



# Sound Card Packet!

## Overview

by [Ralph Milnes, KC2RLM](#)

- [AGWPE Program Setup](#)
- [Making Cables](#)
- [Windows Setup](#)
- [Packet Applications Setup](#)
- [Troubleshooting](#)

**Note:** Information on this site is also available in a PDF file for future reference. See [bottom of page for details](#).

Here's a way to send and receive packet using the **sound card** on your PC -- no TNC required!

The key is running a free utility called **AGWPE**, which was written by George Rossopulos, SV2AGW. AGWPE was designed to act as a "switchboard" between packet programs and your TNCs. AGWPE has many super features of interest to packet users, but this web site deals only with its ability to encode and decode packet tones using your **computer sound card** instead of a TNC. AGWPE is the only program that I know of that can do this, other than Flexnet. By the way, "**AGWPE**" stands for "**AGW's Packet Engine**".

Note that most packet programs will **not** work with AGWPE's sound card features. The few that will work with it include WinAPRS, APRSplus, UI-View, WinPack, and the suite of programs written by SV2AGW. The [AGWPE site](#) has information about a few other programs that will work with AGWPE.

AGWPE should work with any 16 or 32-bit Sound Blaster compatible sound card running under Windows versions 95, 98, NT, 2000 and ME. It will **not** work with plain old DOS or Windows 3.1.

Recent improvements to AGWPE allow you to:

- [Install a second sound card](#) that can be used exclusively for sound card packet. Your first sound card can then be used by Windows for other sound producing programs and devices, such as your CD player.
- Use the stereo (2 channel) features of your sound card to [interface with 2 radios](#) on different frequencies at the same time.

AGWPE will work with "on the air" baud rates of 1200 and 9600. ( I haven't tested 9600. Let me know if you try it and are successful). AGWPE **does not** yet work at either a 2400 baud or 300 baud (HF) rate, although George wants to add them in future versions.

Note that according to George, your computer must have a relatively fast (Pentium level) processor, the more RAM the better (at least 64Mb for Win 98+), and up-to-date drivers for your sound card, otherwise you will have problems with the rapid DSP (digital signal processing) performed by AGWPE.

Please note that getting AGWPE to work correctly can be tricky, since you'll need to construct three radio-to-computer cables *and* configure three different programs correctly. Hence, this web site.

There are 5 basic steps in getting AGWPE and your sound card to handle packet. These steps are discussed in 5 different pages on

- [Top of page](#)
- [AGWPE](#)
- [Cables](#)
- [Sound Card](#)
- [Applications](#)
- [Troubleshooting](#)

this site.






1. [Install and Configure the AGWPE program](#).
2. [Build radio-to-computer cables](#) -- one each for RX, TX, and PTT.
3. [Configure Windows](#)
4. [Configure a packet program](#) that will work with AGWPE.
5. [Troubleshooting](#) - but hopefully you won't need it.

Note that [these pages describe AGWPE version 2000.70 and higher](#). There were many menu and window changes in Version 2000.70, making it significantly different from earlier versions. If you're running an earlier version, the descriptions and screen shots on this page may not match.

If you get hung up, you can [e-mail me](#). I'll try to answer your questions, but I won't pretend to be the complete AGWPE sound card expert. In fact, if you find any errors or omissions on these pages, please [let me know](#). You can also [visit a web site where you can subscribe to an AGWPE list server](#) to ask for help from other AGWPE users and even the author, George, SV2AGW.

### Learn More about AGWPE

The instructions on these pages are just a shortcut to get AGWPE running. I suggest you also read the info pages at the [AGWPE web site](#) and the program [Help](#) files ([Help](#) is on the AGWPE popup menu). Then explore the program's various menu options. For example, you'll discover that AGWPE has other features:

-  it will work with multiple TNCs and multiple packet programs
-  it can automatically launch your packet programs right after it loads
-  it can direct specific packets to specific programs. For example BBS packets can be directed to your packet terminal program, while DX cluster packets heard on the same frequency can be directed to a DX cluster program (The secret? Signing in to the BBS and Cluster with different SSIDs, e.g. KC2RLM-2 for BBS and KC2RLM-3 for DX Clusters.)
-  it will automatically adjust TNC timing parameters as it senses packet traffic on the frequency.
-  it will let you use the internet to tie into the feed from a remote TNC running under AGWPE

My interest in AGWPE stems from my use of [WinAPRS](#). I later learned that my preferred packet terminal program for Windows, [WinPack](#), can also use it. That means I can now use these 2 programs *without a TNC* -- perfect for emergency and public service field work.

The information on this web site is derived from my experience and

those of several participants in the APRS Special Interest Group (SIG) reflector, in particular Bill Kearns, WB6JAR and Stephen Smith, WA8LMF.

### Get this Sound Card Packet site in a PDF file

You can get all the pages of this Sound Card Packet web site in an Adobe Acrobat PDF file, but the file is fairly large at 350 Kb. The advantage of a PDF file is that it should print better than printing directly from your browser.

#### [Get Sound Card Packet PDF file](#)

The file will come in a zip file. Expand it to get the PDF file.

If you need a zip extractor, [visit the WinZip site](#) for a copy of WinZip 8.0.

If you need to download a PDF file reader, [go to the Adobe Acrobat Reader Site](#).

 [On to step 1 - Install and Configure AGWPE](#)

-  [Top of page](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

Last Updated: **12/22/2000**

Visitors since 11/19/00:

**003089**

# Sound Card Packet (continued)

-  [Overview](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

## 1. Install and Configure AGWPE

This page describes AGWPE versions 2000.70 and later.

Quick links for this page:


- [A. Download AGWPE](#)
- [B. Install AGWPE](#)
- [C. Option: install driver for parallel port PTT control](#)
- [D. Configure the sound card for 1 radio](#)
- [E. Configure the sound card for 2 radios](#)
- [F. Using 2 Sound Cards!](#)

### A. Download the AGWPE Program



-  The AGWPE web site is at <http://www.raag.org/sv2agw/>  
There's a mirror site at <http://www.elcom.gr/sv2agw/> which may offer faster program downloads.
-  [Download the latest version of AGWPE](#) at the main AGWPE site or at [the mirror site](#).

The file comes in "zip" format. If you need an unzip program, [visit the WinZip site](#) for a copy of WinZip 8.0.

I also keep a [copy of the program](#) on this site, but it may not be the most recent version.

-  Note that AGWPE will need to use either a serial or parallel port for PTT (Push To Transmit) functions. If you think you might need to use the *parallel* port (because you want to use your serial ports for other devices), then [download the drivers.zip file](#) from the AGWPE site as well. No special drivers are needed for a serial port connection.


### B. Install AGWPE

-  Extract the zipped files into a new directory. I always create a new directory for each version of AGWPE that I download -- since the program keeps using the same file name and I want to be able to properly identify each program version. You can skip unzipping any unneeded alternate language files.
-  Note that the main AGWPE program is called [AGW Packet Engine.exe](#) You should create a Windows shortcut on your desktop to this file.

You might also add a link to it on your Windows **Start Menu**: Drag and drop a copy of the AGWPE shortcut icon onto the Windows **Start** button on the Task Bar at the bottom of your screen.



-  [Overview](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

### C. Optional: Install Drivers for Parallel Port PTT control

-  If you intend to use your parallel port for the PTT control cable, you'll need to install the special AGWPE parallel port drivers:
  - a. If you haven't already, [download the drivers.zip file](#) from the AGWPE site.
  - b. Unzip [drivers.zip](#) and then unzip the enclosed file [agwpptsc.zip](#).
  - c. Copy the file [agwlpptsc.vxd](#) file to your C:\WINDOWS\SYSTEM directory
  - d. Reboot your computer

### D. Configure the Sound Card for One Radio

-  Before starting AGWPE, always close:

-  any programs that might be using the *serial or parallel port* you plan to use for PTT control
-  any programs that might be accessing the *sound card*

(Windows, itself, shouldn't cause any problems with its sounds. However, if you are working with packet and some other program, and you do something in that other program which causes Windows to generate a sound, for example, an error 'ding', I suppose you could pipe that Windows sound out with your packet tones! - but I don't know if this is true.)

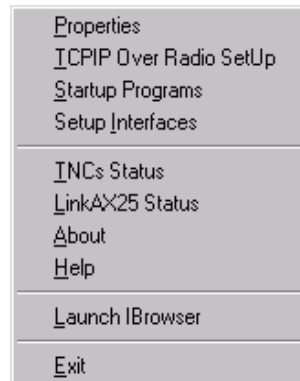
When you start the [AGW Packet Engine.exe](#) program. You should be greeted with a banner that simply says **Packet Engine** in gold letters. You can either wait a few seconds for this banner to disappear or click on it once to speed things up.



You'll then be surprised to discover that AGWPE does not put an open Window on your desktop nor will there be a button on the bottom Task Bar!

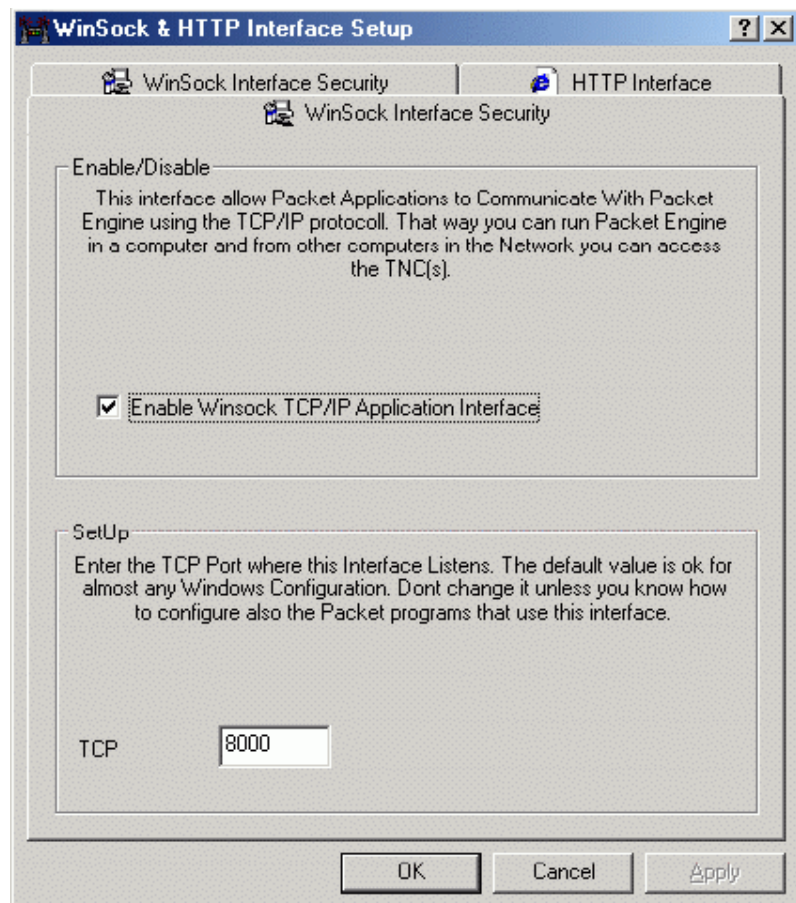
Instead, all you'll find is a '[Packet Engine](#)' icon on your Windows System Tray at the bottom of your screen near the time of day.  This icon is your primary access to AGWPE when it is running!

✚ To configure AGWPE for the first time, click on the **Packet Engine** icon  to bring up AGWPE's pop up menu:




- ✚ [Overview](#)
- ✚ [Cables](#)
- ✚ [Windows Setup](#)
- ✚ [Applications](#)
- ✚ [Troubleshooting](#)

1. On the menu, click once on **Setup Interfaces**. On the resulting **Winsock & HTTP Interface Setup** window, make sure the **Enable Winsock TCP/IP Application Interface** box is check marked (click in the box to checkmark it). This is essential for interfacing WinAPRS, APRSplus, and UI-View with AGWPE in TCP/IP mode.



Then press the **OK** button once and then again on the window telling you the change will take effect immediately.

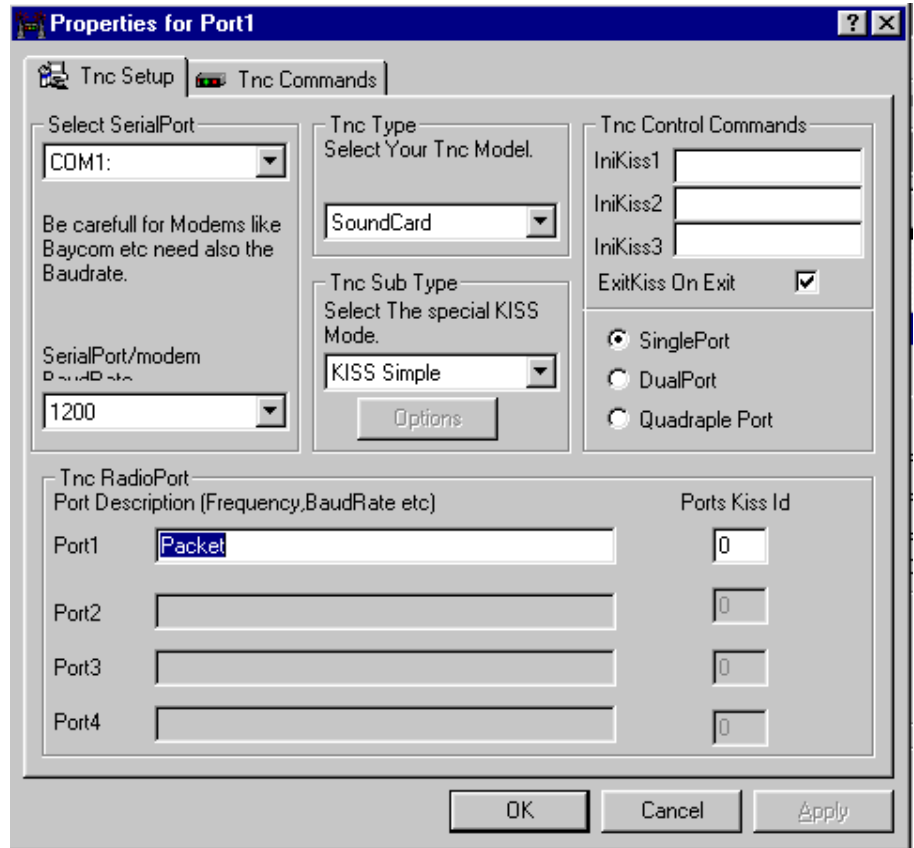
2. Click on the **Packet Engine** icon  again to re-launch the popup window.

3. Click on **Properties** .



4. A blank **RadioPort Selection** window will open. Press the **New Port** button on the right.
5. A message window will appear: "A New TncPort File Has Been Created". Click **OK**.
6. The **Properties for Port 1** window should now appear. Here's a sample of how it might look after you fill in some of the boxes (see below for more information):

-  [Overview](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)



**Properties for Port1**

**Tnc Setup** | Tnc Commands

Select SerialPort: COM1

Be carefull for Modems like Baycom etc need also the Baudrate.

SerialPort/modem BaudRate: 1200

Tnc Type: Select Your Tnc Model. SoundCard

Tnc Sub Type: Select The special KISS Mode. KISS Simple

Options

Tnc Control Commands

IniKiss1:

IniKiss2:

IniKiss3:

ExitKiss On Exit: ☒

☒ SinglePort  
☐ DualPort  
☐ Quadraple Port

Tnc RadioPort

Port	Port Description (Frequency,BaudRate etc)	Ports Kiss Id
Port1	Packet	0
Port2		0
Port3		0
Port4		0

OK Cancel Apply

Make the following selections in the **TNC Setup** tab window:



<b>Select Serial Port</b>	enter the port where you will attach your PTT cable, e.g. <b>COM1</b> .*
<b>Serial Port/Modem Baud Rate</b>	select the 'on air' packet baud rate, i.e. <b>1200</b>
<b>TNC Type</b>	select ' <b>Sound Card</b> '. (Don't select PSASoundCard, unless you are sure that you have one.)
<b>TNC Radio Port Port Description</b>	enter a description of your choice, for example, <b>Kenwood on 144.39</b>

\* **Notes about serial port selections:**



- **To select a parallel port** scroll to the bottom of the serial port list
- **If you are setting up a receive-only installation** and don't want to tie up a real port for a PTT you won't be using, the AGW software **will accept non-existent parallel port** assignments (after the parallel driver is installed [as described above](#)), but not nonexistent serial ports.

All other selections can remain "as is" (use the default selections), including those in the **Tnc Commands** tab window. Select the **OK** button at the bottom of the window. You should get a popup message telling you to restart the program, so....

7. Click on the **Packet Engine** icon  once again and select 'Exit'.

8. Restart AGWPE. The **Packet Engine** icon  should once again appear, but in addition you should now see a **TNC icon**  next to it.

If you don't see this **TNC icon**, it's likely you have a conflict with another program or device:

-  Make sure that the COM or LPT port you have select in AGWPE is not already dedicated to another device (for example, an internal modem or printer) or has been "captured" by another program (for example, your Palm Pilot's "Hot Sync Manager"). You'll have to resolve any conflicts by closing the other program, disabling the device, or using another port for AGWPE.
-  Make sure that no other program is running and using the the sound card.

If you want to change a setting in the Radio Port's configuration to resolve a conflict, go back to step #3 above and click on the radio port you want to change. Then click on **OK** and pick up at step #6 above.




Alternatively, you can close AGWPE completely, delete any **port\*.ini** and **agwpe.ini** files in your AGWPE directory/folder, and then restart and re-configure AGWPE from the very beginning.

For more troubleshooting help with port or device conflicts, [go to this site's Troubleshooting: Software page](#).

## E. Configure AGWPE and the Sound Card for Two Radios

Beginning with version 2000.76, AGWPE is able to use the stereo capabilities of the sound card to **interface with two radios simultaneously!** To make the appropriate cables, see [section F of the Cables page](#).

To handle the second radio, you'll need to configure AGWPE as if it were "dual port" TNC:

-  Click on the **Packet Engine** icon  to bring up AGWPE's pop up menu
-  Click on **Properties** and then, with **Port 1** highlighted, click on **OK**.



✚ When the Properties box opens make these three changes:

[ ] Click on the **Dual Port** choice in the far right column of the window.

[ ] Make sure the **ExitKiss on Exit** box is **not check-marked**.

[ ] The **Port2** field should now be active (turns from grey to white). In this field, type in a name of your choice for Port 2, e.g. the name of radio and frequency or application and frequency. You can also edit Port1's name at this time if you want.

**Properties for Port1**

Tnc Setup | Tnc Commands

Select SerialPort: COM1

Be carefull for Modems like Baycom etc need also the Baudrate.

SerialPort/modem BaudRate: 1200

Tnc Type: Select Your Tnc Model. SoundCard

Tnc Sub Type: Select The special KISS Mode. KISS Simple

Options

Tnc Control Commands:

IniKiss1:

IniKiss2:

IniKiss3:

ExitKiss On Exit: ☐

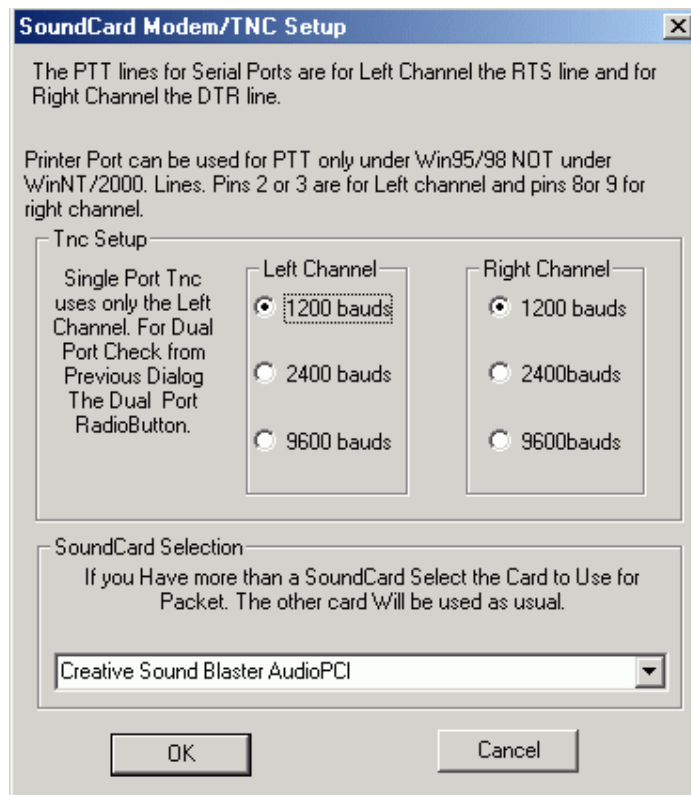
SinglePort ☐ DualPort ☒ Quadraple Port ☐

Tnc RadioPort:

Port	Port Description (Frequency, BaudRate etc)	Ports Kiss Id
Port1	APRS -144.39	0
Port2	DX Clust - 145.01	16
Port3		
Port4		

OK Cancel Apply

**High Speed Option:** Under the **TNC Sub Type** choice of **KISS Simple** there is an **Options** button. Clicking on the **Options** button brings up the **SoundCard Modem/TNC Setup** window that lets you change the "on air" baud rate for each channel.



By default, the "on air" rate is set at 1200 for both channels. You wouldn't need to change these settings unless you have a radio that will run packet at a higher speed (9600) **and** you will be communicating with someone who is also capable of that higher speed.

Note that although there is an option to run at 2400 baud, AGWPE can **not** do this as of version 2000.78.

**NOTE:** If you have any unusual difficulties in changing from single port to dual port operation, it may just be easier to:

- ✚ exit from AGWPE
- ✚ delete all **port\*.ini** and **agwpe.ini** files in the AGWPE directory/folder
- ✚ restart and re-configure AGWPE from the very beginning-- it doesn't take long.

## **F. Using 2 Sound Cards**

As of AGWPE version 2000.78, you can install a **second** sound card in your computer and configure it to be used for sound card packet use only. Doing this lets you use the first sound card for your other Windows programs and devices, such as a CD player.

Ideally your second sound card will be "plug-and-play" and Windows will automatically recognize it when you boot up after installing it. Otherwise you will need to use the Windows **Control Panel** option, "**Add New Hardware**", to tell Windows about the sound card and install the appropriate drivers.

After the second sound card is installed in Windows, AGWPE should automatically recognize it and the first card. To select the sound card you want to use for sound card packet, call up AGWPE's main menu,

select **Properties** and then, with **Port 1** highlighted, click on **OK**. The **Properties for Port1** box will then open. Under the **TNC Sub Type** choice of **KISS Simple** there is an **Options** button. Click on the **Options** button to bring up the **SoundCard Modem/TNC Setup** window (see graphic immediately above). At the bottom of this window is a **Sound Card Selection** dialogue box where you can select the sound card you want AGWPE to use. Click on the down arrow to the right of the box to see your choices.

**NOTE:** I have not tried this feature, since I only have one sound card in my computer. So, I am not sure which sound card Windows will select for its default sound card. I suspect it will be the first sound card it finds listed in the Device Manager (**Start: Settings; Control Panel: System: Device Manager: Sound, Video and Game Controllers**). If so, then you would then tell AGWPE to use the second sound card listed. Trial and error may be the ultimate way to sort this out: temporarily attach speakers to the LINE OUT jacks on each sound card to test which sound card is being used by Windows and which is being used by AGWPE.




[Let me know](#) the answer if you try two sound cards and get it to work.

 [On to step 2 - Construct your radio-to-sound card cables](#)

-  [Top of page](#)
-  [Overview](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

Last Updated: **12/21/2000**

# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

## 2. Radio-to-Computer Cables

**Quick Links to spots on this page:**

- [A. Connectors at the Radio End of the Cables](#)
- [B. RX \(Receive\) Audio Cable](#)
- [C. TX \(Transmit\) Audio Cable](#)
- [D. PTT \(Push to Talk/Transmit\) Cable](#)
- [E. Attaching the Cables](#)
- [F. Cables to Interface with Two Radios](#)

To control one radio, you'll need three (3) cables, one each to handle the RX, TX, and PTT functions. (**Note:** As of AGWPE release 2000.76 of Oct. '00, AGWPE can interface with **two** radios. See [2 radios](#) below.)

All three cables should be made with 2 wire "shielded" wire. Make sure you build them long enough to reach from your radio to your computer sound card jacks, especially for fixed position radios and computers!

Two of the cables will need small circuits. Those circuits have the same basic design as those suggested for [PSK31](#). I've seen several variations on the circuits, but the simple variations below worked for me. You'll find other variations -- and nicer drawings -- at [WM2U's PSK31 site](#) or at [Buck's \(K4ABT\) Packet Site](#). Some have isolation techniques to eliminate computer hum or stray RF on the cables, in case that turns out to be a problem.

Circuit components should be readily available at your local Radio Shack or other electronics store. You'll also find some very attractive prices for components *and even complete cable kits* at [Buck's online store](#).

### A. Connectors at the Radio end of the Cables

If you need your radio's "pin out" information, you'll probably find it at [Buck's packet site](#).

-  **Handhelds:** Most HTs have 'Mike' and 'Speaker' jacks that can accept a mini or submini plug.

For the "RX Out/Speaker" jack, most rigs require a 1/8" (3.5mm) mono (2 conductor) mini-plug (Radio Shack part #274-286 black or #274-287 red -- pkg. of 2).

For the "TX in/Microphone/PTT" jack, most require a 3/32" (2.5mm) mono (2 conductor) sub-mini plug (Radio Shack part #274-289 black or #274-290 red -- pkg. of 2).

- ✚ **Mobiles:** You'll probably need to use the microphone connection, unless your rig has a separate "data" plug connection. You'll need to obtain the appropriate mike or data plug from Radio Shack or another parts outlet, such as [Buck's online store](#) . All three sound card cables can attach to this plug.

For RX audio output it's best to use the pin on the rig's mike/data connector, since it provides a constant audio output level. You can use the radio's "Speaker Output" jack instead, but remember that the audio output level is now dependent on the setting of the rig's "volume" control.

## B. RX Audio Cable (Radio RX Audio to Sound Card "Line In" or Microphone)

This is simple cable with no special circuitry needed. The computer end of the Rx audio cable will need a plug that will fit in your sound card's "Line In" jack, probably a 1/8" (3.5mm) stereo (3 conductor) male mini-plug (Radio Shack part #274-284 -- pkg. of 2).

If your sound card doesn't have a "Line In" jack, you'll need to use the more sensitive "microphone" jack, but the "Line In" jack is the preferred jack because it can handle higher voltage.

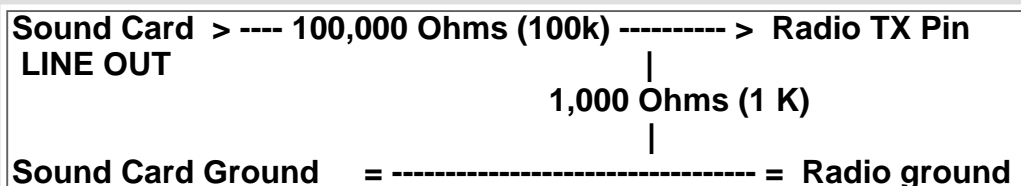
- ✚ Wire the "RX Audio" line from the radio to the center conductor (tip) of the sound card plug.
- ✚ The middle conductor (ring) should be left unwired.
- ✚ Wire the "Ground" to the outer conductor (sleeve) of the plug.
- ✚ Connect the shield wires to GROUND at the radio end, but do NOT connect the shield wires to the GROUND conductor at the sound card end and insulate them from the other two wires.

When you're done, I suggest taping a "Line In" (or "Microphone") label on the sound card end of this cable -- and likewise a "Line Out" label on the TX cable below -- so that you don't confuse these two cables.

## C. TX Audio Cable (Sound Card "Line Out" to Radio TX Audio)

The TX audio cable requires a circuit to attenuate the voltage leaving the sound card. A 100:1 attenuation (40 dB) will reduce the sound card output level (about 1 volt ) down to the level your radio would expect from a microphone (about 10 millivolt ).

Here's a crude schematic:



At the computer end of the cable, you'll again probably need a 1/8" (3.5mm) stereo male plug to fit into the sound card's "Line Out" jack. I was able to fit the attenuation circuit (the 2 resistors) right inside the plug shell.

Once again, leave the ring unwired and attach the cable *shield* to the Ground at the radio end but NOT at the sound card end. Put a "Line Out" label near the sound card plug.

Isolation option: It's possible that ground loops on receive or transmit, or RF feedback on transmit, may cause problems in reception or transmission. If that happens, you can isolate the RX or TX line, or both, with either a 1:1 audio isolation transformer (Radio Shack #273-1374) or [other isolation circuit](#) . I didn't detect any problems with my lines, so I didn't need to do this.

Or buy an attenuating cable: Radio Shack sells an Attenuating Dubbing Cord, Cat.#: 42-2152, for \$3.49. It's 6 1/2 feet long and comes with 3.5 mm mono plugs on each end. Someone suggested this to me but I don't know if it has the correct attenuation. Let me know if you try it.

#### D. PTT (Push to Talk/Transmit) Cable

Of course for the packet tones to be transmitted, the radio's PTT circuit must be opened somehow. AGWPE (and the PSK31 program) handle this by sending a signal to the RTS pin of the serial (COM) port or parallel (LPT) port on your computer. You then need to build a 'gate' circuit that uses the signal to open the radio's PTT circuit.

Here's a simple COM port connection circuit from the ARRL's July 2000 "QST" (p.55):

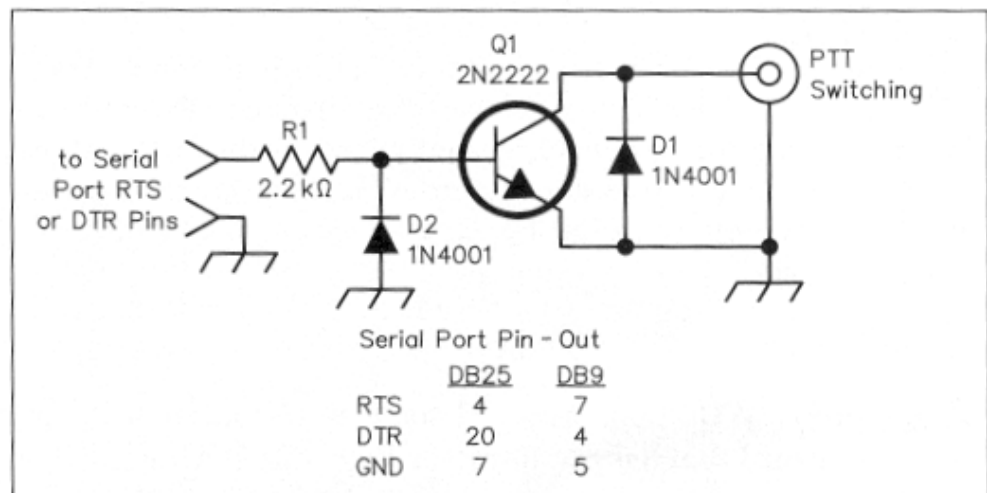


Figure 1—A COM port switching circuit modified with the addition of a shunt diode (D2) between the base of transistor Q1 and ground.

Parts are available at Radio Shack. For Q1, I used a MPS2222A NPN transistor (part # 276-2009). The 1N4001 diodes (D1 and D2) are part #276-1101A.

With a little shoe-horning, I was able to fit all components of this circuit right inside the DB9 connector that attaches to the serial port.



Use the RTS pin # 7 for a one radio cable. If your serial port uses a DB25 COM connection, you'll use pin 4 for the PTT line and pin 7 for the GROUND. Note that these pins refer to a DB25 *serial (COM)* port not a DB25 *parallel (LTP)* port.

If you want to use the computer's *parallel (LTP)* port connection (DB25) for PTT control (instead of the serial port), use LTP pin 2 for the PTT line and any pin 18 thru 25 for the GROUND. Please note that if you use the parallel port for the PTT circuit, you'll also need to install [special AGWPE drivers for the printer port](#) -- see page 1.

### Some Cabling Tricks:

1. To make it easy to use *either* the serial port or printer port for AGWPE, Bill, WB6JAR, came up with this clever design: run a short pigtail cable from the serial DB9 connector to a parallel DB25 connector. Connect the serial pin 7 (RTS) to the parallel's pin 2 and serial pin 5 (GND) to the parallel's pin 20.

2. I have several TNCs and several radios, and sometimes "mix-and-match" them. The problem is that I didn't want to make a unique cable for each combination. So instead:

I made just *one* cable for each radio which terminates in a *male* DB9 connector.

And I made just *one* cable for each TNC which terminates in a *female* DB9.

Then, depending on which radio and TNC combination I want to use, I plug the DB9 connectors together.

The key is to establish a common wiring plan for the DB9 connectors, something like:

#### Radios

#### TNCs

TX audio pin>--DB9 male pin 1		DB9 female pin 1 ---> TX audio pin
PTT pin>-----DB9 male pin 2		DB9 female pin 2 ---> PTT pin
RX audio pin>--DB9 male pin 3		DB9 female pin 3 ---> RX audio pin
Ground pin>----DB9 male pin 5		DB9 female pin 5 ---> Ground pin

For my *packet sound card cables*, I just adopted the TNC (DB9 female) scheme. I can now plug my sound card cables into *any* of my radio cables.

**A side benefit of this scheme -- Use Your Sound Card Packet Cables to Run PSK31!** Since the cables and circuits needed for sound card packet are probably identical to the ones you would need for PSK31, you're half way to a PSK31 cable. Just make a cable with a connection for your HF rig that terminates in a DB9 *male*. Then plug the DB9 *male* into the DB9 *female* end of your sound card packet cables and you're ready to run PSK31.

## E. Attaching the Cables

After you've built your cables, check your soldering and physical integrity of the cables with a continuity tester on each line. Also check the resistance on the TX cable. When you're satisfied for now that the cables should work correctly, attach them at the radio and at the computer.

- ✚ The PTT cable (DB 9 or 25) will attach to the COM or LTP port of your choice.
- ✚ The TX cable will attach to the the sound card "Line Out" sound card jack. Although some sound cards have both LINE OUT and SPEAKER jacks, most have only one output jack, so you'll **either** have to unplug your speakers **or** get a Y-cable to connect both the speakers and the TX cable at the same time (and be prepared to turn off your speakers if the packet screeches get to loud!)
- ✚ The RX cable should best go to the sound card "Line In" jack. Alternatively, it could go to the "Microphone" jack, but the "Line In" jack is better suited to handle the voltage coming from the radio.

## F. Cables to Interface with 2 Radios

Starting with version 2000.76, AGWPE can use the sound card to interface with TWO different radios at the same time -- no TNCs required. It does this by using the left and right stereo channels of the sound card, in effect making the sound card "dual port".

This means you can have 2 different packet programs running, each one sending and receiving data with a different radio on a different frequency. Or, if you use WinAPRS, you can use both radios! Have one tuned to the local APRS frequency and the other to the local DX cluster frequency and WinAPRS will plot both local and DX stations on its maps! See the [WinAPRS Applications page](#) for more information

To run a second radio with the sound card, you'll need to make use of the **ring** on the stereo sound card jacks; and the **DTR** pin on the serial/parallel port for PTT control.

Here's the pin and plug assignments for "dual port" sound card use:

AGWPE Port	Sound Card Channel	Stereo Plug	PTT Pin	DB9 serial pin # GND		DB25 serial pin # GND		DB25 Parallel* data pin # GND	
1	Left	Tip	RTS	7	5	4	7	2 or 3	18-25 (any)
2	Right	Ring	DTR	4	5	20	7	8 or 9	18-25 (any)

**\* NOTE:** If you are running Windows 2000/NT, you can not use the **parallel (printer)** port for 2 radio packet. You must use the serial port. The parallel port option will work only with Windows 95 and 98 (and perhaps Windows ME, but I haven't test it.)

### 1. Audio Cables

Sections B & C on this page (above) describe how to make a cable for a radio which would be on the **left** channel of the sound card or Port 1 in AGWPE. Such a cable uses the **tip** of the stereo TX and RX plugs and the **RTS** pin on the serial/parallel port plug for PTT control. If you already have a set of cables, they are probably wired like this.

Now you need to make the RX and TX **audio** cables for the second radio, which will be on the **right** channel or Port 2 in AGWPE (the **PTT** cable is discussed in #2 below). Here are two different approaches for the audio cables:

- ✚ **Cheaper but harder -- wire it yourself:** Using the cables created in B & C above, add a second cable to each plug. One wire will run from the unused **ring** (middle conductor) of the sound card plug to the proper pins (RX or TX) on radio #2. You'll also need to attach a ground wire that runs from the ground (outer) conductor in the plug to the radio ground. Any shielding wires should attach to the ground on the radio but they should NOT attach to the ground on the computer.

You'll need to make this alteration for **both** the RX **and** TX plugs. You'll also need to add an attenuation circuit (see C above) for the TX audio cable.

- ✚ **Easier but a little more expensive -- buy two "Y" adapters (Bill's, WB2JAR, idea):** Rather than try to squeeze the wires from both radios into the same sound card plug, use a "Y" adapter. The "Y" plugs into the sound card jack and then the audio cables from each radio plug into the arms of the 'Y'.



Separates left and right-channel signals. Has a 3.5mm stereo phone plug & two 3.5 mm mono phone jacks.

Bill suggests Radio Shack part #274-375 (\$3.59 each) which even does the channel separation for you! Of course, you'll need 2 of these adapters -- one for the sound card's LINE IN jack (RX audio) and one for the sound card's LINE OUT jack (TX audio).

The best part of these adapters is that you plug simple **mono** cables into their jacks. No need for stereo/3 line cables and no need to worry about "tip" or "ring" assignments. The adapter handles that.

The **silver** plated jack on the 'Y' is used for the cable coming from **radio #1**. It's wired to the **tip** of the adapter's stereo plug and provides the connection to the **left** channel of the sound card (AGWPE Port 1).

The **gold** plated jack on the 'Y' is for the cable coming from **radio #2**. It's wired to the **ring** of the adapter's stereo plug and provides the connection to the **right** channel of the sound card (AGWPE Port 2).

If you come up with another method [let me know](#).

Regardless of which method you use, remember that you'll need an attenuation circuit for the **TX** audio line going to the second radio (see section C above); or consider a ready-built attenuating cable, such as Radio Shack's "Attenuating Dubbing Cord", Cat. #: 42-2152 (\$3.49); 6 1/2 feet long with mono 3.5mm plugs on both ends.

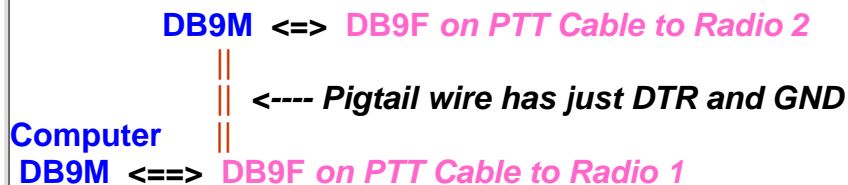
## 2. PTT Cable

To control the PTT on the second radio, you'll need to add a wire that will run from the serial port DTR pin (or printer port pin 8 or 9) to the radio and you'll need to build a second PTT circuit on this line (see section D above).

I haven't heard of an elegant way to interface 2 PTT cables to the same COM (or LPT) port, so you might try one of these methods:

- ✚ **Wire both PTT cables into the same DB9F (or 25) connector.** I don't know if you'll be able to shoe-horn in both PTT circuits ([see D above](#)). The other downside of this method is that, if you want to use just one radio, the PTT cable for the second radio will always be attached to the DB9, and this might be cumbersome.
- ✚ **"Pigtail" a DB9M (or 25) plug on to your original DB9F connector.** The pigtailed DB9M can then be used to mate with a DB9F from a separate PTT cable for the second radio. This method lets you easily remove the second PTT cable if you're not using it. It also offers room for the second PTT circuit -- in the second DB9F.

### Pigtail for a Serial DB9:



Again, let me know if you come up with a better method.






Finally, don't forget to [change the AGWPE program settings to create a "dual port" sound card](#).

✚ [On to Step 3 - Configuring Windows](#)

- ✚ [Top of page](#)
- ✚ [Overview](#)
- ✚ [AGWPE](#)
- ✚ [Windows Setup](#)
- ✚ [Applications](#)
- ✚ [Troubleshoot](#)

Last Updated: **12/24/2000**

# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Applications](#)
-  [Troubleshooting](#)

## 3. Windows Setup

Two components in Windows must be set correctly for AGWPE to work:


### [A. TCP/IP Settings](#)

### [B. Volume Control settings](#) (controls Sound Card behavior)

### [C. Special Note for Windows 95 users only](#)

#### A. TCP/IP Settings

AGWPE use the Window's [Winsock TCP/IP Application Interface](#) to communicate with many packet application programs, including WinAPRS, APRSplus and UI-View. For this interface to work, TCP/IP must be enabled in **both** Windows and AGWPE:

-  **Enabling TCP/IP in Windows :** To quickly check if TCP/IP is enabled in Windows, go to the [Control Panel](#) (press the [Start button](#), then [Settings](#), then [Control Panel](#)). Then select [Network](#) and look in the list of installed components (use the scroll bar if you can't see the full list). You should see [TCP/IP](#) (or [TCP/IP > Dialup Adapter](#)).

If it's not there, first make sure that you have [Dialup Adapter](#) on that same components list. If it's not, you can install it as follows: from the [Control Panel](#), select [Add/Remove Programs](#). Then click on the [Windows Setup](#) tab and then select (one click) [Communications](#). Now press the [Details](#) button and then click on/check mark [Dial Up Networking](#). Press the [OK](#) button twice. (You then may be prompted for your original Windows installation disks for the required files.)

Now, with the [Dialup Adapter](#) installed, install the [TCP/IP](#) protocol. Select [Control Panel](#) again, then [Network](#). Now select [Add](#), then double click on [Protocol](#), then [Microsoft](#), then [TCP/IP](#), then [OK](#).

**Note that if you are using Windows 95**, you must also have the [Winsock 2 update](#) installed, otherwise the TCP/IP interface will not work correctly with AGWPE.

- ✚ **Enabling TCP/IP in AGWPE :** By default AGWPE installs with the **Winsock TCP/IP Application Interface** set to **inactive**. You can activate it by opening the AGWPE menu, clicking on **Setup Interfaces**, and then checking the box for **Enable Winsock TCP/IP Application Interface**. [Other programs, such as WinPack, may instead use the Window's **DDE Interface** to communicate with AGWPE. DDE requires no special AGWPE settings.]

### Testing the TCP/IP Setup in Windows

Thanks to Roger Barker, G4IDE, for the following:  
(adapted and revised for AGWPE version 2000.70+)

If you have any doubts that the TCP/IP interface is working properly, here's a very simple way to check it:

1. Start AGWPE. Click on the Packet Engine icon on the system tray. On the menu, click on **Setup Interfaces**. Make sure **Enable Winsock TCP/IP Application Interface** is checked. Click **OK** to close the menu
2. Click again on the icon and then click on **About**. The last two lines should say "**SocksAPIServer Active**" and "**SocksAPIConnections 0**".
3. Run the Win95 Telnet program, TELNET.EXE. Quite a lot of people don't realize it exists; it's in the main Windows folder.
4. From the menu, select **Connect, Remote System**; then Host Name: **127.0.0.1**, Port: **8000** (type 8000 over the menu choices); Term Type: **VT100**
5. If the program title bar changes from **Telnet - [None]** to **Telnet - 127.0.0.1**, then everything is fine. Go to #6.


If instead you get a message "**Could not open a connection to 127.0.0.1**", then there's something wrong with your TCP/IP set-up. See step 8.

6. Click the Packet Engine icon again, and select **About**. It should now say "**SocksAPIConnections 1**".
7. Go back to In Telnet. Select **Connect**, then **Disconnect**, and close the program. Another check on **SocksAPIConnections** in AGWPE should show that it's gone back to 0."







## B. Configuring the Sound Card "Volume Control" Program

To get AGWPE to work, the Window's **Volume Control** program must be configured correctly. The Volume Control program controls both the audio *volume and sources* of the sound card, both in and out. An incorrect setting can prevent audio from getting into or out of the sound card, so you need to get it right!

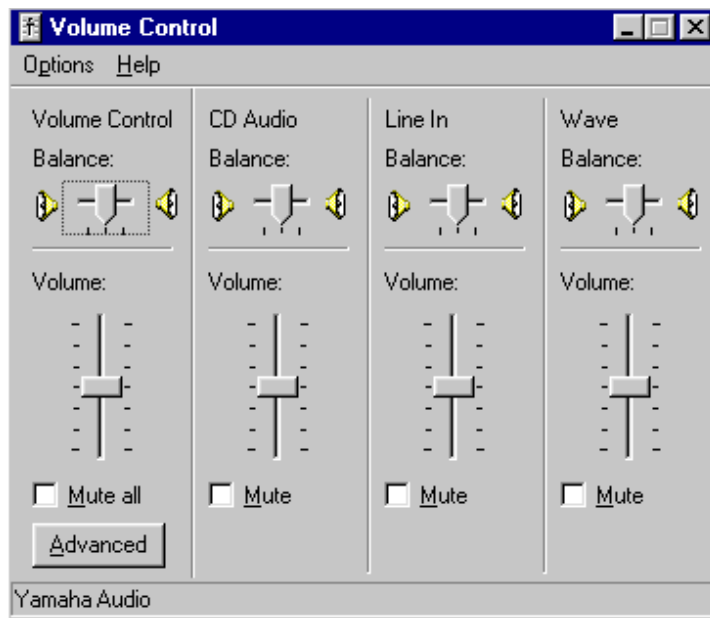
Usually you can find the Volume Control program icon on the right side of the Windows task bar at the bottom of your screen. The icon looks like this: 

If it's not there now, here's how you can put it there for future convenience:

-  From the Windows "Start" Button on the bottom Task Bar, follow this menu path:  
**Programs/Accessories/Entertainment/Sound Recorder**
-  When **Sound Recorder** starts, click on **Edit**, then on **Audio Properties**
-  Check the box for **Show Volume Control on Taskbar**.
-  Click **OK**. The Volume Control speaker icon should now appear on the Windows System Tray at the bottom right of your screen. It should appear there each time you now start your computer

### 1. Configuring Volume Control for Audio Out (Radio TX audio)

-  Left click twice very quickly on the **Volume Control icon**. The **Volume Control** window should open. It displays settings for **outgoing** audio (sound card to the radio or computer speakers). Here's what the window looks like in my system; yours may be somewhat different:

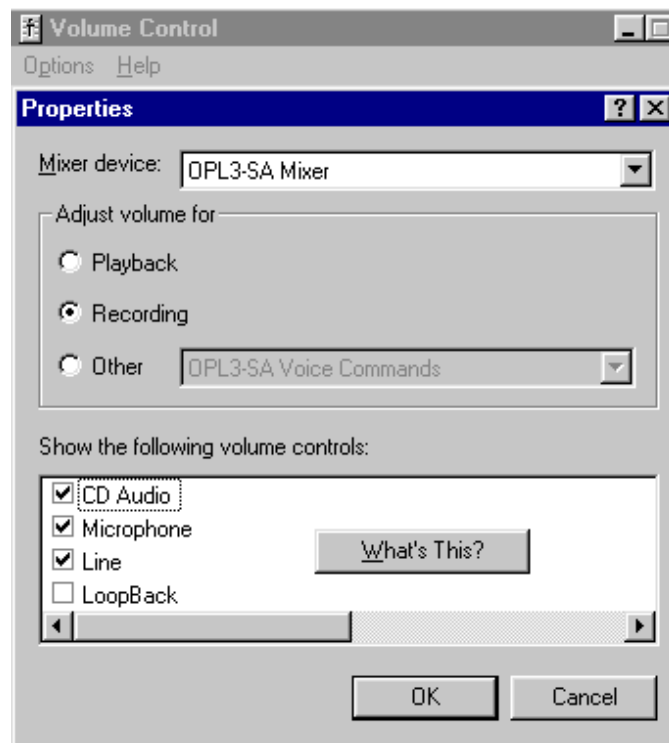


- ✚ The only settings of importance on this window are in the left most **Volume Control** column and in the **Wave** column. (Consider **Wave** to mean **Programs**.)
  - The 'Volume' sliders work together. The **Volume Control** slider is a master control that will further adjust the **Wave** volume. I've had good success with both sliders set 2/3 to 3/4 up from the bottom. (You may need to experiment with these volume levels if you think your packets are not being received well because they are either too weak or too loud.)
  - It's essential that neither slider be at the absolute bottom or near it.
  - It's essential that the **Mute** boxes are **not checked**.
  - Leave the **Balance** sliders in the middle. They are for stereo channel control and setting the slider to the wrong side could mute outgoing sounds.

## 2. Configuring Volume Control for Audio In (Radio RX Audio)

The source (and volume) settings for **incoming** audio (radio RX to the sound card) are found in a **different** Volume Control *sub-window*:

- ✚ From the **Volume Control** window shown above, select the **Options** menu choice, then **Properties**.
- ✚ Click on the **Recording** radio button to bring up the list of volume controls. Make sure that there's a check mark next to the jack where you plugged in your **radio RX audio** cable -- either **Line In** (preferably) or **Microphone**. Here's what this window looks like on my system.



- ✚ When you're done, click on the **OK** button.
- ✚ You should now see the **Recording Control** window.

- Click the **Select** box for the jack where you will plug in your **radio RX audio** cable, either the **Line In** (preferably) or **Microphone**.
- Set the volume slider in the middle.
- Leave the balance slider in the middle.

Since I use the **Line In** jack for Radio RX audio in, here's what my settings look like. Notice the check mark for **Select** under **Line In**:



- After you've made your choices, click the 'X' in the top right corner of the window to close the window and the Volume Control program. Your settings will be saved automatically.

**Warning!** For some sound cards/systems, it's possible that -- anytime Windows reboots -- your Volume Control settings may automatically be reset to something other than you want. This happened to me with a Yamaha card. Even though I chose **Line In** as my desired 'audio in' recording source, as soon as I rebooted, **Microphone** became the audio source! I'm not sure why this was happening -- perhaps it was the sound card mixer program -- but I couldn't figure out how to save my desired Volume Control settings.

If this happens to you, you have two main options:

- Each time you run AGWPE after a Windows boot/reboot, re-configure the Volume Control **Recording Control** properties (all the steps in 'B' above) and re-select **Line In**.
- Or do what I did -- use a utility program that, on startup, automatically sets the Volume Control settings the way you want them. I used a small (260 kb) freeware utility called **QuickMix** to do this. You can [download the program from the Quick Mix web site](http://www.quickmix.com/).

### Using QuickMix

1. Install QuickMix by running the QuickMixIn.exe program that you downloaded.
2. Set the Windows Volume Controls the way you want.
3. Run the QuickMix program and 'save' the Volume Control settings ( a .QMX file) in the directory of your choice.
4. As per the author's suggestion, put a shortcut to this .QMX file in your Windows startup folder. For me, that would be:

**C:\WINDOWS\Start Menu\Programs\StartUp**



In Windows Explorer, go to this directory and, from the Menu bar, select **File**, then **New**, then **Shortcut**, and then **Browse** to the .QMX file you want. (Make sure you set the Browse directory window to show **All Files**, not Programs.)

5. Now whenever you start Windows, it will automatically read the .QMX file, load and run QuickMix, reset the Volume Controls, and then close QuickMix.

By using QuickMix, I can set **Line In** as my input source at startup and I'm ready to start AGWPE without first fooling with the Volume Controls.






Now, with AGWPE installed, your cables built, and Windows configured, the last step (we hope) is to run a packet program that can use AGWPE.

### C. Windows 95 Users Only

-  Note that if you are using Windows 95, you must also have the [Winsock 2 update](#) installed, otherwise the TCP/IP interface will not work correctly with AGWPE.
-  You also must have the most recent version of the Window's "Common Controls". If you've installed Internet Explorer version 4.0 or later, the controls should have been installed. If you haven't upgraded to IE4.0 or later -- or want to check that the controls are installed -- [visit Microsoft's 50comupd.exe site](#).

**[On to Step 4 - Setup your packet program to work with AGWPE](#)**

# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Troubleshooting](#)

## 4. Configure Your Packet Application Program

This web site has pages which deal with configuring some of the few programs that work with AGWPE:

[A. WinAPRS](#)© - the Windows version of APRS© (Automatic Packet Reporting System)

[B. APRSplus](#)© - a Windows version of APRS that works with the maps of Delorme's Street Atlas©

[C. WinPack](#)© - a packet terminal program for Windows

[D. UI-View](#)© - another position plotting program akin to APRS

[E. AGW's Suite of Companion programs](#) - developed by the AGWPE author, SV2AGW

There are just a few other programs that will work with AGWPE. You can visit SV2AGW's [3rd Party Packet Programs page](#) to see if any could be useful to you.

Last Updated: **12/01/2000**

# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

## 4a. Configuring WinAPRS with AGWPE

Only WinAPRS versions 2.4.0 and above are able to use AGWPE.

### New WinAPRS Users:

You can download the most recent version of the WinAPRS program (written by the Sproul Brothers', Keith, W2UZ and Mark, KB2ICI) at <http://aprs.rutgers.edu>



Installation and operating instructions are explained at the web site and come with the download. WinAPRS is shareware. You can run it without registering but with some limitations, most significantly the ability to save all your program settings (callsign, TNC, etc). Registration is \$60 and well worth it if you continue to use WinAPRS.

### Experienced WinAPRS Users:

If you've been running WinAPRS (2.4.0 or higher) with a TNC and have WinAPRS set to automatically open the TNC port on startup, **don't start AGWPE before starting WinAPRS.**

WinAPRS will crash if it finds AGWPE using the COM port where WinAPRS expects to find a TNC attached! You can't correct this problem until AGWPE is shut down and WinAPRS is allowed to open normally.

When it does open, deselect any **Automatic Input** devices that are on the port which AGWPE will be using for PTT control:

-  Using the WinAPRS menus, click on **Settings**, then **WinAPRS**.
-  When the **WinAPRS Settings** window opens, under the far right **Automatic Input** section, uncheck any device that was using the port where you have now told AGWPE to find the PTT cable.

For example, if you had a VHF TNC on COM1 set for Automatic Input, but now have the AGWPE PTT cable on COM1, you need to **deselect** the **VHF TNC** (you can deselect a check-marked box by clicking on it). After it's deselected, click on the **OK** button to save the settings.

Here's how to configure WinAPRS to work with AGWPE.

-  Start AGWPE.
-  Start WinAPRS. First click on **Settings** in the menu bar, then on **Ports List**.



- On the resulting **Ports Definition List** window, you should see a choice for **AGWPE on LOCAL**. Click once to highlight that choice, then click on the **Open** button. If WinAPRS finds AGWPE, the **Status** field will indicate **ACTIVE** and the **Comment** field will show the AGWPE version, for example, **AGWPE V2000.70**

Name	Type	Parser	Band	Status	Open #	Comment
Standard UHF INC	SERIAL	APRS	UHF	--	--	
AGWPE on Local	TCP	AGWPE	UHF	ACTIVE	1	AGWPE V2000.70
www.aprs.net:10151	TCP	APRS	TCP	--	--	

It's most important that you see the AGWPE version notice in the **Comment** field. If you don't, then WinAPRS wasn't able to connect with AGWPE, even if the **Status** field says '**ACTIVE**'. This means that AGWPE isn't running or it isn't set right (for example, be sure the **WinSock Interface** option is "checked" on the AGWPE menu).

- If you have everything set right, then you should start to see packets at the bottom of the active WinAPRS window. If you don't and your radio's "S" meter indicates it's receiving packets, then something else is wrong and you'll need to go to [troubleshooting](#).
- Note that, when using AGWPE, you can't change your packet PATH using the normal WinAPRS menus (**Settings: TNC** or **Settings: Positions Report Rate**). Instead you must edit the **AGWPE\_Local.Prt** file in your **WinAPRS\Ports** directory. The second to last line of this file will have a line that looks like this:

### PATH WIDE,WIDE

You can change the PATH value to any path you'd like. Note that the space after PATH is **not created by the <space> key** but by the **<TAB>** key. Also note that any PATH changes will not become effective until you save to your .prt file and then restart WinAPRS.

## Two Advanced WinAPRS-AGWPE Tricks

courtesy of Bill, WB6JAR:

**Trick 1: Configure AGWPE to automatically start WinAPRS after AGWPE starts:**

- Right click on the AGWPE Program icon and select **Startup Programs**.
- Click on **Add**.
- In the directory window, navigate to the WinAPRS.exe program and highlight it. Select **Open**.
- Leave the next command line window blank and select **OK** twice.

**Trick 2: Configure WinAPRS to Use Two or More Frequencies at the Same Time!**

This trick makes use of AGWPE's and WinAPRS's ability to accept input from several sources at the same time! Bill uses this technique to receive packets from *both* the regular APRS frequency and a DX Packet Cluster frequency.

For example, you could have one radio and the sound card, say, on COM1

monitor the local DX Cluster frequency; and have a second radio and the sound card (if you have built [cables suitable for two ports](#)) or a TNC, say, on COM2, monitor the usual WinAPRS frequency (e.g. 144.39 MHz). AGWPE will take packets from *both* sources -- normal APRS traffic and DX spots -- and pass them to WinAPRS. WinAPRS can then post both types of info -- APRS packets and DX spots -- to the WinAPRS maps!

Here's how to do it:

Let's assume that AGWPE is already configured to use the sound card on AGWPE port 1 and is using COM1 for the PTT functions. Let's assume you use this port to receive DX cluster spots from the first radio.

Now you want to configure AGWPE for a second port which will be connected to a second radio tuned to the APRS packet frequency. You can either use a TNC to connect to this second radio or, if you have built [cables suitable for two radios](#), you can just use the sound card's stereo/two channel capabilities to interface with the second radio.

### 1. Configure AGWPE Port 2 to using a TNC to connect to the second radio

- a. Connect a TNC to an unused COM (or LPT) port, say COM2. This TNC will be connected to a second radio tuned to the local APRS frequency.
- b. Using a terminal program, first establish (check or re-set) the computer-to-TNC serial port transfer rate of this TNC. This is different from the "on air" baud rate (which is 1200).
- c. In AGWPE, create a new port to access this TNC -- [Properties, New Port](#). Make sure the baud rate you select in AGWPE matches the TNC's baud rate which you established in #2 above.
- d. Close and re-start AGWPE. You should now see two (2) little modem icons in the lower right corner of your screen -- one for each active port.



### 2. Configure AGWPE Port 2 to use the Sound Card to connect to the second radio

You can read how to do this on the [AGWPE settings page, section F](#).

### 3. Configure WinAPRS to Accept Packets from both AGWPE Ports

Now create a new **.prt** file in the **Ports** sub-directory of your **WinAPRS** directory. You can create or edit the new file using a simple text editor, such as the Windows [Notepad](#). Give it a name like **AGW\_APRS.prt** -- but it's your choice. Since the new file will look pretty much like the **AGWPE\_Local.prt** file that's already in the **Ports** folder, you could just make a copy of the **AGWPE\_Local.prt** file, edit it as Bill suggests below, and then save it *using a different name*. Or you can type up a complete new file.

The new file will be identical to the **AGWPE\_Local.prt** file except for the following:

-  **NAME line** - the descriptive name you pick is completely your choice
-  **AGWTNC line** - AGWTNC # = **AGWPE port # minus 1**, e.g. AGWPE Port 1 would be AGWTNC 0.

**Also, please note** that the "space" between the FIELD name (1st column) and the FIELD data (everything in the second column) is created by the **TAB** key, not the space bars. So, the second line in the file below would be typed:

NAME<TAB>AGWPE<space>on<space>144.39".





Here's what the second file might look like:

```
// Created by WinAPRS on 11/30/1999
NAME AGWPE on 144.39      <--- The name varies for
each port
TYPE TCP
PARSER AGWPE
HOST 127.0.0.1:8000
BAND VHF
PATH WIDE,WIDE
AGWTNC 1                  <--- The # varies for each port; this
is for port 2

                                AGWTNC # = (AGWPE port
                                # minus 1)
```

**Hint:** You can also edit the NAME line of the original AGWPE-Local.prt file to change the name from "AGWPE on Local" to something like "Kenwood on Packet Clusters" to help you better understand what each port is doing.

7. With the second .prt file now saved:

-  Re-start WinAPRS
-  Click on [Settings](#)
-  Click on [Ports List](#)
-  Select and then [Open](#) the two (2) ports one at a time:
  - >PORT #1 (AGWPE ON LOCAL)
  - >PORT #2 (AGWPE COM2 ON 144.39)

WinAPRS should now be receiving packet data from both the local APRS frequency and the DX Packet Cluster frequency.

**Hint:** To better see both types of packet data, have WinAPRS display both a local map (state, region, US) and a world map :

-  First, from the [Maps](#) menu, open both maps
-  Then, click on the [Windows](#) menu option, then on [Tile](#).

**Warning:** There is a wrinkle with this "dual port/two radios" technique. As of version 2.4.7, WinAPRS will transmit APRS packets on *\*BOTH\** frequencies, something the listeners on the Packet Cluster frequency might not appreciate. If you intend to run WinAPRS on both frequencies on a regular basis, you might want to disable transmitting to the Packet Cluster frequency, either by unplugging the PTT or TX cables on a one radio setup or, for a two radio setup, by not wiring the TX or PTT wires, i.e. run the second radio in "receive only" mode.

-  [Top of page](#)
-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

Last Updated: [12/01/2000](#)

# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

## 4b. APRSplus with AGWPE and KipSSPE

**APRSplus** is another Windows-based program for receiving and plotting APRS position packets. It was written by Brent Hildebrand, KH2Z, and works in combination with Delorme's [Street Atlas](#) program (or [Map 'N Go](#)). APRSplus handles the APRS packet management and generates icons that are placed on the Street Atlas maps.

To make APRSplus work with AGWPE you also need Brent's free program, KipSSPE, which will link the two programs using their respective TCP/IP interfaces. **Note that KipSSPE only works with a registered version of APRSplus !** So, you'll need to send Brent \$60 US to get a registration code (info in APRSplus files).

[Stephen Smith, WA8LMF](#), gets all the credit for working out all the instructions below for running APRSplus with AGWPE:

Quick Links for this page:

- \* [Download and install APRSplus and KipSSPE](#)
- \* [Configure KipSSPE](#)
- \* [Configure APRSplus](#)
- \* [Getting it All to Work](#)
- \* [Automating the Startup Process](#)
- \* [Troubleshooting APRSplus-specific problems](#)

## Setting Up APRSplus


No changes are needed in your [cables](#), [windows setup](#), and [AGWPE program settings](#). They are the same as for other applications.

1. Install and configure [Delorme Street Atlas](#) and verify that it works normally.

2. Download and install APRSplus and KipSSPE:

-  **APRSplus** files can be found at the TAPR site:  
<http://www.tapr.org/aprssig/winstuff/aprsplus/>

You want to download the most recent Beta file. It usually has a name like BETA199Yx.zip.

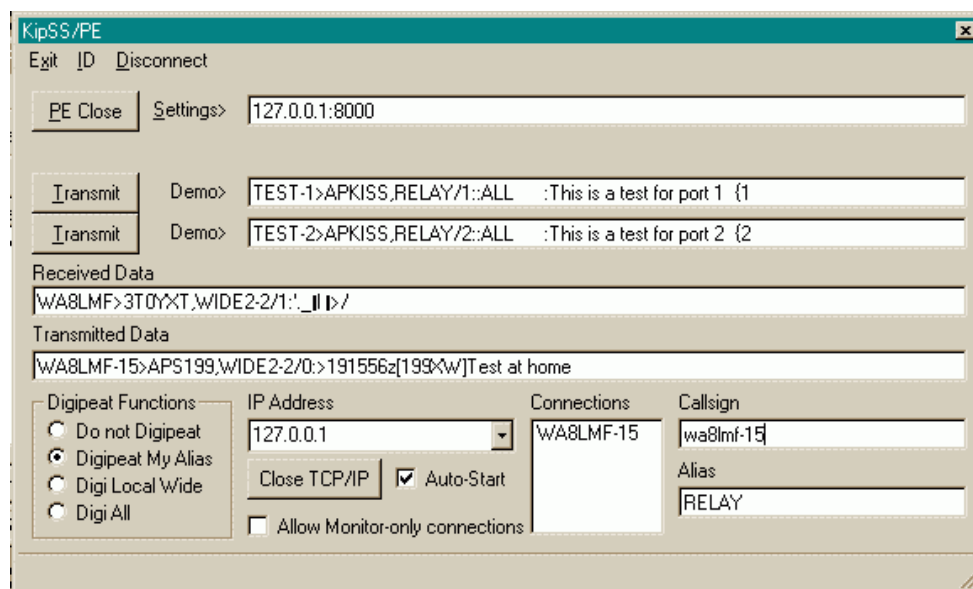
-  From the same TAPR directory [download KipSSPE](#) (don't confuse it with the similarly named KipSS.zip.) KipSSPE is a middleware program that connects the TCP/IP interface of the AGW Packet Engine to the TCP/IP interface of APRSplus. In effect, KipSSPE makes APRSplus "think" it is receiving data from from a TNC instead of a TCP/IP source or LAN. (APRSplus can do this in addition to connections from a "real" hardware TNC and/or Internet connections. Part of the program's confusing complexity is it's incredible versatility!)

Unzip **both** zip files into the same directory on your computer. After you do that, run the **Setup.exe** program in the directory to initialize APRSplus.

### 3. Configure KipSSPE

For future convenience, first create a Windows shortcut to **KipSSPE.exe** on your desktop.


Now start the program. A dialogue window will open that looks similar to this:



Don't worry about the values in most of the fields. Just make the following changes :

- ✚ At the bottom of the window, choose an **IP Address** of **127.0.0.1**
- ✚ Insert your callsign into the **Callsign** box in the lower right corner.
- ✚ Check the box for **Auto-Start** to open the TCP/IP connection to AGWPPE automatically whenever KipSSPE starts.
- ✚ Now at the top of the window, toggle the button to the **left** of **Settings>** ; then, at the bottom of the window, toggle the button **below** the **IP Address** box. If they don't look like the picture above, click them until they do; they should say **PE Close** and **Close TCP/IP**, respectively.

Note that the legends on the button tops do not indicate current status, but instead show what the setting will change to when clicked, so **PE Close** on the button **means** it is currently in the **PE Open** state.

Note that some of the Windows controls for this program do not follow convention -- clicking the **X** button in the upper right corner of the window **does not** shut down the program. It only minimizes it into the system tray where an icon with "KISS" in Morse code  will appear. This is how you will probably want to run the program -- with the dialogue window closed and only the program icon showing in the system tray.

To truly shut down the program, use the **menu bar** and select **Exit**. (To recall the KipSSPE dialogue window, just click on the system tray icon



When you exit, all your settings will be saved, although if you did not check the "auto start" checkbox, the next time you start KipSSPE you will have to re-open the **Open TCP/IP** button.

**Is it working?** Start AGWPE and then KipSSPE (without starting APRSplus). You should be able to see packet data appearing in KipSSPE's **Received Data** window whenever you hear packets bursts from the radio's speaker or see the radio's BUSY indicator or "S" meter light up.




Likewise, you can test transmitting by pressing one of the **Transmit** buttons and checking to see if your radio transmits. The info in the **Demo>** field should be duplicated in the **Transmitted Data** field and your radio should key up.

#### 4. Configure APRSplus

**Remember:** You must obtain a registration number for APRSplus from Brent, KH2Z, before you can run APRSplus with KipSSPE and AGWPE.

There are multitudes of setting screens and options (most of which are not documented) in APRSplus. Here are the key ones for this setup.

From the **menu bar** at the top of the main APRSplus screen, click on **Setup**. Make sure that the following settings are entered:

-  On the **Main Parmeters** tab, insert a **callsign** and your **registration number** (include the dashes between numbers).
-  On the **Program** tab, check mark the **version** of Street Atlas you are using. If you don't, APRSplus won't be able to start Street Atlas automatically.
-  On the **Internet** tab, the items in the bottom **Interlink** box should look like the following unless you already have an assigned IP address for a LAN, cable, or DSL connection (don't worry about the values in other fields in this window):



**APRS+Street Atlas Setup**

File Edit **Commands** Points

Main Parameters Profile Sounds Lists Internet Program Data

Proxy  ☐ Manual

Server

IP Address

☐ Gate INC data stream to Internet

☐ Gate Messages from Internet to Local RF Stations

Heard within 2 digipeater Hops

Heard within the last 8 Hours

☐ Channel Filler  ☐ Posits Only Path>

☐ Substitution

InterLink

Link-1	<input type="text" value="7301"/>	<input type="text" value="127.0.0.1"/>	<input type="button" value="UDP-Open"/>	<input type="text" value="8000"/>	<input type="text" value="127.0.0.1"/>
Link-2	<input type="text" value="7302"/>	<input type="text" value="127.0.0.1"/>	<input checked="" type="checkbox"/> Open KipSS on startup		
Link-3	<input type="text" value="7303"/>	<input type="text" value="127.0.0.1"/>	<input type="button" value="KipSS-Close"/>	<input type="text" value="127.0.0.1:7301"/>	

Port 1 Closed Port 2 Closed

Note that, if your PC has an IP address assigned to it by networking software or a cable modem or DSL, you already have a different IP address to the right of the **Link-1** and **UDP-Open** buttons. If so, that's OK; leave them as they are. Instead, use the **Link-2** fields. In either case (using Link-1 or Link-2), you should Enter **7301** and **127.0.0.1** in the fields to the right of the Link button. Note: even if Link-1 is also using 7301, you should enter 7301 in the Link-2 field ).

Check the **Open KiSS on startup** box if you want APRSplus to automatically open a connection to KipSSPE when it starts. (Alternatively, you can leave it unchecked and start the connection manually in APRSplus by using the **Commands** menu option and selecting **KipSS Connect**.

In the field to the right of the **KipSS-Open/Close** button, enter **127.0.0.1:7301**

Leave "as is" the values to the right of the **UDP-Open** button. They are not important for KipSSPE connections.

Save your setting by using the **File: Save** (or **Save As**) option in this window to save your **Setup.reg** file in APRSplus' **Data** folder.

Now open the appropriate link button by clicking on it until it says **Close-1** (or **Close-2**). **Note:** If you will be using **Link-2**, keep **Link-1** closed (either leave it displayed as **Link-1** or click on it until it says **Open-1**).

Now click on the **KipSS** button until it says **KipSS-Close**. This will open the link to KipSSPE.

**Note 1:** Remember, the legends on the button tops are **not** "current status" indicators. Actually they are the reverse. The button shows what the setting **will change to** when the button is clicked; so when it says **KipSS-Close** on the button, it is

currently in the **KipSS-Open** state.

**Note 2:** The **Link** button are actually three way toggles. Initially they just say "Link-n". The first time you click them, they switch to "Close-n" (meaning they are now open). The next click switches them to "Open-n" (meaning they are now closed). Subsequent clicks toggle between Open and Closed.

## 5. Getting it All to Work

To make it all work, first start the AGW Packet Engine, then KipSSPE, and then APRSplus. After the three programs have started, you should see 4 icons in the **system tray** at the bottom of your screen:



The icon with two towers and the icon of a TNC are created by AGW. The icon showing a stack of dits and dahs (Morse code for KISS) is created by KipSSPE. The inverted triangle is created by APRSplus.

Now, in APRSplus, choose **Commands** and then select **Start Street Atlas** to start Street Atlas. (You can also right click on the APRSplus system tray icon to call up the **Commands** menu.)

If you did not select the "auto start KipSS" function, use the **Commands** menu (Alt+C) to select **KipSS Connect**.

If your radio is on, the cables are attached, and the Volume Control settings are correct, you should start to see station icons in the APRSplus **Positions** window and then eventually in Street Atlas (depends on what timing interval you chose for writing the APRSplus overlay file to Street Atlas; see the **Maps** tab and the **Update Rate** field at the bottom of the window).

## 6. Automate the Entire Startup Process via AGWPE

Want to get the AGWPE program to automatically start KipSSPE and then APRSplus when AGWPE finishes loading? Here's how:

Locate the file **AGWPE.INI** in the AGWPE program directory.

Open the file in the Windows **Notepad** or any other ASCII editor and add the following paragraph to the bottom of the file:

```
[RUNPRG]
RUN0=C:\APRSplus\KipssPE.EXE
CMD0=0
RUN1=C:\APRSplus\APRSPLUS.EXE
CMD1=0
```

**Note:** Be sure to edit the file paths in the paragraph to match the drive and directory where **you** have installed the KIPSSPE and APRSplus programs.

Then save the file and close the editor. This automated process will begin the next time you start AGWPE.

## 7. Troubleshooting APRSplus specific problems:

- ✚ To see if **AGWPE and KipSSPE are working together**, start AGWPE and then KipSSPE (without starting APRSplus). Assuming that **AGWPE** is working correctly and receiving packets, you should see packet data appearing in KipSSPE's **Received Data** window whenever you hear packets bursts from the radio's speaker or see the radio's BUSY indicator or "S" meter light up.
- ✚ To see if **APRSplus and KipSSPE are working together**, transmit your status or position from APRSplus. Use the APRSplus **Send** menu option or **Ctrl-P** or **Ctrl-S**. Your position or status packet should then appear in the **Transmitted Data** field in **KipSSPE**. (If they don't, go to the "transmit" troubleshooting hint below.)
- ✚ To see if **APRSplus and Street Atlas are working together**, temporarily use either an internet connection or TNC instead of AGWPE to receive packets and display them in Street Atlas. (If you can't do that, at the very least your own icon and position should display in Street Atlas.)
- ✚ Note that Windows **Systems Resources** are an issue for Win95/98/ME users running APRSplus. If your system resources get too low (below 25%?), you may encounter unexpected errors in APRSplus and your **Setup** values may become corrupted. You can check your current **System Resource** level by going to the Window's **Control Panel** and selecting **System** and then the **Performance** tab.
- ✚ **Problem: I can't Transmit from APRSplus. I tell APRSplus to send a packet and I can see that the packet made it to the "Transmitted Data" field in KipSSPE, but the radio doesn't key up even though KipSSPE is receiving data from AGWPE and AGWPE will successfully transmit data from other programs.**

**Solution:** Pick a different UI path in APRSplus. Use the **Commands: Unproto Paths** menu option (or Ctrl+Shift+U) to call up a list of UI paths. Press the **Set** button to the right of a suitable path which uses port 1; or edit an existing entry to create a path of your choice which uses port 1.

The transmit problem stems from the APRSplus default path which uses a port of 0 (all ports). Unfortunately a 0 port isn't interpreted correctly by KipSSPE or AGWPE -- not sure which. (This bug has been reported to Brent.)

- ✚ Other problems? Try [the general troubleshooting pages](#)

- ✚ [Top of page](#)
- ✚ [Overview](#)
- ✚ [AGWPE](#)
- ✚ [Cables](#)
- ✚ [Windows Setup](#)
- ✚ [Applications](#)
- ✚ [Troubleshooting](#)

Last Updated: **12/31/2000**

# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)




## 4c. Configuring WinPack

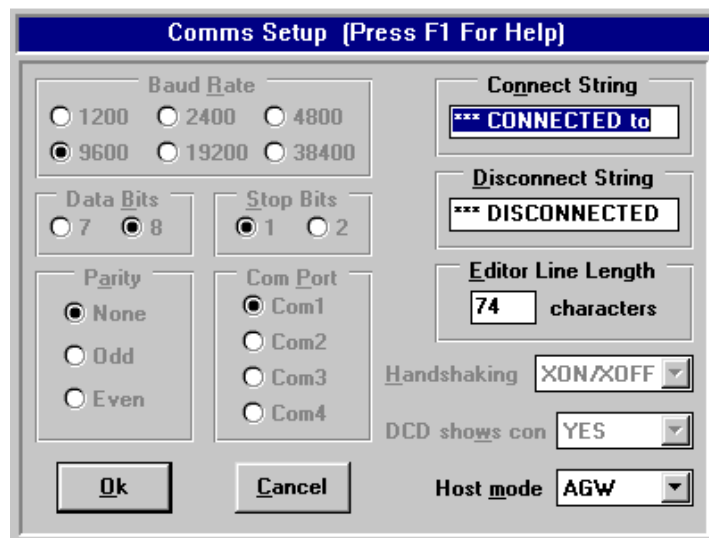
WinPack, which was written by Roger Barker, G4IDE, is a great window-based packet terminal program. You can download it at <http://www.peaksys.co.uk> (or do a web search for other download sites). WinPack is shareware. The registration fee is £10 (about \$15 US) and well worth it if you decide to continuing using WinPack. (See the [Help](#) menu for [Registration](#) info.)

After WinPack is installed, review the [Help](#) file to learn how to use WinPack.

For specific help about WinPack and AGWPE, read the [Winpagw.txt](#) file located in the main WinPack directory. You'll also find more information in program [Help](#). (Select the [Help Contents](#) option from the [Help](#) menu and then, in the right index under [Fundamentals](#), click on the third item down, [Host Mode Support](#). On the resulting page, you should also look in the right index for additional topics about AGWPE and host modes in general. )

To configure WinPack to work with AGWPE:

-  Start AGWPE before starting WinPack.
-  On the WinPack menu, select [Options](#); then [Comms Setup](#).
-  In the resulting [Comms Setup](#) window, there is a field for [Host Mode](#) in the lower right corner. Click on the options arrow (or type M) and select [AGW](#). (see picture below). When done, click on the [OK](#) button.



If you will be using AGWPE as your only packet input source, then you don't need to worry about setting the normal TNC parameters such as baud rate, parity, etc. AGWPE handles all that! In fact the TNC parameters on this screen will 'gray out' (become inaccessible) since there is no need for them.

AGWPE should be running before you start WinPack in AGW mode or try to toggle to AGW host mode. If you start AGWPE after WinPack, WinPack won't recognize AGWPE -- unless you toggle WinPack's host mode to NONE and then back to AGW. (Or you can close WinPack, start AGWPE, and restart WinPack.)

-  If you can't get the program to work, [try Step 5: the troubleshooting page](#)

# Sound Card Packet (continued)



-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

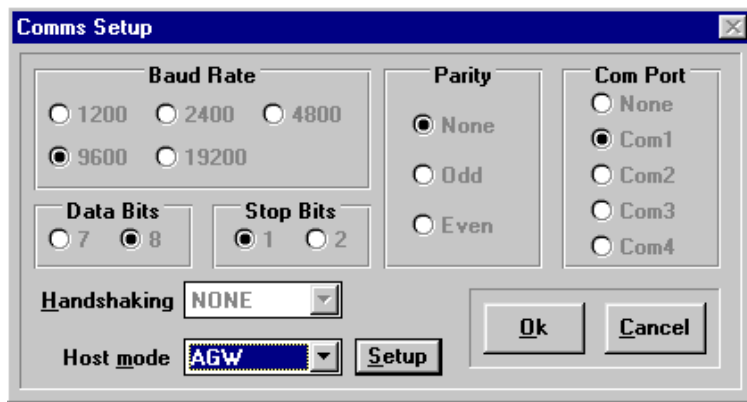
## 4d. Configuring UI-View

UI-View was also written by Roger Barker, G4IDE. It's a packet-based position plotting program similar to other APRS software, but it also supports TNCs in KISS mode and BPQ host mode (besides AGWPE host mode). You can download it at <http://www.peaksys.fsnet.co.uk/>

UI-View is registration ware. The registration fee is £10 (about \$15 US) and well worth it if you decide to continuing using UI-View. It also gives you the right to upgrade to UI-View32, the 32-bit version which has some additional features. (See the [Help](#) menu in UI-View for [Registration](#) info.)

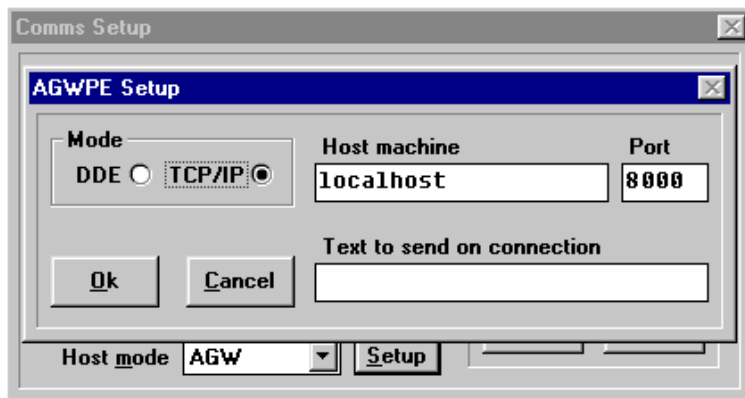
Here's how to configure it to work with AGWPE:




-  First, you should have AGWPE's Winsock TCP/IP interface working. [on the AGWPE menu, first left click once on [Setup Interfaces](#). On the resulting [Winsock & HTTP Interface Setup](#) window, make sure the [Enable Winsock TCP/IP Application Interface](#) box is check marked. (Click in the box to checkmark it ).
-  With AGWPE running, start UI-View. On the top menu bar, select [Setup](#), then [Comms Setup](#). The resulting window should look like the graphic below. Set the [Host Mode](#) for [AGW](#). (UI-View has context sensitive Help, so press F1 to call up help for this window.)



Now press the [Setup](#) button next to AGW.

-  On the resulting [AGWPE Setup](#) window, for [mode](#), select [TCP/IP](#). (Press F1 again to call up a very informative Help dialogue about AGWPE.)



-  Then press the **OK** button on both the **AGWPE Setup** and **Comms Setup** windows. UI-View should now be working with AGWPE and receiving packets.
-  From the **UI-View** Help file (not applicable for the **UI-View32** version):  
**"PLEASE NOTE** - If you use AGW mode and you also use WinPack on your system, then you **MUST** copy **IDEAGW.VBX** from the UI-VIEW directory to the WINPACK directory. You **MUST** do it when WinPack isn't running. Failure to copy this file will result in UI-View not working if you start it when WinPack is already running." This is true for UI-View only, not UI-View32.
-  If you can't get the program to work, [try Step 5: the troubleshooting page](#)

-  [Top of page](#)
-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

Last Updated: **12/14/2000**




# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

## 4e. Configuring AGW's Suite of Companion Programs

George, SV2AGW, the AGWPE author, has written several packet control programs that will work with AGWPE. You can download them from <http://www.raag.org/sv2agw> or <http://www.elcom.gr/sv2agw/>

They include:

-  **AGW TERMINAL** - an interface program you can use to receive and send packets. It lets you "connect" to other stations, including a bulletin board (BBS). This is a good program for troubleshooting and testing AGWPE problems since it's guaranteed to work with AGWPE ([link to download it](#))
-  **AGW CLUSTERS** - a program that collects and organizes incoming DX spots from a DX Packet Cluster frequency. ([link to download it](#))
-  **AGW MONITOR** - a program that simply displays incoming packets. ([link to download it](#)). (Hint: Even though this program just monitors -- doesn't transmit -- it helps to enter your call sign. If you do, **any packets with your call sign will be displayed in red!** That includes packets from any of your stations with a different SSID, any digipeated packets, etc.)

Other than entering your personal info (e.g. callsign, etc), you don't need to configure these programs to work with AGWPE. They should work 'as is'.

-  If you can't get a program to work, [try Step 5: the troubleshooting page](#)

-  [Top of page](#)
-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Troubleshooting](#)

Last Updated: **12/01/2000**



# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)

## 5. Troubleshooting

Unfortunately, there are several places where something can go wrong in setting up sound card packet. This web site is set up to discuss troubleshooting in terms of:

### Software Problems

Inability to get packet information **from** the sound card

-  AGWPE difficulties or error messages
-  Windows and packet program error messages or crashes

### Receive Problems

-  Inability to get packet information **into** the sound card








### Transmit Problems

-  Inability to send intelligible packets

Each is discussed on a separate page.



Note that -- assuming you seem to have all the software working properly -- it's probably easiest to first troubleshoot "Receiving" rather than "Transmitting", especially if you can't get AGWPE to work at all.

# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Receive](#)
-  [Problems](#)
-  [Transmit](#)
-  [Problems](#)

## 5a. Troubleshooting Software Problems

Quick links to:


-  [AGWPE error messages or strange behavior](#)
-  [Windows and Packet program error messages or crashes](#)

NOTE: Possible problems with the Windows' **Volume Control Program** are discussed on the [Receive Problems](#) page on this site.


---

### AGWPE error messages or strange behavior



**Here's a quick check to see if AGWPE is working and receiving packets?**

Start AGWPE and watch the AGWPE **TNC icon**  in the **System Tray** **very carefully**. You should see the **SINGLE green pixel** in the TNC icon flicker right after a packet is received and decoded by AGWPE. (To see it better, it may help to set the Windows screen display to a low resolution -- 640x480 or 800x600. This will make that one pixel as large as possible.)







If you see the flicker, then AGWPE is working fine. If you don't, then you know you have a problem with a [AGWPE setting](#) or somewhere else in the "receive" chain; see the [receive problems](#) page.

If you don't see the **TNC icon**  on the system tray after you start AGWPE, double check the properties for each AGWPE port. [See "Port Settings" on the AGWPE page on this site.](#) Make sure that the AGWPE port you selected is really the port where you have the PTT cable attached. Then read the next two points about possible conflicts.

#### 1. Conflicts with Other Programs using the sound card

On startup, AGWPE will normally tell you if another program is already using the sound card. If one is, AGWPE will still open -- you'll see the AGWPE program icon  in the **System Tray**, but the TNC icon  won't appear and AGWPE won't work. So close AGWPE and then close the offending program before restarting AGWPE.

If you're not sure what the offending program is, try these two techniques:

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Receive](#)
-  [Problems](#)
-  [Transmit](#)
-  [Problems](#)

- Review the program icons on the bottom row of your screen (Task Bar and System Tray). Positioning the cursor over the icon will reveal the program's name. Close any that you think might be using the sound card.
- Enter the **Ctrl-Alt-Del** key combination **once**. This will bring up the **Close Program** window which lists **all** programs currently running, even those not on the Task Bar or System Tray. Unfortunately, some of the names may be cryptic, but you can try to make an educated guess and close what you think might be an offending program. Click on its name and use the **End Task** button to close it. When you're done, click on the **Cancel** button to leave the **Close Program** window without rebooting. Be aware that you could either close an important program unintentionally with this method or even cause a reboot. So first save data in any other programs you may have been working on before you try to close any program in this manner.

#### Want to really find out what Windows loads on startup?

From the **Start button**, select **Run**, then type in and enter **msconfig**. This will start the **System Configuration Utility**. This utility will show you all the file that Windows loads on startup.

Click on the **Startup** tab. The list here may help you figure out the cryptic names in the **Close Program** box (above).

You can also experiment by un-checking items and then pressing the **Apply** button. Windows will ask you if it's OK to reboot. When you do, you'll start up in **Selective Startup mode**. You can then try to load AGWPE to see if you have correctly identified and stopped the loading of the program causing the conflict.

After you are done experimenting, you can leave **Selective Startup** mode by selecting **Normal Startup** (on the **General** tab), then the **Apply** button, and then rebooting.

To stop a program from automatically starting on Windows startup, first call up the program and see if there's an option on its menu for selecting or deselecting "start up with Windows?"

## 2. Conflicts with Other Programs or Devices using the AGWPE Port

It may be even harder to identify port conflicts, since AGWPE may start and run despite the conflict, i.e. no error message. Conflicts may arise from either a device (such as a printer) or a program that uses the same port.

To see if some device is causing the problem, first go to the [Start menu](#) and then [Settings: Control Panel: System](#). On the "[Device Manager](#)" tab, select "[View devices by Connection](#)" and double click on "[Computer](#)". This should tell you which devices are using each IRQ. Look for a conflict with the AGWPE PTT port (COMx, LPTx) and some other device. If only one port (COMx, LPTx) is assigned to the "serial port IRQ", then there is no conflicting *device*, so there is probably a conflicting *program*.









Search for any possible conflicting program (use the 2 techniques immediately above to find them). Either close the program while working with AGWPE or set the program to use another port.

Alternatively, change the physical PTT port for AGWPE: move the PTT cable to a different physical COM or LPT port. Then make the corresponding change in the [Port Properties](#) in AGWPE. (See [AGWPE page about parallel port drivers](#) if you want to use the LPT port and need information about installing the special parallel/ LPT port drivers for AGWPE.)


**Port Diagnosing Hint:** Temporarily force AGWPE to a port where there CAN'T be a conflict with another program. Here's how:

[Install the parallel port driver](#) (if you haven't already) and then reset the [Serial Port](#) in [AGWPE's properties window](#) to a **non-existent** parallel port, perhaps LPT 3 (scroll down past all the COM options to the LPT options). Only use this port temporarily, since AGWPE will no longer be able to transmit.

If AGWPE now receives packets and your other program now works, then you know you did indeed have a port conflict. Fix the conflict (see paragraphs above), and then change the AGWPE PTT port settings back to a real port, i.e. not the non-existent one.

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Receive](#)
-  [Problems](#)
-  [Transmit](#)
-  [Problems](#)

- ✚ 3. AGWPE closes and the Packet Engine icon  disappears, but the TNC icon  remains on the System Tray!

This may happen if AGWPE is closed down after a problem interfacing with a packet application program. You'll be able to re-open and run AGWPE despite this, but a second **TNC icon**  will appear. I know of no way to kill the original **TNC icon**, other than to reboot.


- ✚ 4. AGWPE starts, but I can't initialize (create) even one port in AGWPE. I fill in the new port information, close the program and restart it, but the port shows "IDLE" and I can't open the **Properties window** for that port by clicking on **OK** (Win95 users only).

a. Delete the **agwpe.ini** file and any **port#.ini** files in your AGWPE directory. Restart AGWPE and try to re-configure it. If that fails, try "b".

b. [Download a patch](#) from Microsoft called 50comupd.exe (includes a new COMCTL32.DLL file). Upgrading to Internet Explorer 4.0 or later is also supposed to provide the COMCTL32.DLL upgrade. Install the patch, reboot and restart AGWPE.

- ✚ 5. I get an error message that says "Hook IRQ Failed".

This means the port (COMx, LPTx) that you want to use for PTT in AGWPE is already in use by another program or device, so AGWPE can't access it. You'll need to shut down the conflicting program or device to use this port in AGWPE. See [Port Conflicts](#) above.

- ✚ 6. I seem to be getting packets into AGWPE -- I see the little green pixel flashing on the TNC icon  -- but my packet program isn't getting packets from AGWPE.

First, double check that the [TCP/IP Interface is working correctly](#).

Then, double check all [settings in you Packet Application Program](#). For example, for APRSplus, make sure the APRSplus [TCP/IP settings are set correctly and that KiSSPE is running correctly](#).

If you're having trouble getting AGWPE to work for the first time, try using it with a packet program that's pretty much guaranteed to work it, either the [AGW Monitor Program](#) or the [AGW Terminal Program](#). You can then try other programs after you verify that one of the [AGW Programs](#) works.

- ✚ If necessary, [download agwmonitor.zip](#) (or [agwterm.zip](#))
- ✚ Unzip the file into a new directory and create a shortcut to it.
- ✚ Start [AGWPE](#) first and then the [AGW Program](#).  
**Note:** Sometimes [AGW Monitor](#) freezes on startup. Use the Alt-Ctrl-Del key combo **once** to call up the Close Program window to close it. Then try to start it again. It usually starts on the second try.
- ✚ On the [AGW Monitor](#) menu, select **File**, then **Properties**
- ✚ Check all the boxes; also put in your callsign.
- ✚ Increase the font size.

At this point, the program should be working and communicating with AGWPE. If packets can reach [AGWPE](#), then they should also reach the [AGW Program](#) and you'll see them on the screen. Performing this test successfully will confirm that your cables, sound card, and AGWPE settings are OK. That narrows the source of the problem to the TCP/IP interface with Windows (see 6a. and 6b. above) or an incorrect setting in your [application setup](#).

## Windows and Packet Program Error Messages or Crashes

- ✚ **7. WinAPRS crashes when I open it. I open AGWPE first, but then when I start WinAPRS, it causes a system crash.**

WinAPRS is probably configured to automatically open a TNC on startup. It crashes when it finds AGWPE using the COM port and not the TNC it expects! You can't correct this problem until you exit AGWPE and let WinAPRS open without AGWPE running. Then, in WinAPRS, deselect any [Automatic Input](#) devices that are on the port which AGWPE will be using for PTT control:

- Using the WinAPRS menus, click on **Settings**, then **WinAPRS**.
- When the [WinAPRS Settings](#) window opens, under the far right [Automatic Input](#) section, uncheck any device that was using the port where you have the AGWPE's PTT cable attached. For example, if you once had a TNC on COM1, but now have the AGWPE PTT cable on COM1, you need to **deselect** the **VHF TNC** (you can deselect a check-marked box by clicking on it).
- After it's deselected, click on the **OK** button to save the settings.

■ Then close WinAPRS, start AGWPE, and restart WinAPRS.

- ✚ 8. I have AGWPE working OK and was downloading data from a BBS. Usually, after receiving a burst of data, AGWPE responds, for example, with "RR R3", "RR R4", "RR R5", all in ONE burst. But with this BBS, AGWPE frequently responds with "RR R3", break, "RR R4", "RR R5". During the break, AGWPE releases the PTT and the BBS responds by sending new data, causing a collision with AGWPE's transmission of "RR R4" and so on, and throughput declines dramatically. This is just an example. Why does AGWPE insert that break?

This problem usually results when the sender -- the BBS in this case -- isn't using the AX.25 ver. 2 protocol and has a PACLEN of less than 255 characters. This creates a timing problem in the acknowledgement of packets.

The fact that you are seeing multiple "RR"s indicates you are not letting AGWPE control the timing (AGWPE would only send one "RR") and you prefer to control the timing parameters.

To fix the problem, go to the timing parameters window: from the AGWPE menu, select **Properties**, then select the **Port**, and then press **OK**. On the resulting **Properties** window, click on the **TNC Commands** tab. (You should find "Let me control parameters" selected.) **Increase** the value of the **RespTime** until the problem goes away.

- ✚ 9. I seem to have the AGWPE program working -- I have the 2 icons in the system tray and the TNC icon does flash as packets go through. My problem is when I run any of the SV2AGW packet programs, a box opens saying:

<p>Object Windows Exception</p> <p>Failure in common control DLL</p> <p>OK to resume? YES / NO</p>
--

Solution: Be sure you have the latest **COMCTL32.DLL** Windows file by [downloading and applying a patch](#) from Microsoft called **50comupd.exe**. Then try reinstalling the **RICHED32.dll** file from your Windows installation disks. (Thanks to Bob March, VA7BM, for this one.)



# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Software Problems](#)
-  [Transmit Problems](#)

## 5b. Troubleshooting Receive Problems

If you can't get AGWPE to work at all, it's probably easiest to first troubleshoot "Receiving". After that you can [fix transmitting](#).

**Quick Index for sections of this page:**

**A first test (see below): Are packets getting to the sound card?**

Yes -- packets are getting **into** the sound card, but I'm having problems getting the packets **from** the Sound Card -- visit the [Software Problems page](#) on this site.




No -- there are problems getting packets **into** the Sound Card --

-  [1. Check the Radio](#)
-  [2. Check the RX audio cable](#)
-  [3. Check the Volume control/Sound card settings](#)

## Troubleshooting Receive Problems


If you think of packets as traveling down a pipeline from your radio to packet program, then your first check point should be the flow in the middle of the pipeline. Knowing what's happening there may let you eliminate one side of the pipeline as a problem. And to me, it seems the sound card would be the middle.

**A first test** -- to see if packets are getting from the radio to the sound card:

-  First, disconnect your LINE OUT TX cable from the sound card and plug your computer speaker cable back in. If the speakers are amplified, make sure they are ON and that the volume isn't turned down too far. Using the speakers will help you **hear** when packets reach the sound card.
-  Then, to **see** if the packets are reaching the sound card, set your radio to an active packet or voice frequency, and start the Windows [Sound Recorder](#) program: from the [Start](#) button, select [Programs](#), then [Accessories](#), then [Entertainment](#), then [Sound Recorder](#).
-  Press the [Record](#) button, the one furthest to the right with a red circle on it. Watch the S bars on your radio. When the S bars indicate a signal is being received, the Sound Recorder should display green wave patterns in its "oscilloscope", as below.



-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Software Problems](#)
-  [Transmit Problems](#)












 If you **don't see** the wave patterns, work back along the "pipeline": see the steps below. The problem is likely to be with the radio, cables from the radio, the Volume Control Program, or the sound card itself. Keep the Sound Recorder program open and ready to test (by recording) as you make changes.

If you **do see** the wave patterns, work forward from the sound card along the "pipeline": see [Software Problems](#). The problem is probably with a configuration setting in AGWPE or your packet application program.

Note that if the waves in the oscilloscope show either only slight or excessive deviation, then the volume of incoming packets may be incorrect. You can adjust this in the [Volume Control](#) program (and/or, if your cable is connected to the radio's external speaker jack, with the radio volume control knob).



## 1. Check the Radio

Just to be sure there are packets at the start of the pipeline, check that you can hear packets through the radio's speaker or an external speaker. If you can't, check the following:

-  Is the radio volume control set OK, i.e. not too low? (A problem here would only affect you if your RX cable connects to the radio's external speaker. RX cables connecting to the mike jack should not be affected by the radio volume control. But for these tests, the radio volume should also be turned up just so you can hear and confirm packet receipt.)
-  Do the 'S' bars or the 'Busy' indicator light up periodically? If not,
  -  is the radio tuned to the right frequency?
  -  even though this shouldn't affect RX problems, you might as well check that the radio is set for simplex not duplex operation -- to prevent transmit problems
  -  is the manual squelch set too high?
  -  is tone squelch (CTCSS and DTSS) turned off?
  -  if dual band, is the correct band selected?
  -  is the antenna connected?
  -  is the external speaker known to work? is it plugged into the radio securely?
-  Can you hear packets by using a different antenna? or by moving to another location?
-  Can you hear packets using a different radio with the same antenna? with a different antenna?

## 2. Check the Receive Audio Cable

Assuming packets are leaving the radio just fine, next check the RX audio cable.

-  Is the correct cable plugged in securely to both the radio and sound card jacks?
-  Try unplugging the RX cable from the computer and instead plug it into an external speaker, if possible. (If necessary, use clip leads or an in-line coupler if the speaker also has a plug instead of a jack.)

- ✚ If you get no sound out of the RX audio cable:
  - re-examine solder connections for open or short circuits; use an ohm-continuity meter.
  - try another cable, perhaps a store-bought cable, to see if it can transfer signals to the speaker or sound card

### 3. Check the Sound Card-Volume Control Settings




Assuming packets are leaving the RX audio cable just fine, next check the sound card-volume control settings:

- ✚ Confirm the selected input source is correct:  
(the following is condensed from [Sound Card page](#), item B )
  - Double click on the **Volume Control** icon (yellow speaker) in the system tray at the bottom of your screen (near the time).
  - Select the **Options** menu choice, then **Properties**, then click on the **Recording** radio button, then on the **OK** button.
  - You should now see the **Recording Control** window. Click the **Select** box for the jack where you plugged in your **RX audio** cable, either **Line In** or **Microphone**. Make sure the volume slider is in the middle. Leave the balance slider in the middle.
  - Use the Sound Recorder program (record mode) to check for signals.
  - If there are still no signals, try selecting the other input source -- **Microphone** or **Line In**. (You may have the plug in the wrong jack.)

- ✚ [Top of page](#)
- ✚ [Overview](#)
- ✚ [AGWPE](#)
- ✚ [Cables](#)
- ✚ [Windows Setup](#)
- ✚ [Applications](#)
- ✚ [Software Problems](#)
- ✚ [Transmit Problems](#)

Last Updated: 12/03/2000




# Sound Card Packet (continued)

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Software](#)
-  [Problems](#)
-  [Receive Problems](#)

## 5c. Troubleshooting Transmit Problems

If you can *receive* packets in your packet applications, then you know all the programs are working together. Any problems with *transmitting* are then probably the result of a fairly simple to correct program setting or a cable problem.






Check the simple things first:

-  Are the cables connected tightly to the proper jacks on the sound card?  
and at the correct PTT port?  
and at the radio?
-  Is the radio on?
-  Is the antenna connected?

Some common problems and solutions:



-  **1. I tell the packet program to CONNECT or send a packet, but the radio doesn't indicate it is transmitting ( no "on air" indicator or "S" bars ).**

Make sure you **wait a few seconds** for AGWPE to try to send the packet. AGWPE may be using "slotting" techniques to delay your packet transmission a few seconds, so the packet may not be sent out immediately. But if that doesn't work, here are some things you can try:

-  Make sure the packet program isn't in COMMAND mode (unless you are trying to connect or disconnect). If it is, you may not really be sending anything to be transmitted. Go to CONVERSE mode (K) or try a CONNECT command.
-  Again, make sure the PTT cable is tightly connected at the COM or LPT port that you have told AGWPE you want to use for PTT functions; also at the radio.
-  It may be that the COM or LPT where your PTT cable is connected isn't really the one you think it is, e.g. you think it's COM1, but it's really COM2 because your mouse or internal modem is on COM1. Try changing the PTT serial port designation in AGWPE (change the [Select Serial Port in the Properties window](#)) and/or move the cable to another physical port (if one exists).
-  You may have a problem with the wiring and/or circuit in your PTT cable. Double check it.
-  **2. My radio gets stuck in transmit mode!**

This can happen for different reasons, including closing AGWPE before first closing your Packet application. Possible solutions are:

1. Close the packet application (and AGWPE if it's not already). Restart AGWPE, then the application. Symptoms should stop when AGWPE re-seizes the PTT port.

-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Software](#)
-  [Problems](#)
-  [Receive Problems](#)

2. You may have a wiring problem in the cable which is shorting the PTT circuit.

- ✚ 3. When I send a packet I can see on my rig that the PTT has been opened and the rig is transmitting, but I can't connect with another station. It's as if no one is hearing my packets.

Maybe they *aren't* hearing you. Of course the antenna **is** hooked up to your rig, right? (Don't laugh. It's happened to me... many times... after I unplug it for a lightning storm.)

And make sure you're operating simplex, not duplex, so you're not transmitting on the wrong frequency.

And make sure the LINE OUT cable is plugged in tightly at both ends. (This has happened to me, too, when I temporarily hooked up the computer speakers for output and forgot to change back for packet.)

It's also possible that your packet tones are either too soft or too loud because of the sound card's volume settings. Make sure the master "Volume Control" setting and the "Wave" setting **are not muted**. Then, try moving the volume sliders up higher, either 3/4 or all the way to the top. Conversely, your packets may actually be too LOUD, so you can move the sliders down.

You can test this by listening to your own packet in one of two ways:

- Temporarily unplug your LINE OUT and PTT cables and plug your computer's speaker cable back into the LINE OUT jack of the sound card. Use AGWPE to send a packet and you'll be able to hear what your packet sounds like on the speakers.
- Better yet -- get a second rig, tune it to your transmit frequency, and listen to the packets your are transmitting. They should perhaps be a little louder than other packets on frequency, but packets that are either too loud or too soft are bad, and they may create problems for any receiving packet stations. You will also be able to hear if you've have a carrier and no audio at all (which means you have a LINE OUT problem or the sound card volume is muted or way too low)!

You can also **see** your output volume if you [look at your packets in the Sound Recorder program](#). The digital oscilloscope in Sound Recorder will give you a general sense of whether your packets are too soft (too little deviation between peaks) or too loud (too much deviation -- the tops of the peaks are rounded/clipped, which causes radio signal "clipping" that will make reception difficult.)

The scope should look something like this. Not too much green, not too little.



- ✚ [Overview](#)
- ✚ [AGWPE](#)
- ✚ [Cables](#)
- ✚ [Windows Setup](#)
- ✚ [Applications](#)
- ✚ [Software](#)
- ✚ [Problems](#)
- ✚ [Receive Problems](#)

By the way, for a really great discussion of setting the proper audio drive level, [visit John Ackerman's, N8UR, site](#).

Note that if you can't make your packets loud enough despite turning the volume controls way up, then you may need to change the resistors in the attenuation circuit in your LINE OUT cable (change the higher resistance, serial resistor to a lower value); or use a variable resistor (pot) circuit instead. This will let you adjust the attenuation and resulting volume a bit easier.

#### **4. My application indicates it's sending a packet but the radio doesn't transmit for a few seconds. What's wrong?**

Nothing. AGWPE's automatic timing features are in effect. Apparently, AGWPE has been monitoring the frequency and has decided to use "slotting" protocols to try to send your packet when the frequency is not likely to be busy. So, it's holding the packet for a few seconds before transmitting it.

If this really bothers you, you can override this feature or set the timing parameters yours. Go to AGWPE's menu and select **Properties** and then select the AGWPE port you are using. Select the **Tnc Commands** tab and then select "**Let me Control Parameters**". [See AGWPE: item D. 6](#)

#### **5. I can send and receive a few packets, but pretty soon transmitting stops, especially if I try to send packets too rapidly. This clears up if I close and restart AGWPE and the packet application, but it just happens again.**

It's possible that your computer isn't keeping up with the quick switching that is taking place between the sound card DSP and AGWPE. It may have missed a "hand shaking" data segment from AGWPE, so it's waiting for a signal that will never come again. This may mean you need a sound driver upgrade or a faster processor to run AGWPE, although you can try to cut the processor load by shutting down other programs and background tasks. [George, SV2AGW, talks about this problem on his web site.](#)

-  [Top of page](#)
-  [Overview](#)
-  [AGWPE](#)
-  [Cables](#)
-  [Windows Setup](#)
-  [Applications](#)
-  [Software](#)
-  [Problems](#)
-  [Receive Problems](#)

Last Updated: **12/01/2000**