ease-of-use of the program is through its leverage of existing E-mail clients like Outlook or Outlook Express. To the E-mail client Paclink AGW appears as one or more E-mail POP3 and SMTP servers accessed by separate accounts. The connection of the E-mail client to Paclink AGW is made through a common interface server called Paclink Postoffice that will be installed and run as part of Paclink AGW. Normally only one additional account for the Paclink AGW is required on the E-mail client. You can continue using your normal E-mail accounts as well for normal Internet E-mail. Paclink AGW will simply give your E-mail client access to packet radio or telnet channels that you will set up in Paclink AGW. Other mail

programs (Netscape and Eudora for example) will work as well however some of these do not have the same support for multiple “accounts” like MS Outlook/Outlook Express. Virtually any E-mail program (even those running on different machines and Operating systems) that interfaces to standard POP3 and SMTP servers and supports SMTP authentication can be configured to operate with Paclink AGW over a network. Appendix C includes an example of how accounts are setup in Microsoft Outlook or Outlook Express.

Installing Paclink Postoffice:

Paclink Postoffice is the companion program for all Paclink clients and implements the POP3/SMTP mail server functions. It needs only to be installed once for any Paclink installation and is shared by all Paclink clients. Simply download the Paclink Postoffice install and start the auto extract exe program. This should install the Paclink Postoffice icon below on the desktop. When the Paclink Postoffice is running you should normally see its Icon in the system tray.



Paclink Postoffice will automatically be launched by any Paclink client. You can wait until other Paclink modules are installed before configuring Paclink Postoffice as described below.

Installing Paclink AGW:

Installing Paclink AGW is straightforward and can be done by going to directory “Paclink AGW ” on the CD and double clicking on “Setup.exe”. This will guide you through the setup. It is recommended you stick with the default directories unless there are known conflicts. When the setup is complete you should have a Paclink AGW Icon on your Desktop.



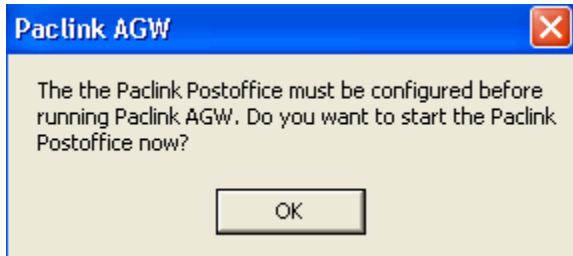
If you are using Paclink AGW for packet connections you must install and setup the AGW Packet Engine (or Packet Engine Pro) before you can set up any Paclink packet channels. The exception to this is if you are using the AGW Packet Engine set up on a *remote* computer (advanced configurations).

Configuring Paclink Postoffice:

Paclink Postoffice will require configuration before you start working with packet or telnet connections. Once this is done there should be little need to modify the Paclink Postoffice settings unless you are modifying or adding Tactical Addresses (explained in the Tactical Addressing Section). Paclink Postoffice settings are all saved in the Windows Registry. In addition the creation or modification of a tactical address will

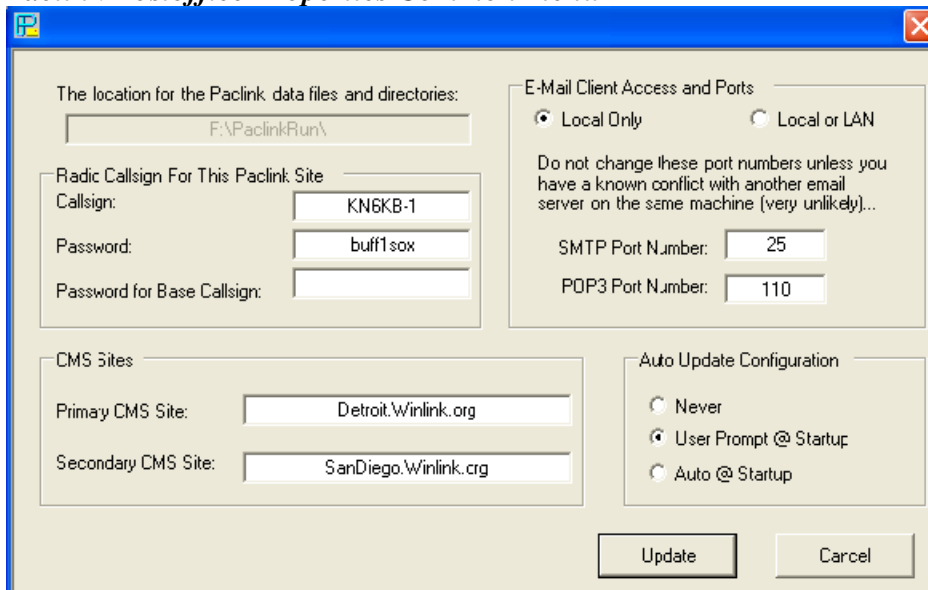
communicate to the Primary Winlink server (via the internet) to register that Address in the Winlink system and confirm it is unique system wide.

When Paalink Postoffice starts for the first time the popup menu below will appear.



Click OK and this should bring up the Paalink Postoffice Properties menu:

Paalink Postoffice Properties Common menu



On this menu you select the location for all Paalink data files and directories and select the *RADIO* call sign and password for this Paalink site.

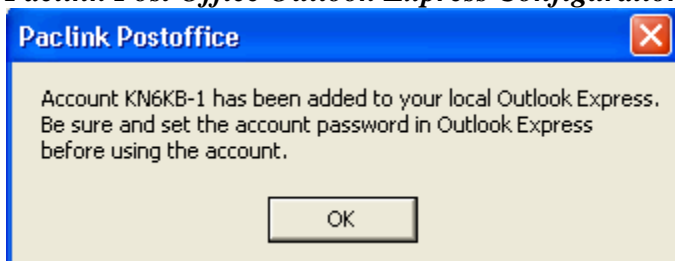
The call sign **MUST** be a legitimate Ham Call (with or without –ssid). The password is the password for this call sign and the same password used in the E-mail client. This menu may also be brought up by clicking the Properties menu bar on the Paalink Postoffice main form. The CMS sites are used only for registering tactical call signs and the default entries above should be fine. For security, if adding a –ssid call sign you will also have to enter the password for the base call sign (no ssid).

The SMTP and the POP3 port numbers are the ports the Paalink Postoffice will listen on for connection requests from the E-mail clients (e.g. MS Outlook Express). Normally these are the default ports and should work fine. If port changes are required they *can* be changed to any unused port *however* it will be necessary to insure the E-mail client is set up to the *same* corresponding ports.

The auto update configuration settings determine how auto update operates. Select Never (no auto updates), User Prompt (user is asked to approve auto update) or Auto (automatically update without user prompt). Auto update only occurs on the program startup.

When you click Update on the above Properties menu you should get a confirmation similar to the following indicating the Paalink Postoffice Outlook Express configuration wizard has set up a corresponding account on your Outlook Express. When you start Outlook Express and request it Send/Receive mail you will be prompted to enter the account password. Once this is done Outlook Express should remember the password.

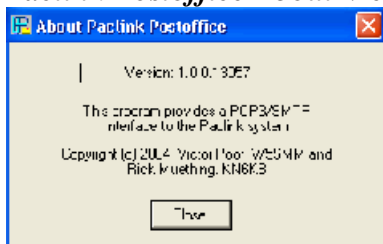
Paalink Post Office Outlook Express Configuration Wizard Confirmation



If you are using other E-mail clients they will have to be manually configured to the same account and password entered in the properties menu. When manually setting up an E-Mail client account be certain to use the *EXACT* same account name and password and configure the account so the Outbound (SMTP) mail server “requires authentication” and uses the same settings as the POP3 server. An example of manually setting up Outlook Express is shown in appendix C.

Clicking the “File”, “about” pull down selections on the Paalink Post Office menu will display the following menu which will identify the version number of Paalink Post Office. If you need to communicate a problem to the authors be sure and include this version number.

Paalink Postoffice About Menu



This completes the basic configuration of Paalink Postoffice and is sufficient to interface to a single E-mail client account.

Using Tactical Addresses in Paalink Postoffice (advanced operation):

Paalink AGW (and future Paalink versions) provides a gateway between a number of user email clients (such as MS Outlook, MS Outlook Express, Eudora, Netscape, and other mail programs) and the WL2K system. The initial installation of Paalink dictates

that a proper radio call sign be assigned for communications with WL2K and this call by default also becomes the account name for an E-mail client. This E-mail account is required and cannot be deleted.

For advanced operations Paalink may be configured to accommodate any number of additional mail clients in addition to the default. These clients will typically have account names that are not radio call signs. We call these account names ‘tactical addresses’ since they are used to route messages through the WL2K system. Additional ham call sign accounts may also be created exactly like a tactical address

In order to accommodate the dynamic routing features of WL2K tactical addresses are limited to certain formats that distinguish tactical addresses from radio call signs. 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. Invalid examples: W1ABC, K3DEF-1, (radio call signs)."

How is a tactical address created?

First of all Paalink must be installed and the Paalink POP3/SMTP Postoffice configured with the radio call sign that is used to communication with WL2K. In addition, at least while setting up tactical addresses Paalink needs access to Internet.

Before going further let’s clear up some terminology. A tactical address, an email user name, and an email account name are all names for the same thing. Don’t let the different names confuse you.

When adding a tactical address you are actually creating an E-mail account. Open the Paalink POP3/SMTP Postoffice windows and click on ‘Accounts’. You will get the following menu:

Paalink User Accounts

An account name may consist of a tactical address of alpha characters only or alpha characters, followed by a dash, followed by alphanumeric characters. A name may not exceed 12 characters. Valid tactical address examples: MLBShelter, RedCross-12, Police-9A, FIDadeEOD-1. An account may also consist of a valid amateur call sign with optional -ssid. The <account name>@winlink.org will be the E-mail address of the account user. New accounts MUST be activated by sending a message from that account to any recipient.

Account name: KN6KB-9

Account Password: secret

Password for Base Callsign: SCUBA

Add An Account

Remove an Account

Change Password

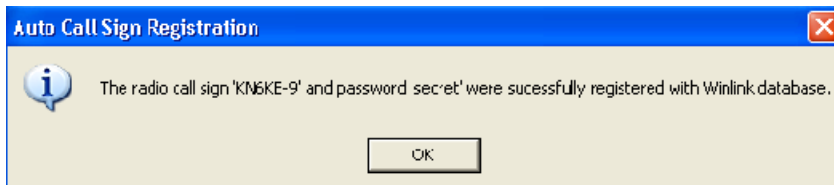
Close

Add This Account to Outlook Express

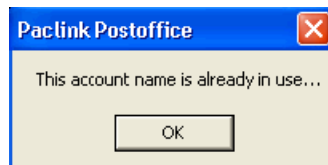
Type in the tactical address (Account name) and an Account Password for accessing mail addresses to that tactical address. In the example above these are “KN6KB-9” and “secret”. In setting up the corresponding Account on an E-Mail client these are the *same* values (Account name and Account Password) that *must* be used for the E-mail client.

If the Account name is a valid Ham call with a –ssid extension (as above) you will also see a textbox for the Password for Base Callsign. This is a security feature and requires the base call sign be registered in the Winlink database.

Click on the ‘Add New Account’ button. Upon clicking this button Paclink accesses the master WL2K database (over the Internet) and registers the tactical address or, if the address is already in use, rejects your choice and advises you that the address is in use. You should see either of the two message boxes below:



OR



You may also use the Paclink User Account dialog box to delete a tactical address you have created or to change the password. This mechanism insures that a tactical address is unique system wide.....a requirement for routing. For security to change a password you will be prompted to enter the existing password.

Once you add a new account the ‘Add or Update the Account to Outlook Express’ button will be activated. If you click on this button the Outlook Express email client *on the local computer* will be preset for that account name used. This will not configure Outlook Express on any remote computer or for any other email client program. For accounts on remote computers you must set the E-mail account up manually (see appendix C).

It is also *possible* to create a new tactical address in an emergency when no Internet connection is available. In that case the address will only be recognized within the range of the local PMBO. The WL2K network administrator can add it to the master WL2K database manually for global coverage. Plan ahead – don’t wait until Internet is down to start configuration of your Paclink installation!

Tactical addresses should normally be reserved for emergency use and will be coordinated and standardized by ARRL and ARES (details TBD).

How tactical addresses are routed:

The full Internet address for a tactical address is <*tactical address*>@winlink.org. The “@winlink.org” must be included when sending a message to a tactical address from any E-mail client. When using AirMail or other direct radio client the “@winlink.org” is optional and it is best not to include it.

Once a tactical address is created it is important that at least one message be sent from that address even if it is to a non-existent Internet address. The passage of a message from a tactical address client (or any other user for that matter) establishes the path for return messages. Routing is always dynamic within WL2K and routing is always based where a given tactical address or radio call sign has been seen by the system. Routing has a time-to-live of typically about three months. It is message flow that keeps the routing system alive. Use it or lose it! If a user (including a tactical addresses) accesses multiple radio or Telnet stations (*from the same Paclink site*) **all** those stations will automatically be included in message routing for that user or tactical address.

Some FAQ about Tactical Addresses and Call signs:

Can I change the radio call sign for a Paclink site?

Yes, but as soon as the call sign is changed each and every client using that Paclink site must send a message through the WL2K system to reestablish message routing. If this is not done messages will be misrouted to the old call sign.

Can a tactical address be used with more than one Paclink site?

No. If you want to move a tactical address from one Paclink site to another it must first be deleted from where it is in use and reentered at the new site. Once the address is reentered a message must be sent from that address to establish routing.

Can a tactical address be used with other than a Paclink gateway into WL2K?

Not presently. Since a tactical address is not a valid radio call sign I cannot be use for a direct radio connection. Paclink is the only current software that provides legal radio link with a tactical address user.

Auto Update for Paclink Postoffice and Paclink AGW:

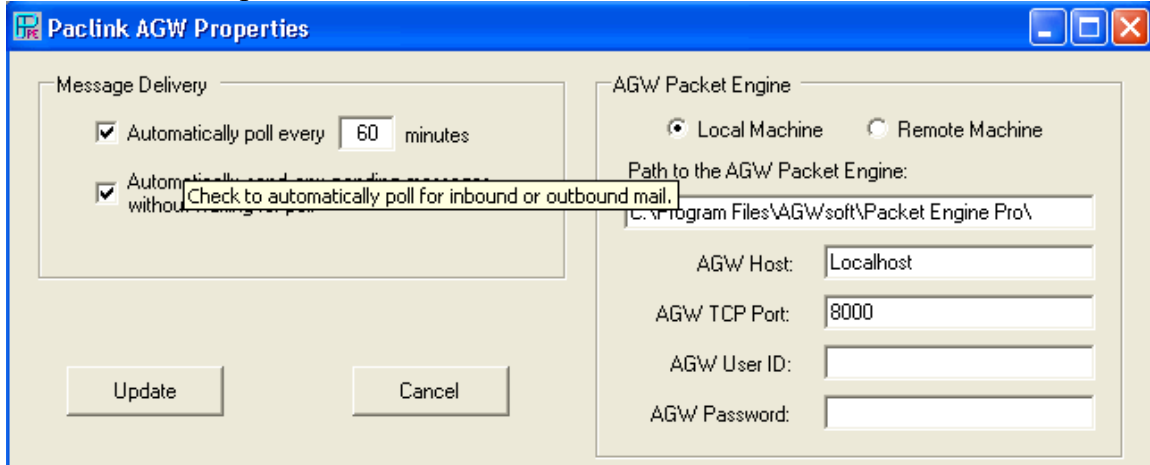
Beginning with Paclink Postoffice version 2.1.0.0 and Paclink AGW version 1.2.0.0 automatic updating is supported. If enabled in the properties menu when either program starts a special ftp site is queried for the latest version. If the latest version is later than the currently running version the user is asked if they want to accept an automatic update and the new .exe file (and any other required support or documentation files) are downloaded automatically and the program is restarted. If the computer does not have an active Internet connection the auto update process is skipped. Existing files (.exe and support) are backed up in the same directory with a “.old” extension tag so they can be recovered if desired. A small pop up menu and progress bar showing the download size and progress is displayed but normally the updates are fast and take only a few seconds with a high-speed connection. The auto update won't handle a major structural change in the program which requires a full install but these are rare. The auto update should be a simple and painless way to keep current with the latest revisions and improve performance and support. One of the support files downloaded will be the revision

history and this can be read if desired to find what changes the new revision incorporates. Auto update can be disabled or made to run unattended using the Properties menu. Auto update only occurs on the start up of Paclink Postoffice or Paclink AGW.

Configuring Paclink AGW:

Once Paclink Postoffice is configured you may proceed with the configuration of the Paclink AGW program. Clicking on the Paclink AGW Icon will launch the Paclink Postoffice (if necessary) and bring up the following initial configuration menu:

Paclink AGW Properties Menu



This menu can also be reached via the File, Properties menu items on the Main Paclink AGW menu. This menu sets up parameters for polling and for accessing the AGW Packet Engine (or Packet Engine Pro). Check the box for “Automatically Poll ever ___ minutes” is used to cause Paclink to attempt to make a connection to WL2K (via any channel as described later) on a periodic basis. This is needed to receive inbound mail if there is no outbound pending traffic. A value of 20-60 minutes is typical. You may also select in the second checkbox to automatically make a connection when there is any outbound traffic pending. This reduces the latency time for outbound messages to only a few seconds.

In the right hand frame are parameters for the AGW Packet engine that must be setup prior to installing Paclink AGW. If you are using the Packet Engine on the same computer running Paclink AGW (normally the case) select “Local Machine”. In some advanced configurations it may be desirable to use the Packet Engine on a remote machine doing remote login. In that case select “Remote Machine”.

The path to the Packet Engine is entered in the text box shown. The default is to the typical install path for Packet Engine Pro. If you are using the older AGW Packet Engine or installed the Packet Engine Pro in a different directory you will have to change this path. The path should be the *COMPLETE* path (with trailing “\”) of the directory that has the .exe file. This file should be either “AGW Packet Engine.exe” or “Packet Engine Pro.exe”. If you do not know the path try a search for these files. One or the other should be on your computer if the Packet Engine is installed.

The AGW Host field should be filled in with “localhost” if the Packet Engine is on the local machine or the Remote computer name (if it is on the same LAN) or the remote

computers Dotted IP address or friendly name if it is on the Internet. The remote computer must have a fixed IP address for reliable operation.

The AGW TCP port is normally defaulted (during Packet Engine installation) to 8000 but if it was installed on a different port that number should be entered here.

The AGW User ID and AGW Password are used for a secure login to a remote computer. If these security options are selected (normally *NOT* used on Local connections) these should be entered here. If the Packet Engine is set up to *NOT* require secure logins these fields should be left blank.

Complete the Paalink AGW Properties setup by clicking Update. Normally edits of this menu should not be required once the initial setup is complete.

Setting Up a Paalink AGW Channel:

Now the actual channel(s) for communication are set up in Paalink AGW. Click File, Channel to pop up the Paalink AGW Channels menu.

Paalink AGW Channels Menu

The screenshot shows the 'Paalink AGW Channels' configuration window. It features a blue title bar with the text 'Paalink AGW Channels' and standard window controls (minimize, maximize, close). The main area is divided into several sections:

- Channel:** Includes radio buttons for 'Packet' and 'Telnet' (selected). Below are a 'Channel Name' dropdown menu (showing '<Add New Channel>'), 'Channel Priority' set to '1', a checked 'Channel Enabled' checkbox, and an unchecked 'Keyboard Mode (For channel testing only)' checkbox.
- Packet Properties:** Includes 'Remote Callsign' (empty), 'Inactivity Timeout (min):' set to '2', 'Connect Script:' with a text box containing '[none]' and an 'Edit' button, 'Connect Script Timeout (sec):' set to '60', 'AGWPE Port:' dropdown menu, 'Packet Length:' (empty), 'Max Frames Outstanding:' (empty), and an unchecked 'Accept Inbound (testing only)' checkbox.
- Telnet Properties:** Includes 'Remote Callsign' (empty), 'Remote Telnet Host:' (empty), 'Remote Telnet Port:' set to '12001', and 'Telnet Password:' set to 'WL2KTELNETCLIENT'.
- Buttons:** On the right side, there are four buttons: 'Add New Channel', 'Remove This Channel', 'Update This Channel', and 'Close'.

There are two options for adding a channel: Packet (using Packet radios via the AGW Packet Engine) or Telnet (using the Internet to a WL2K Telnet Server).

Adding a Telnet Channel:

Select Telnet in the Channel frame and type in a desired channel name in the Channel Name text box. Pick a short name that is descriptive of the channel. Select the Channel

priority 1-5 . One is the highest priority and will be tried first to make the connection to WL2K followed by lower priority channels (if present). Channels having the same priority will be selected randomly. Check Channel Enable (normally always enabled except for testing...for example to simulate the loss of an internet or packet channel). You can select the keyboard mode but this is only for testing as it places significant limitations on messages. Normally this is left unchecked.

In the Telnet Properties frame fill in the remote call sign of the WL2K Telnet server (the Call sign of the PMBO). You can use KN6KB or K4CJX for testing but any WL2K Telnet server will work. If you are setting up Paclink for emergency communications using ARES get the Telnet Server settings from your ARES coordinator. Enter the Remote Telnet host friendly or dotted IP address in the next field. Again for testing you can use kn6kb.no-ip.com or k4cjsx.no-ip.com. This must be either a fixed IP address (if using the dotted address format) or be able to resolve to the correct IP address if using a friendly name. The Remote Telnet port and Telnet password are normally as defaulted. If there are problems contact the WL2K or ARES PMBO (call sign@winlink.org) to get any updates.

Click Add New channel to save this channel setup. You can also edit an existing channel using the same menu and procedure. Below is a typical channel setup:

Typical Telnet Channel Setup

The screenshot shows the 'Paclink AGW Channels' configuration window. The 'Channel' section is set to 'Telnet' with 'Channel Name' as 'TelnetTest', 'Channel Priority' as '1', and 'Channel Enabled' checked. The 'Telnet Properties' section is filled with: 'Remote Callsign' as 'KN6KB', 'Remote Tenet Host' as 'kn6kb.no-ip.com', 'Remote Telnet Port' as '12001', and 'Telnet Password' as 'WL2KTELNETCLIENT'. The 'Packet Properties' section is mostly empty, with 'Remote Callsign' and 'Inactivity Timeout (min)' as '2'. The 'Add New Channel' button is highlighted.

Adding a Packet Channel:

Adding a packet channel is similar to adding a Telnet channel.

Select Packet in the Channel frame and type in a desired channel name in the Channel Name text box. Pick a short name that is descriptive of the channel. Select the Channel priority 1-5. One is the highest priority and will be tried first to make the connection to WL2K followed by lower priority channels (if present). Normally a Packet channel will have a lower priority (higher priority number) than a Telnet channel forcing it to be tried only if the Telnet channel were *NOT* available. Channels having the same priority will be selected randomly. Check Channel Enable (normally always enabled except for testing...for example to simulate the loss of an internet or packet channel). You can select the keyboard mode but this is only for testing as it places significant limitations on messages. Normally this is left unchecked.

The Packet Properties frame contains information on the actual radio packet connection. The remote call sign should be the end destination call sign (with –ssid if required) of the WL2K Telpac node or WL2K PMBO Packet node. The Inactivity timeout is the maximum time to keep the channel open without any traffic. Normally 1-5 minutes is sufficient. If the time is exceeded it will force an immediate disconnect if the connection still exists.

The next two fields contain the optional connect script and connect script timeout. These are optional advanced settings described later.

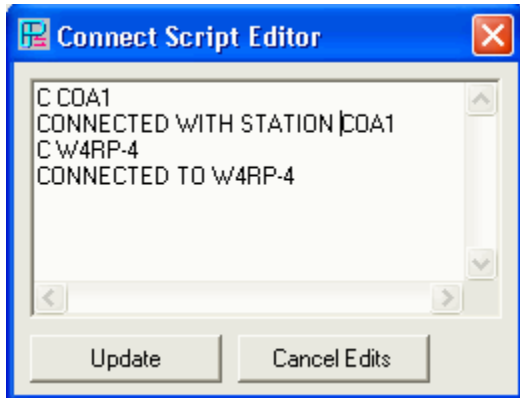
The AGW Packet Engine Port to use for the connection is selected in the AGWPE Port list box. These port descriptions are obtained from the AGW INI files in the AGW path set up previously. If no port options are available from the drop down list then either the AGW Packet Engine or Packet Engine Pro has not been set up or the path entered previously is incorrect. *Important note: If the port configuration (addition or deletion of ports) is changed in the Packet Engine **after** the Paclink AGW channel is configured it will be necessary to go back and update all Packet channels to insure they are still pointing to the desired Packet Engine port.*

The Packet Length and Max Frames Outstanding are used to optimize the throughput and availability of the channel. The default values (128 for length and 2 for max frames outstanding) should be OK for initial work. These may be fine tuned later to optimize the channel performance or availability.

The Accept Inbound checkbox is not enabled ...this is currently for testing purposed only. Normally Paclink AGW only *INITIATES* connections to remote packet stations.

Connect Scripts (advanced operation):

For sequenced connections to the remote target station a connect script is used. To enter/edit a connect script click the Edit button which will bring up the Connect Scrip Editor:



No connect script is required for a direct connection to the target call sign. If a simple connection using digipeaters is desired the script can be a single line of the form:

C or CONNECT <TargetCall> V or VIA <digi1>,<digi2>, ... ,<digi7>

Where *<TargetCall>* is the remote call sign and *<digin>* are the digipeaters (up to seven). Examples:

C W4RP VIA COA1,MLBDIG (connect to W4RP via digis COA1 then MLBDIG)

If a more complex script is required to make the connection it is entered in two-line pairs. The first script line is the Connection command or Data to be *sent* and the following script line being the *expected* text to sequence to the next command/data line. Referring to the prior scrip editor menu:

C COA1 (Issues a connect request to Node COA1)

CONNECTED WITH STATION COA1 (is the expect text after a successful connection)

C W4RP-4 (is the text sent to the node asking the node to connect to W4RP-4)

CONNECTED TO W4RP-4 (is the expected text upon a connection to W4RP-4)

Since this is the last line of the script when this text is received the script is ended and normal BBS<>BBS or Keyboard operation can commence. There is no practical limit to the length of a script. The Connection Script Editor will perform basic syntax checking of the connect script. All scripting is case insensitive and converted to upper case. When entering text on even lines (text used to compare to received text) make certain you do not *OVER* specify the text or include any text that would be transitory (dates, traffic counts etc). The text you enter must be contained (somewhere) exactly as typed in the received text to sequence to the next script line. Also if your last script line is looking for text reply from an automated WL2K PMBO or Telpac node make sure the search text occurs *before* the SID of the remote station. SIDs look something like:

[WL2K-3.0.48-B2FIHM\$]" and are necessary to identify the protocol Pamlink AGW will use. The packet containing the search text in the last script line is also passed to Pamlink AGW's protocol processor.

When a connect script is active the channel also continuously monitors for **KEY** words that will terminate the script and abort the connection. These key words are:

DISCONNECTED

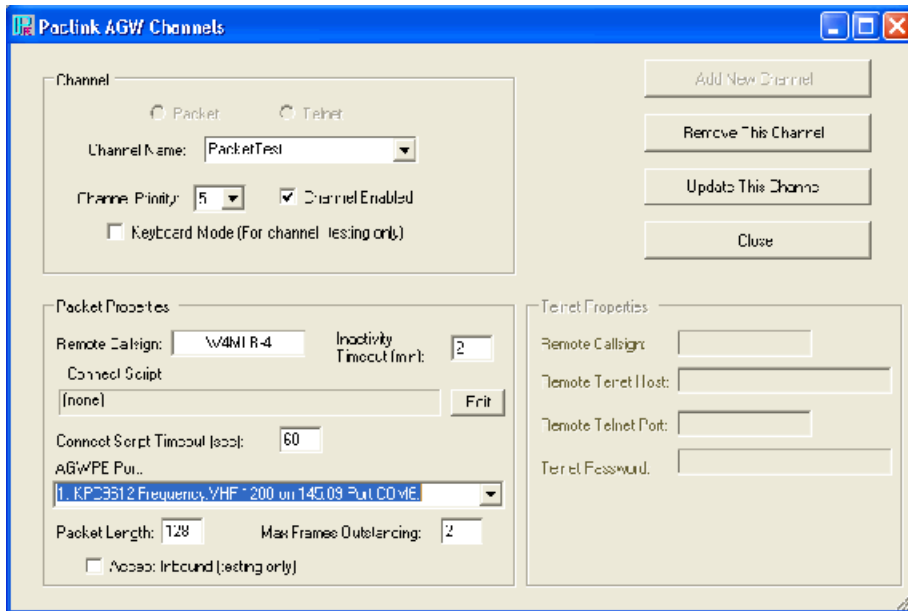
TIMEOUT

EXCEEDED

FAILURE
BUSY

The connect script timeout above in the Packet Properties frame is a time limit (default 60 seconds) for each level of scripting. A script line that takes longer than this to complete it will cause a timeout and abort the script and disconnect the link. Connect scripts are a powerful tool and can be used to transverse nodes, switches and packet backbones to reach distant stations but at a reduction in the throughput of the channel.

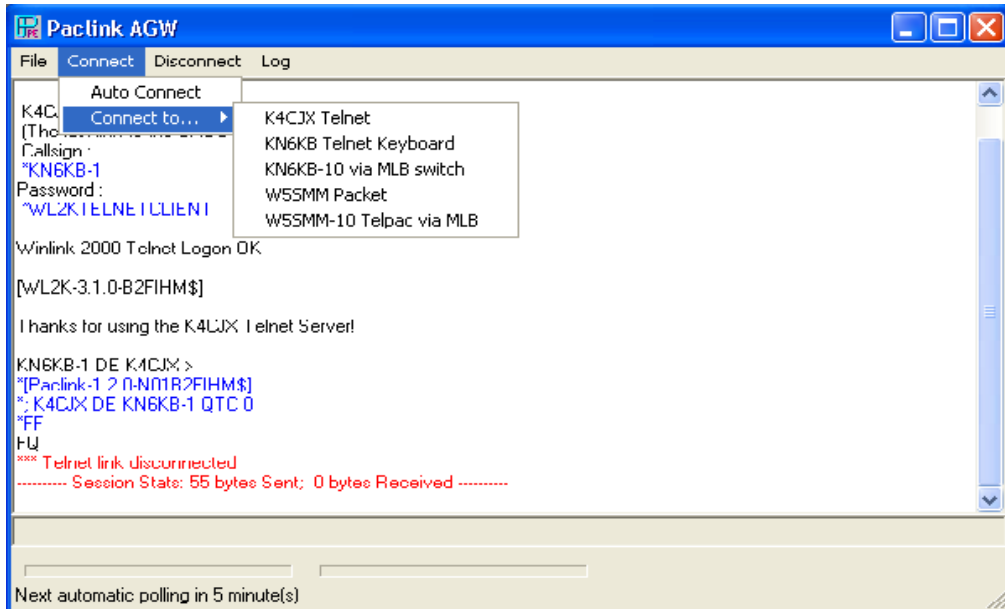
Below is a typical packet channel setup:



To complete entering a packet channel click the Add New Channel button. This menu is also used to edit an existing Packet channel.

The Main Pamlink AGW Display:

The main display of Pamlink AGW is shown below. This shows channel activity, text data sent and received and is used to access the other menus. The File menus have already been covered.



Connecting to a Channel:

Depending on prior settings Pamlink AGW will poll the remote channels on a schedule or automatically connect when outbound traffic is received from an E-mail client.

The channel selected for the connection will be based on the priority values selected. Higher priority channels will be tried first and if no connection is made Pamlink AGW will automatically sequence to lower priority channels to forward the traffic. Note this channel prioritization and automatic sequencing is *completely* transparent to the user sending from the E-mail client. This makes it possible for Pamlink AGW to automatically forward messages by Internet when available or automatically by one of multiple alternate radio paths.

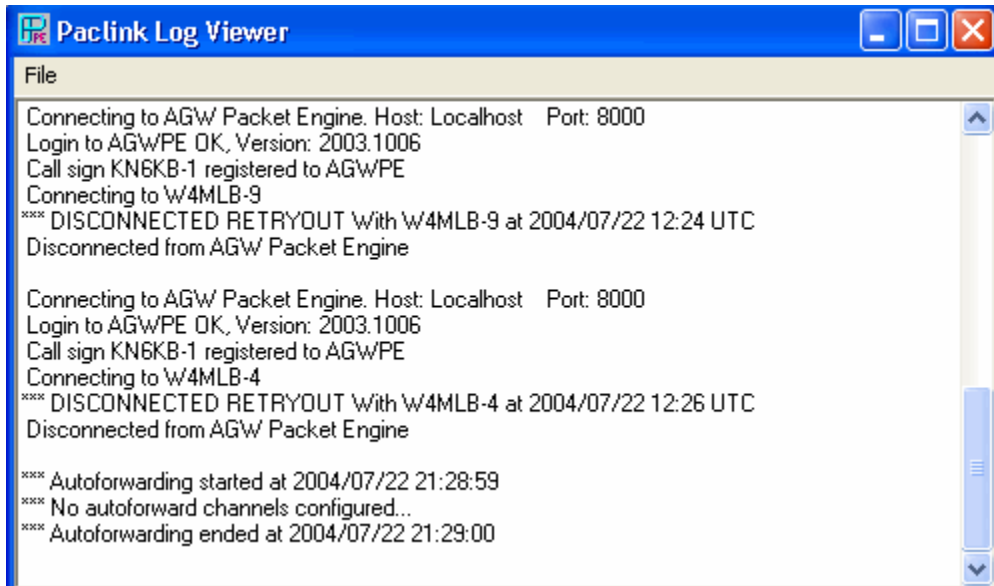
A manual connection may also be initiated if desired. This can be a manual initiation of the Auto Connect feature described above or to connect using a specific Telnet or Packet channel. The lower status line of the main menu shows the time remaining until the next automatic polling cycle.

Once Pamlink AGW makes the connection to the remote channel all forwarding is handled automatically using the Winlink B2F protocol.

Pamlink Log Viewer:

The activity on the main display window is logged and available for later viewing or analysis. This permits debugging complex connection or protocol problems as well as providing a record of all channel activity. To select and view a log click the Log menu

item in the main display and select the desire log. The following is an example of the Log Viewer.



Addressing Messages in the Winlink System:

When you send a message from your E-mail client program to Paalink AGW special attention to the addresses you use is required. A message to someone that is going to receive the message via ham radio via the WL2K system is addressed to:

<call sign>@Winlink.org E.g. W1AW@winlink.org (case insensitive). The address can be typed directly in the To or Cc fields (separated by a “,” or “;”) or from the address book of the E-mail client. Tactical addresses if used are always of the form: <Tactical Address>@winlink.org E.g. POLICE-911@winlink.org (case insensitive)

Other Internet addresses are exactly the same as they would be using any other mail account. E.g. JohnDoe@aol.com.

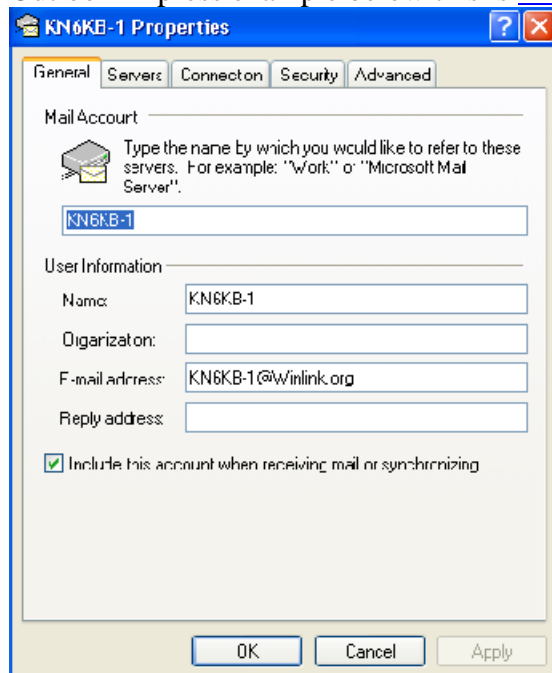
An important note about addresses!

*Incorrect addresses will normally result in a bounce message to you. To be delivered a call sign or tactical address must be **known** to the WL2K system (that call sign or tactical address is a registered user of WL2K). If you send a message and receive a “bounce” reply stating the message could not be delivered it is probably due to one or more of the following:*

- 1) The radio user or tactical address is not known to the WL2K system.*
- 2) The call sign, tactical address or email address was misspelled. Close does not count! The letter “O” is not the same as the numeral “0”.*
- 3) There was no such Internet address or the syntax was incorrect.*

Return Addresses

To allow the recipient to reply to your message it *MUST* have the appropriate reply address. In Paalink AGW this is the E-mail address identified in the E-mail client. In the Outlook Express example below this is KN6KB-1@winlink.org



Failed Delivery Notification Messages:

Once configured, messages sent through Paclink AGW are normally sent using the E-mail client program. Paclink includes an automatic “notify on failure” mechanism that will send a failure notification message back to the originator (user of the E-mail client program) if a problem is encountered with the delivery of any outbound message. This could be due to addressing problems, radio, digi or node problems or any other problem where the message was not accepted by the remote end target WL2K PMBO or Telpac node. The user can then decide on the next course of action.

What to do if you have Problems:

Paclink AGW is a new program and we are still in the Beta test phases. There will be bugs uncovered and new features added. We will post updates to the Paclink AGW program, documentation and articles on the Winlink web site:

(see <http://www.winlink.org/Client.htm>). If you have a problem first read through this document to see if it may answer your questions. Check the help files for the Packet Engine or your E-mail client program if the problem seems to be there. If you still cannot get something working (or maybe think it should work differently!) let us know. Please include the following:

Your name, call sign and E-mail address. We are also interested in how you plan to use Paclink.

Your operating system.

The version of Paclink AGW you are using. See the File About menu...this is important as changes will be likely.

What version of the Packet Engine or Packet Engine Pro you are using

Which E-mail client you are using.

A good description of the problem including any steps necessary to duplicate the problem if possible. The better you describe it the easier it will be to fix.

If you think you have a Paclink AGW setup problem send us your Paclink channel configuration file(s). These are small files located in (default) C:\Program Files\Paclink\Channels with a “.agwpe” or a “.telnet” extension.

There are also log files for all activity to aid in debugging. Be sure to enable these and attach the log file with your question/problem. These files will have the channel name and can be found under the directory (default)

C:\Program Files\Paclink\Logs.

Thanks for your interest in Paclink AGW and support. Send us your comments to help us improve the program. You may also consider learning about and joining for those using Paclink and WL2K for Emergency communications. For info and to join go to:

<http://groups.yahoo.com/group/wl2kemcomm/>

Your participation and feedback in this groups helps everyone and helps us improve the program.

Rick Muething, KN6KB (<mailto:rmuething@cfl.rr.com>)
Vic Poor, W5SMM (<mailto:vpoor@cfl.rr.com>)

Appendix A.

Basic Installation for AGW Packet Engine and AGW Packet Engine Pro.

This assumes you are working from the Paclink Installation CD. If you are not working from the CD you will have to download the files from the AGWPE web site:

<http://www.elcom.gr/sv2agw> If you already have either version of the AGW Packet Engine running on your computer no setup is required.

You should decide which Version of AGW PE you wish to install. The older version called AGW Packet Engine will work but is somewhat more difficult to set up. It can run unregistered (free) for amateur packet use (no TCP over radio) and will work with Paclink AGW without registration. To install the AGW Packet Engine go to the folder "AGW Packet Engine\Packet Engine" on the Paclink CD. Make a directory on your computer called AGWPE and copy the four files to it from the CD:

- AGW Packet Engine.exe
- AGWPE.cnt
- AGWPE.HLP
- agwpe.sys

If you wish you can add support for other languages (see the AGWPE help file).

The Packet Engine Pro is an upgraded version that includes better support (installation Wizards and improved support for sound card type modems). It is recommended for Paclink. A 30 day evaluation can be installed from the Paclink CD. Once the 30 days has expired you must register it (currently \$49 USD) a reasonable fee based on the fine work George Rossopoulos, SV2AGW has done. To install Packet Engine Pro go to the folder "AGW Packet Engine\Packet Engine Pro" on the Paclink CD and double click Setup.exe. Installation in the Default directory is recommended since Paclink will default to this directory.

You should know which type of TNCs you plan to use and which comm Ports are available before you try to setup the Packet Engine. Although the default commands to enter the KISS mode are there for most TNCs it is a good idea to *verify* those commands for the manual of your actual TNC and firmware revision. You also must have TCPIP protocol enabled for your machine (though you do not actually need an external IP connection to run AGWPE.) If at all possible setup the TNCs on true serial ports not USB to Serial adaptors. There have been some problems with using USB to Serial adaptors from some vendors and some operating systems.

The following is a basic example of setting up ports on the AGW Packet Engine. The Packet Engine Pro is similar and somewhat easier with its installation wizards. Please refer to the appropriate help for more details.

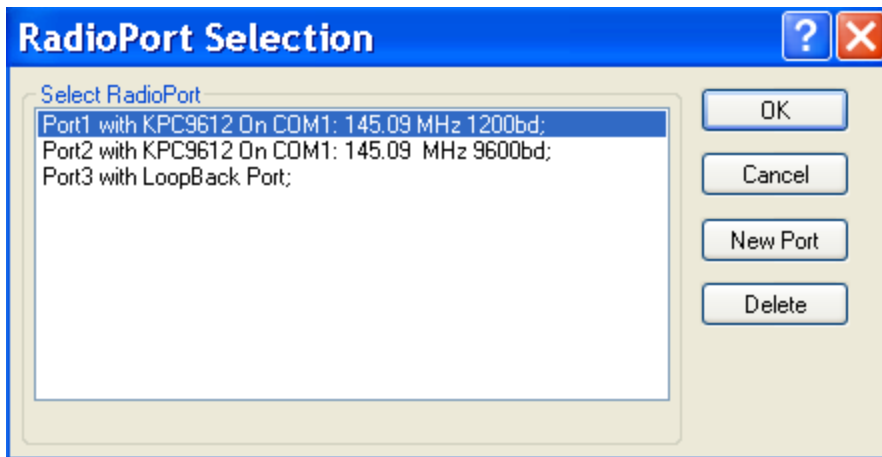
From experience there are a few common problems people have when trying to set up the packet engine.

- 1) Starting AGWPE with the TNC already set up in Host, Kiss or some other mode. Try to start up the AGWPE with the TNC in the basic command mode

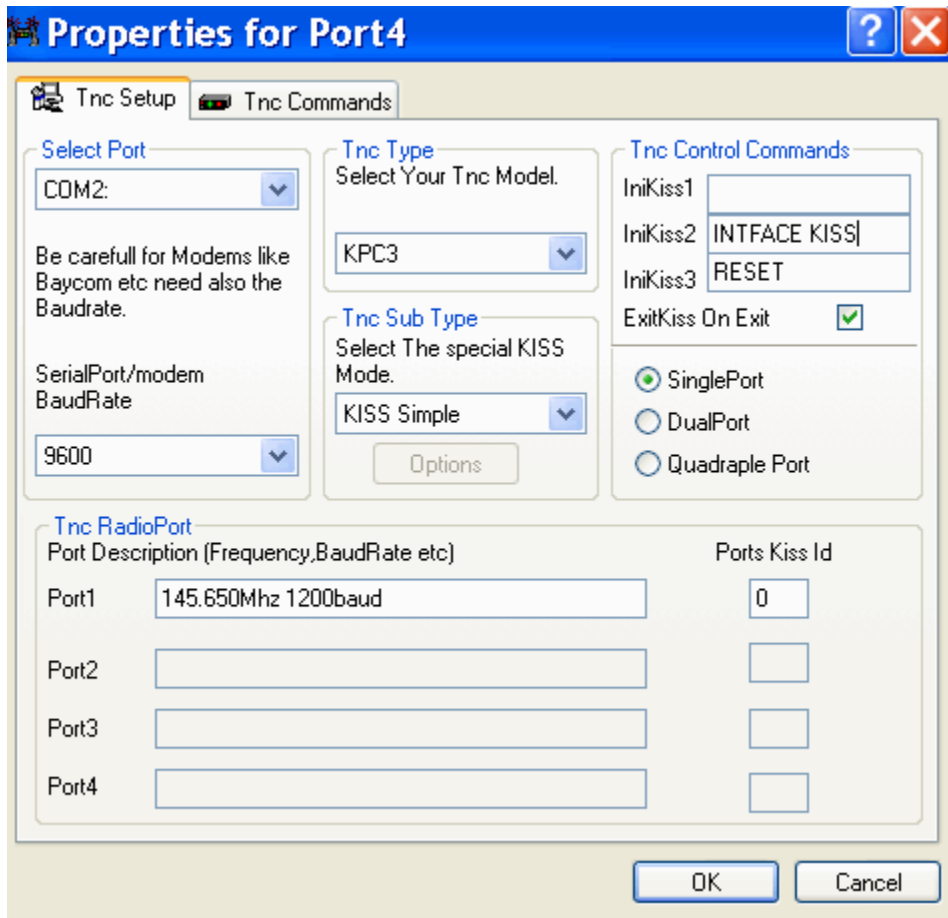
and at a fixed known baud rate (not auto baud). Use a dumb terminal program or if necessary a hard reset to get the TNC into the Terminal interface mode (command prompt) before starting the AGW Packet Engine. Check "ExitKiss on Exit" in the Packet Engine setup to avoid leaving the TNC in KISS mode when the Packet Engine shuts down.

- 2) Not entering the correct command sequence to get the TNC into KISS mode. On some TNCs there are multiple KISS modes. **CHECK YOUR TNC MANUAL!...DO NOT RELY TOTALLY ON THE DEFAULTS GIVEN IN THE AGW PACKET ENGINE SETUP.** The sequence of commands IniKiss1, 2 and 3 should be that sequence of commands needed to get the TNC from the normal command prompt to the KISS mode. In many cases only two entries are needed.
- 3) The TNC setup wizard of the Packet Engine Pro tries to do a test of the TNC connection by flashing the LEDs. This does *not* work on Kantronics TNCs so there is no positive indication you actually have the Kantronics TNC in KISS mode. Our experience is that Kantronics TNCs will work reliably if you start them in their Terminal interface mode and use the correct Kiss entry sequence for the TNC.

Starting the packet engine should bring up the accept license and then initialize. You should see a small icon for AGWPE (towers with packet controller). Left or right click on that icon and select Properties. You will get a pop up like this (but initially it will have no ports).



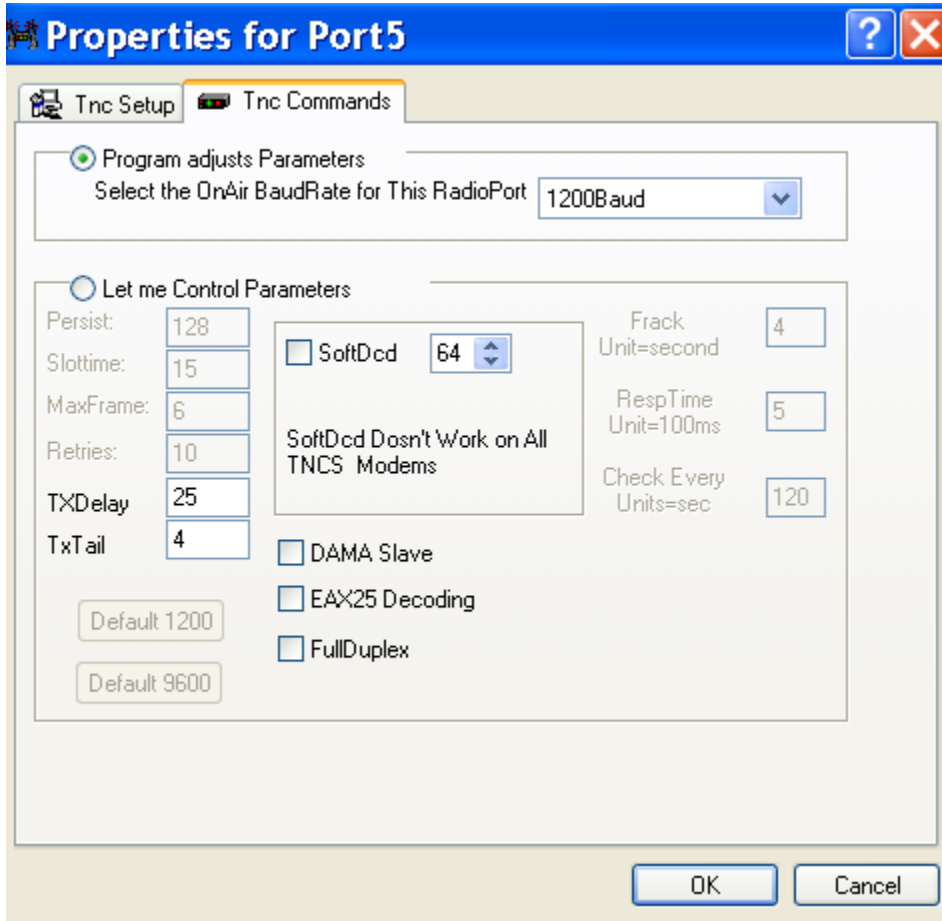
Select New Port. You will get a pop-up then click OK. The next menu will have two tabs as shown below. The first is the Tnc Setup tab.



Select the comm. port, baud rate, and TNC model. The program will default the settings for Tnc Sub Type, Tnc Controls, Single/dual port and TncRadio Port. You can change these if necessary. [Note the setup abovewhich I found works for the KPC3 is DIFFERENT in the IniKiss2 line from the default.....This may save you some time! I recommend checking your TNC manual on how to put the TNC into KISS mode and which (if any) variations of KISS are supported. The commands IniKiss1-3 will be executed sequentially to put the TNC into the selected KISS mode. I also recommend checking "ExitKiss on Exit" to leave the TNC back in the command mode especially if you use the TNC for any other programs. Finally customize the Port Description for your setup (usually frequency and baud rate). The Pamlink AGW program uses this description for the drop down list in packet setup.

The second tab is the TNC commands tab as shown below. This should default to the common setup parameters that should work for most radios and installations. You can change parameters here. Important note (again from experience!) if you are running your radio open squelch (software carrier detect) be sure and check the Soft Dcd checkbox. Some radios may require longer TXDelay or TxTail delays but many modern data radios will work with shorter delays yielding slightly higher throughput. If in doubt consult your radio and TNC manuals or ask a local packet Guru. Finally click OK. You will be prompted to restart the AGWPE. You can wait to restart the program until you have set

up all desired ports. All that is needed for Paalink is one operating packet port but multiple ports can be used if desired. This completes the AGWPE basic setup.



Appendix B: Testing and debugging the AGWPE setup.

This is a very short tutorial on testing the AGWPE/TNC setup. You should also check the AGW web site and possible support groups for help.

Like all programs involving complicated software and hardware going in simple steps verifying each piece is usually more productive than trying everything new at once. You will find that setting up Paclink AGW is much easier if you have already confirmed that the AGWPE is installed, running and communicating with the TNC. It is also very desirable to also verify that you can actually *connect* to another packet station and *monitor* packet activity via your Radio, TNC and AGW Packet Engine *before* trying to activate Paclink AGW.

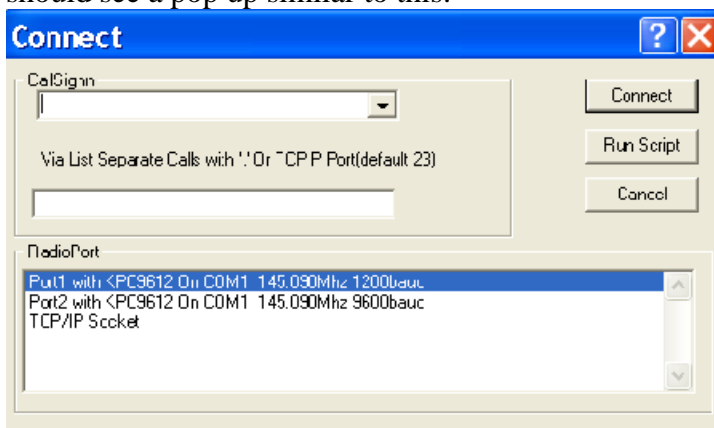
One way I found to do this that was helpful is to install the AGW PE Terminal program. This is located on the CD under folder AGW Packet Engine\Packet Engine Terminal\”. Simply make a directory (e.g. AGW Terminal) and copy all the files in the Packet Engine Terminal directory.

To start the terminal program simply double click on “agwterm.exe”. You can also drag this over to your desktop to place a shortcut icon on the desktop.

There are some read me and help files associated with this application. You will of course want to set up the terminal with your own call sign. This is really a quite simple to use program but it may be helpful to read the help and read me files.

The first test is just to insure the AGWPE is up and running and communicating with the application. Start AGWPE.exe (after setting up as described in Appendix A). You should see the little AGW PE Icon and one or more TNC icons in your tray.

Now start the AGWTerm.exe program. Click the file properties and set up your call and which packets you want to monitor. Unless you have very good eyes or a very large monitor you will also want to set the default font (Fonts, Font selection) to something larger than 6 point! Now try and connect to a station. Click Actions, Connect and you should see a pop up similar to this:

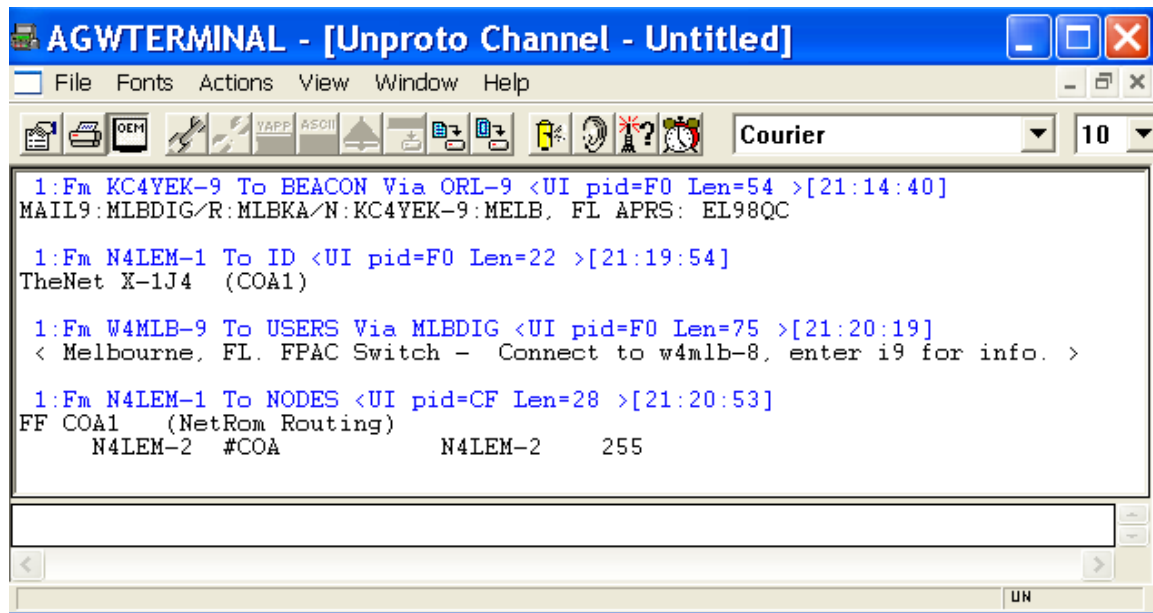


Select a port, (if multiple Packet Engine ports enabled), enter a call sign and click connect. You should see the TNC key the radio PTT and the radio should transmit the connect request. If possible try and connect to a local BBS, node or fellow ham. This will verify that the TNC, Radio, and AGW Packet engine are working properly. If you can't get the TNC to key the radio PTT there is something wrong in your setup...probably setting up the KISS mode or an error in the serial port setup. *Get this to work before trying any thing else...it is fundamental!* Experience suggests that most operating problems center around getting the TNC in KISS mode. If the Terminal program doesn't transmit or monitor try using a dumb terminal and resetting the TNC to normal command mode before starting AGW PE. Also check the commands and sequence for setting the TNC to KISS mode in your TNC manual and double check they are exactly the same as those in the AGWPE Tnc Commands menu.

If you get a connection to a local packet station and can exchange some keyboard data your are 90% of the way there! You may experiment with the Mike gain and or the radio audio levels to get the most optimum copy. You may also want to experiment with other TNC parameters to optimize the TNC radio setup.

Once you establish that the TNC is actually talking with the Terminal application through the Packet Engine you can go ahead with the Paclink AGW setup. Just make sure you use different call signs (or -ssid) for each application you are running.

The Terminal application can also be left running to monitor all the packet activity flowing through all the ports. Below is an example of some basic packet monitoring.



The screenshot shows a window titled "AGWTERMINAL - [Unproto Channel - Untitled]". The window has a menu bar with "File", "Fonts", "Actions", "View", "Window", and "Help". Below the menu bar is a toolbar with various icons including a printer, a floppy disk, a mouse, a keyboard, a YAPP icon, an ASCII icon, a network icon, a download icon, an upload icon, a battery icon, a speaker icon, a question mark icon, and a clock icon. The font is set to "Courier" and the size is "10". The main text area displays the following packet monitoring data:

```
1:Fm KC4YEK-9 To BEACON Via ORL-9 <UI pid=F0 Len=54 >[21:14:40]
MAIL9:MLBDIG/R:MLBKA/N:KC4YEK-9:MELB, FL APRS: EL98QC

1:Fm N4LEM-1 To ID <UI pid=F0 Len=22 >[21:19:54]
TheNet X-1J4 (COA1)

1:Fm W4MLB-9 To USERS Via MLBDIG <UI pid=F0 Len=75 >[21:20:19]
< Melbourne, FL. FPAC Switch - Connect to w4mlb-8, enter i9 for info. >

1:Fm N4LEM-1 To NODES <UI pid=CF Len=28 >[21:20:53]
FF COA1 (NetRom Routing)
N4LEM-2 #COA N4LEM-2 255
```

Finally (again from experience) once you have a working setup go into the Packet Engine working directory and copy these files to a backup directory:
AGWPE.INI and PORT0.INI, PORT1.INI etc.

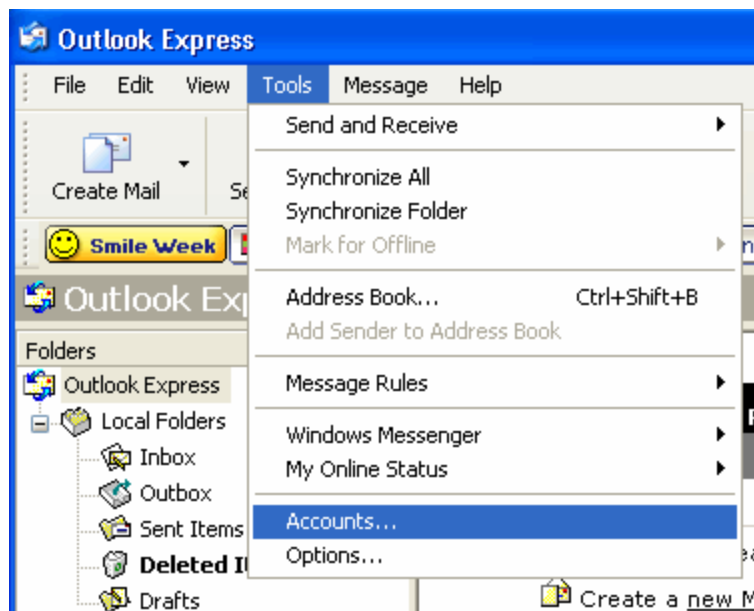
If you later have a problem and get the AGWPE miss configured you can copy these files back to get you back to your working configuration.

Appendix C. Configuring Outlook or Outlook Express.

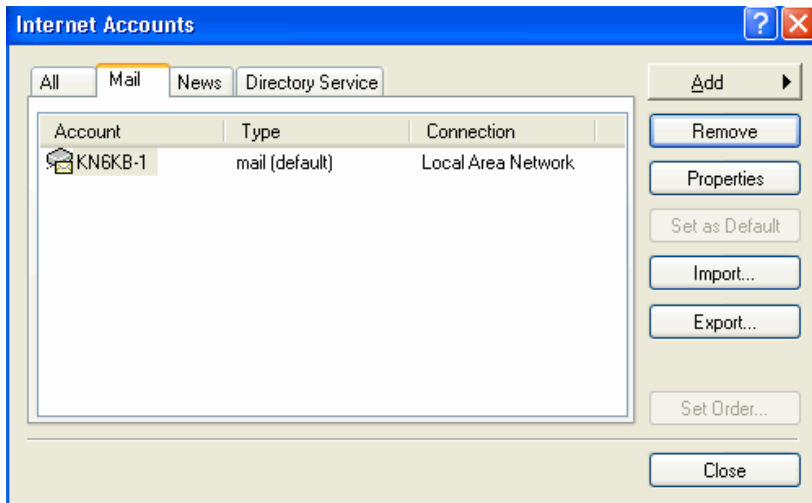
The following is a brief description of how to configure Outlook Express for operating with Paclink AGW. Paclink AGW's automatic Outlook Express setup wizard should automatically set up everything except the password which, for security, you must type in the first time. If you use Outlook or Outlook Express for your normal E-mail there is no need to re configure any other E-mail accounts you may be using. If you can't find Outlook Express on your computer try looking in Folder "C:\Program Files\Outlook Express\". The program itself is "msimn.exe". Outlook Express is a component of MS Internet Explorer 6.0. If you update your Internet Explorer to version 6 you should have Outlook express on your computer.

The following walk through is for Outlook Express but it should be quite similar to other E-mail clients compatible with POP3 and SMTP servers.

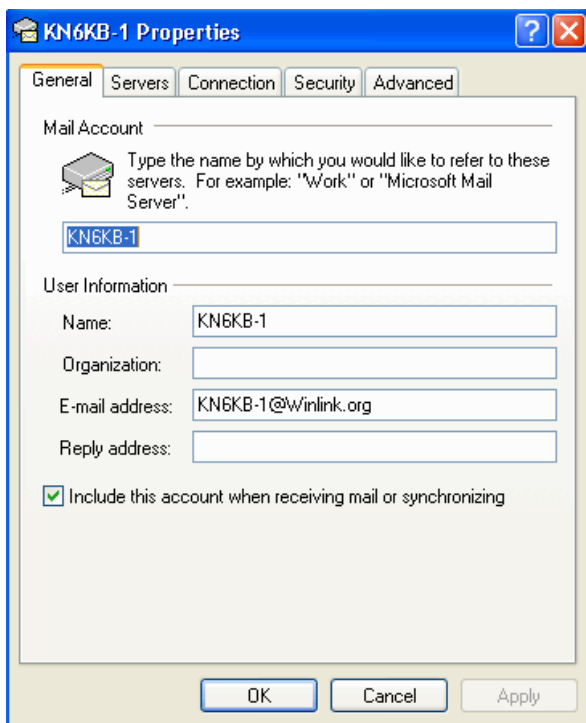
With Outlook/Outlook Express running click on the Tools menu and go down to Accounts. You should see something like this:



Click the Mail tab on the Accounts menu to see any mail accounts you have set up. This example shows a single E-Mail account:

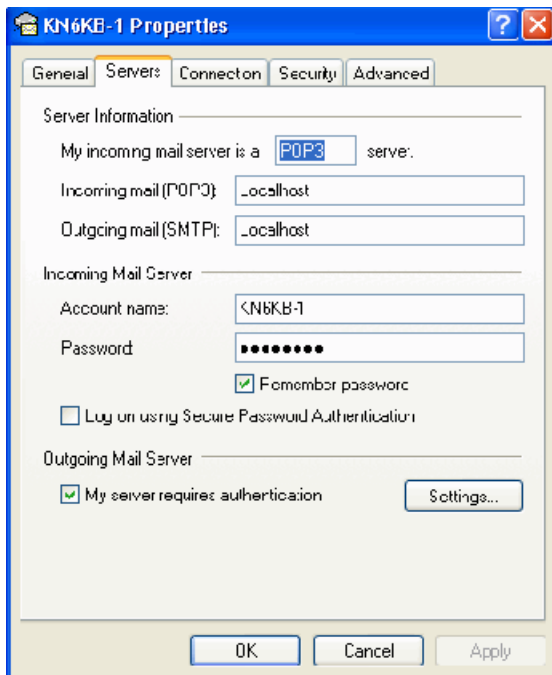


You may have additional accounts ...normally your main E-mail account is set up as your default account. For Paclink AGW you will require only ONE add additional mail account. (Note: This is different from earlier Paclink versions.) You can click “Add” to add new accounts or “Properties” to see/modify properties of a selected (highlighted) account like below.

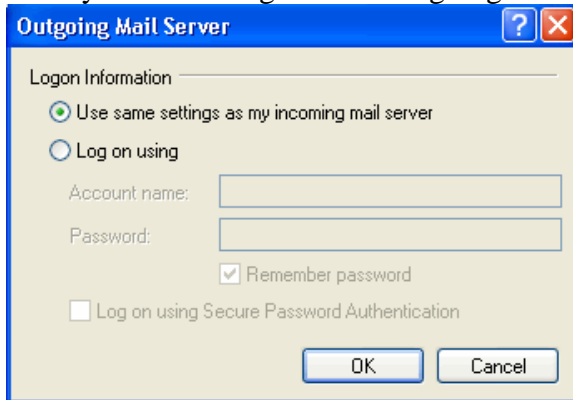


The item E-mail address above is required and establishes your call sign or tactical address within the WL2K system. It should always end in “@winlink.org”. The “Name” field above should contain the same as the Call sign that was setup in the Paclink Postoffice Properties menu.

The Servers Tab in the Outlook account setup is where the specific Account name and password used to connect with Paclink are set up as shown below. The Account name must match the call sign set up in the Paclink Postoffice Properties menu previously set up. If your Outlook and Paclink AGW are on the same computer you can simply use “localhost” for the POP3 and SMTP server names. If this Outlook setup is on a *different* computer (on a LAN for example) you must put in the computer name or dotted IP address of the computer that is running Paclink AGW for the POP3 and SMTP servers. For LAN access to work the computer running Paclink *must* have the “Local or LAN” option in the Paclink Postoffice Properties menu checked. The Password is entered on the Servers menu. Normally check “Remember password” to avoid having to type in the password each time mail is sent/received.



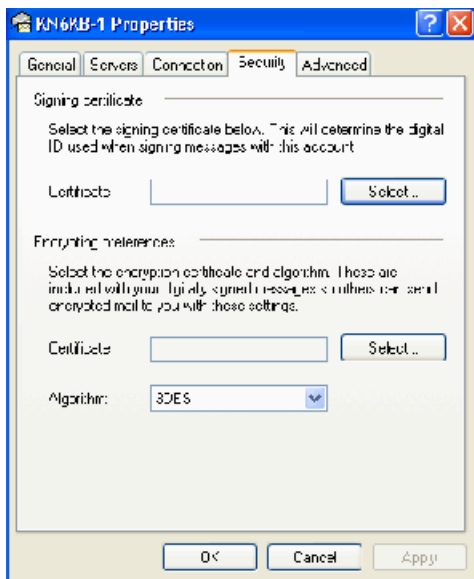
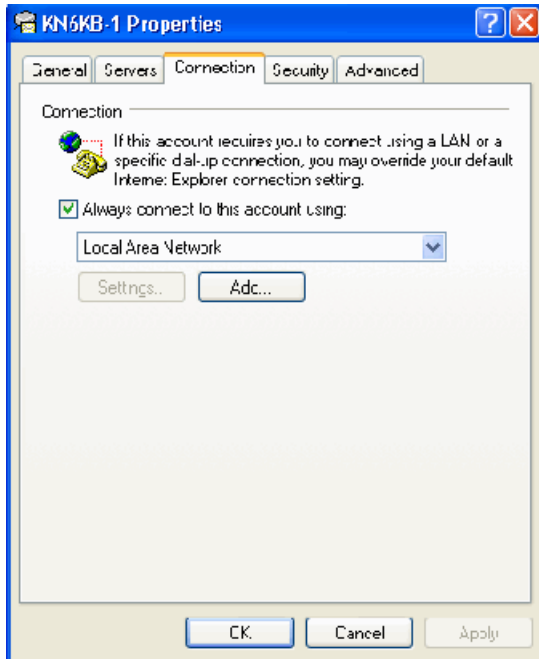
Your server settings for the Outgoing Mail Server should be set to require authentication and use the same settings as the POP3 server. Clicking the Settings button above will show you the Settings for the outgoing mail server.

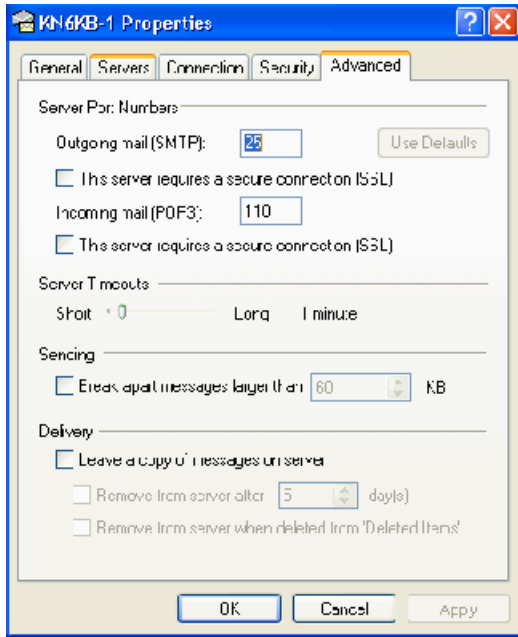


When you send mail and your Outlook/Outlook Express has multiple accounts set up you must select from which account to send the mail. On Outlook click on the small arrow on the right side of the of “Send” button to direct the mail to a specific account. For Outlook Express you select the account from the Drop down list in the From line of the message composition menu.

Other setup menus for Outlook Express:

The remaining tabs in the properties menu are normally left in their default state as shown below.





Using the New Account Setup Wizard in Outlook Express:

If you manually set up a new account in MS Outlook Express this normally invokes the “setup wizard” which walks you through most (but not all!) the setup steps for setting up a Paclink AGW mail channel. When you finish the wizard you will still have two steps to complete. From the Outlook Express main menu click Tools, Accounts. Highlight the account named “localhost” (or the Computer name or dotted IP address you set up for the servers) click properties. Select the General tab and change the name from “localhost” to the name you wish to call the channel. This should be the call sign as set up on the Paclink Postoffice Properties menu. This is the name that shows up in the drop down box in the From field of the message composition menu. Now click the Servers tab and under the Outgoing Mail Server check “My server requires authentication”. Click Apply, OK and your Paclink AGW mail account is now fully set up.

Problems Saving Passwords in MS Outlook Express:

Note there is a sometimes troublesome quirk with Outlook Express running under Win 2000 and Win XP operating systems that can cause Outlook Express not to save and remember passwords. When using Outlook Express with Paclink this will cause the authentication login to Paclink AGW’s SMTP Server to fail with a “530 Requires Authentication” error.

There is a fix for this problem (really independent of Paclink) that involves modifying specific registry settings. This is described in a step-by-step Microsoft document that is included in Appendix E.

Appendix D Using the AGW Packet Engine with Kenwood Built in TNCs.

Three of Kenwood's recent radios contain built in TNCs:

TS2000
D700
D7

These are really intended for simple keyboard or APRS (unproto) operation and have limited buffers that restrict their use in applications requiring full function TNCs. We don't recommend using these built-in TNCs however they may be able to be used with some restrictions using the AGW Packet engine (AGWPE or Packet Engine Pro)

The TS2000 and D700 have the same TNC. The D7 has a different (smaller) version.

Packet Engine Setup:

To use with the Packet Engine select the radio type (PE Pro) or TNC2 (AGWPE) as the TNC type.

The command sequence for getting the TNC into KISS mode is:

KISS ON
RESTART

Once the TNC is set up on the Packet Engine Port go to properties dialog for the Kenwood tnc Radioport.

.Go to the second TAB [Tnc Commands]

.check the "Let me control Parameters"

Maxframe to 1

Paclink AGW Setup:

In the Packet Properties frame of the Paclink AGW Channels menu set the packet length to no higher than 255...recommend 64 or 128 and set Max Outstanding Frames = 1

Due to the limitations of the TNC this isn't ideal and but it may be enough to use the built in Kenwood TNC with Paclink on 1200 baud.

Appendix E: Microsoft fix for Problems Saving Passwords in MS Outlook Express:

OLEXP: Your Outlook Express Password Is Not Retained in Windows 2000 or XP

[View products that this article applies to.](#)

This article was previously published under Q264672

For information about the differences between Microsoft Outlook Express and Microsoft Outlook e-mail clients, click the following article number to view the article in the Microsoft Knowledge Base:

[257824](#) OL2000: Differences Between Outlook and Outlook Express

IMPORTANT: This article contains information about modifying the registry. Before you modify the registry, make sure to back it up and make sure that you understand how to restore the registry if a problem occurs. For information about how to back up, restore, and edit the registry, click the following article number to view the article in the Microsoft Knowledge Base:

[256986](#) Description of the Microsoft Windows Registry

SYMPTOMS

When you run Outlook Express using Microsoft Windows 2000 or Microsoft Windows XP and connect to your Internet Service Provider (ISP) to retrieve e-mail messages from a Post Office Protocol (POP) server, your password is not retained even though you have chosen to save it.

CAUSE

The registry contains incorrect information for the **Protected Storage System Provider** registry subkey for your account.

RESOLUTION

To save your password you must back up your registry, remove the user account information, and then re-enter your password. Only people who are members of the Administrators group on the local computer can make these changes. Windows XP Home Edition users need to check the Users control panel. If they are not listed as an Administrator, someone with Administrator rights will have to add them to the Administrators group.

WARNING: If you use Registry Editor incorrectly, you may cause serious problems that may require you to reinstall your operating system. Microsoft cannot guarantee that you

can solve problems that result from using Registry Editor incorrectly. Use Registry Editor at your own risk.

How to Back up the Registry

Windows 2000

1. Click **Start**, click **Run**, type `regedt32` in the **Open** box, and then click **OK**.
2. Locate and click the following registry key:

HKEY_CURRENT_USER\Software\Microsoft\Protected Storage System Provider

3. On the **Registry** menu, click **Save Key**.
4. In the **File name** box, type a unique name for the key.
5. In the **Save In** box, click a location for the file, and then click **Save**.
6. On the **Registry** menu, click **Exit**.

Windows XP

1. Click **Start**, click **Run**, type `regedt32` in the **Open** box, and then click **OK**.
2. Locate and click the following registry key:

HKEY_CURRENT_USER\Software\Microsoft\Protected Storage System Provider

3. On the **File** menu, click **Export**.
4. In the **File name** box, type a unique name for the key.
5. In the **Save In** box, click a location for the file, and then click **Save**.
6. On the **Registry** menu, click **Exit**.

How to Remove the User Account Information

Windows 2000

1. Quit all programs.
2. Click **Start**, click **Run**, type `regedt32` in the **Open** box, and then click **OK**.
3. Locate and click the following registry key:

HKEY_CURRENT_USER\Software\Microsoft\Protected Storage System Provider

4. On the **Security** menu, click **Permissions**.
5. Click the registry key for the user that is currently logged on and ensure that **Read** and **Full Control** are both set to **Allow**.

6. Click the **Advanced** button, ensure that user that is currently logged on is selected, that **Full Control** is listed in the **Permissions** column, and that **This Key and Subkeys** is listed in the **Apply to** column.
7. Click to select the **Reset permissions on all child objects and enable propagation of inheritable permissions** check box.
8. Click **Apply**, and then click **Yes** when you are prompted to continue.
9. Click **OK**, and then click **OK**.
10. Double-click the **Protected Storage System Provider** key to expand the key, click the user subkey folder that is directly below the **Protected Storage System Provider** key, click **Delete** on the **Edit** menu, and then click **Yes** in the warning message dialog box.

The user subkey folder looks similar to the following example:

S-1-5-21-124525095-708259637-1543119021-16701

NOTE: For every identity that you have, there will be a subkey under the **Protected Storage System Provider** key. To resolve this problem in all of your identities, you must delete all of the user subkeys folders under the **Protected Storage System Provider** key.

11. On the **Registry** menu, click **Exit**, and then restart your computer.

Windows XP

1. Quit all programs.
2. Click **Start**, click **Run**, type `regedt32` in the **Open** box, and then click **OK**.
3. Locate and click the following registry key:

HKEY_CURRENT_USER\Software\Microsoft\Protected Storage System Provider

4. On the **Edit** menu, click **Permissions**.
5. Click the registry key for the user that is currently logged on and ensure that **Read** and **Full Control** permissions are both set to **Allow**.
6. Click the **Advanced** button, ensure that the user that is currently logged on is selected, that **Full Control** is listed in the **Permissions** column, and that **This Key and Subkeys** is listed in the **Apply to** column.
7. Click to select the **Replace permission entries on all child objects with entries shown here that apply to child objects** check box.
8. Click **Apply**, and then click **Yes** when you receive a prompt to continue.
9. Click **OK**, and then click **OK** again.
10. Double-click the **Protected Storage System Provider** key to expand the key, click the user subkey folder that is directly below the Protected Storage System Provider key, click **Delete** on the **Edit** menu, and then click **Yes** in the warning message dialog box.

The user subkey folder looks similar to the following example:

S-1-5-21-124525095-708259637-1543119021-16701

NOTE: For every identity that you have, there may be a subkey under the Protected Storage System Provider key. To resolve this issue in all of your identities, you must delete all of the user subkeys folders under the Protected Storage System Provider key.

11. On the **Registry** menu, click **Exit**, and then restart your computer.

How to Re-Enter Your Password

NOTE: These steps work for both Windows 2000 and Windows XP.

1. Start Outlook Express.

NOTE: If you receive a login error, close the dialog box and proceed.

2. Click **Tools**, and then click **Accounts**.
3. Click the **Mail** tab in the **Internet Accounts** window.
4. In the **Account** column, click to highlight the Internet E-mail account to be changed, and then click **Properties**.
5. On the **Server** tab, type your password in the **Password** box, and then click to select **Remember password** dialog box.
6. Click **OK**, and then click **Close**.
7. Close Outlook Express and then restart it.
8. On the **Tools** menu, click **Send and Receive** to test if your password is retained.

NOTE: If other Windows 2000 or Windows XP users are having password retention problems, re-enter the password, and then click to select the Remember Password check box for those profiles. Each user may need to log on for their password to be retained.

The information in this article applies to:

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- **Microsoft Outlook Express 5.5 for Windows 2000**
 - **Microsoft Outlook Express 5.01 for Windows 2000**
 - **Microsoft Outlook Express 6.0 for Windows XP**