

# EASYTERM TUTORIAL

July 2017

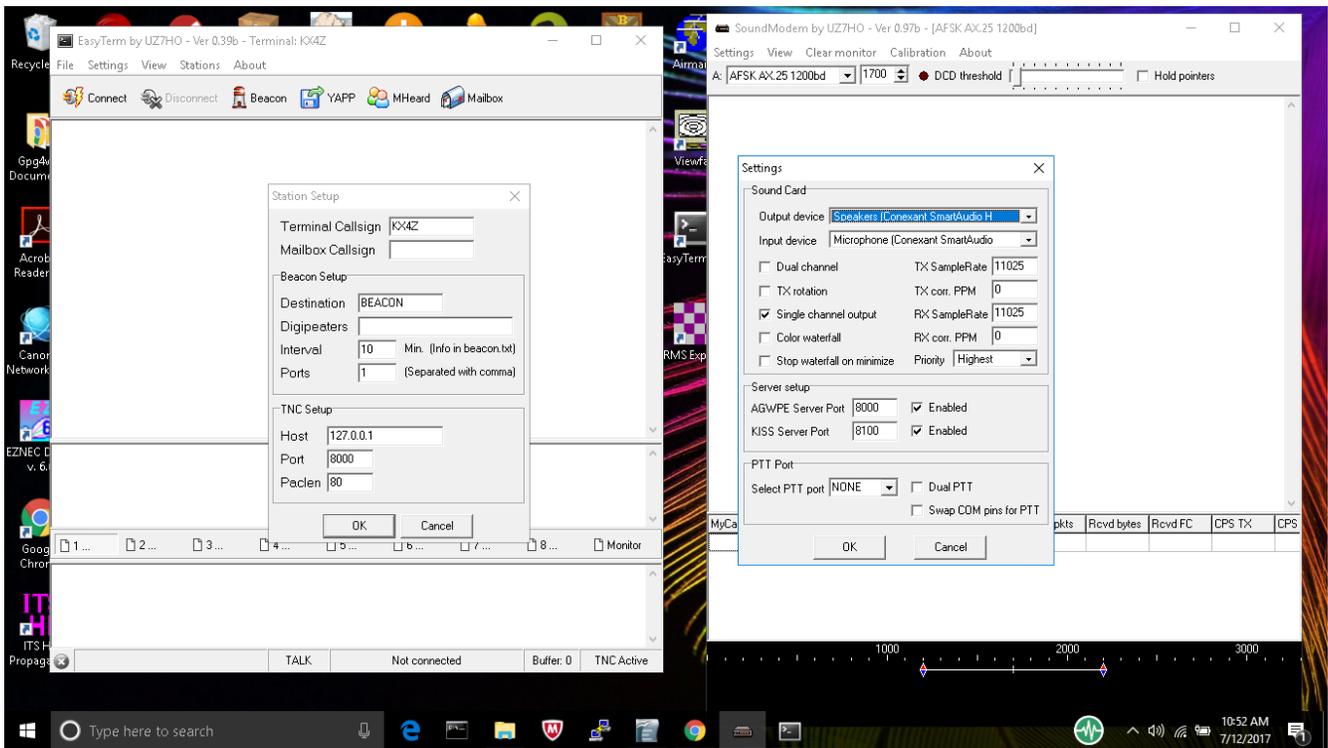
Gordon Gibby KX4Z

**Purpose of Software:** EASYTERM (“Term”) is a Windows-based program designed for AX.25 Packet amateur radio communications and distributed free of charge, by the developer, UZ7HO, a Ukrainian amateur. Many years ago, before the development of WINDOW, there were many similar applications that ran under DOS operating system, but since the popularity of packet has waned (except for Emergency Communications) there are very few FREE packages for packet communications that run under WINDOWS. MIXW is a for-sale product that provides packet communications under WINDOWS.

With EASYTERM the amateur radio operator can send and receive, type and read, packet communications with keyboard control. This program isn't a single-use targeted email product like WINLINK. EASYTERM doesn't work very easily to send WINLINK email, but it has another useful feature – it has the YAPP protocol built in, which allows error-free file transfer, even to an unattended receiver station. For local direct connections, this can be a significant asset for Emergency Communications, providing an alternate way to transmit files, instead of sending them as attachments to an email. And of course, it allows very easy keyboard-to-keyboard contacts, which WINLINK doesn't do. There is a way on some packet systems to create a datagram-type connection with multiple participants conducting a “party line” multi-user contact. More on that below.

EASYTERM does not include the AX.25 modem protocol within itself. Instead, it makes an AGWPE-type interface connection over tcp/ip to another free UZ7HO software, SOUNDMODEM.

**Configuration:** In order to utilize this software, the user must activate SOUNDMODEM and EASYTERM, and configure both of them to use to connect to each other over the same tcp/ip port. SOUNDMODEM can make two types of interfaces: AGWPE, and KISS. It is fine to enable both of them, just put them on different port numbers. Stay away from ports under 1,000, and generally use ports in the 8000-numbers. It is suggested to configure the two programs as shown below:



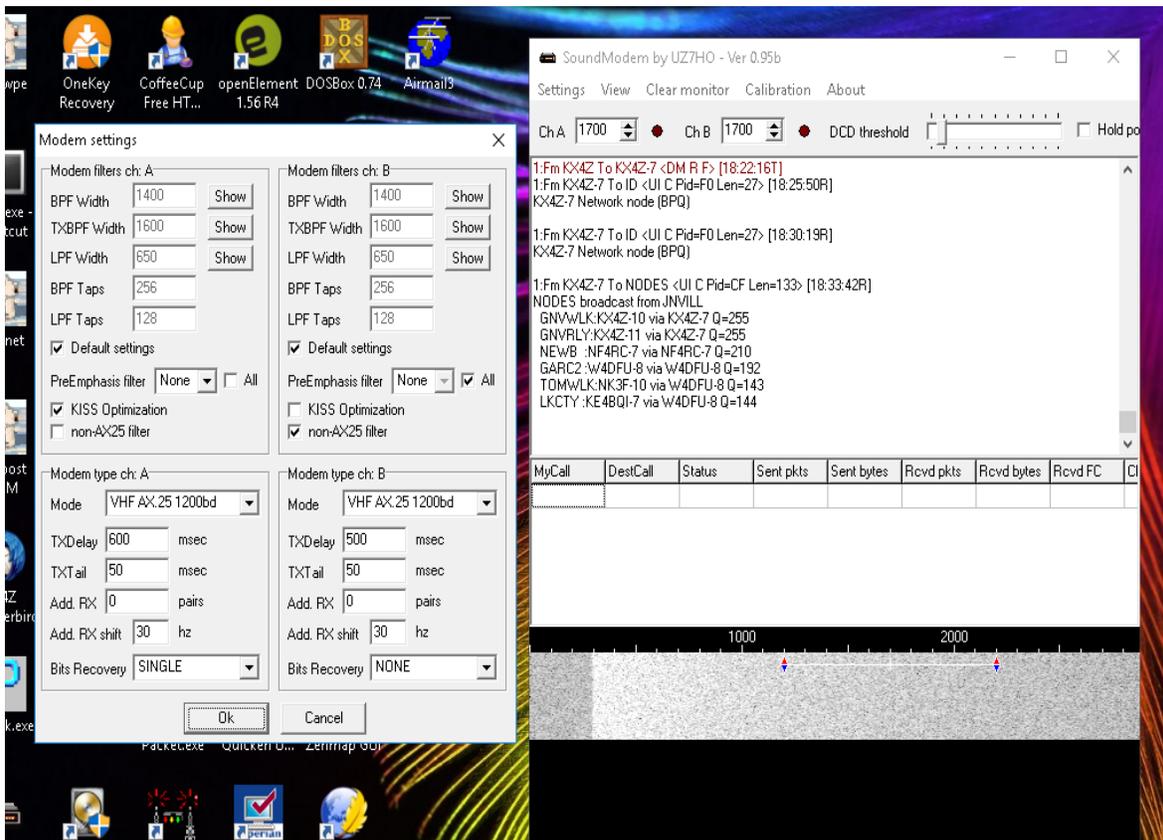
**Notes:**

1. You would choose your USB soundcard device in actual practice for the output & input device for SOUNDMODEM, not the laptop speaker/mic as shown on the right hand side config.
2. Note that in SOUNDMODEM, the AGWPE interface (required by EASYTERM) is checked, and set to 8000.
3. Note that in EASYTERM, the callsign of your station is entered; you can ignore the Mailbox.
4. Note that in EASYTERM, the interface port is set to 8000, the same as the choice in SOUNDMODEM
5. The Packet length can be set to anything from 64 to about 256. 80 is a good starting point.

**USAGE:**

(A little more setup.....)

FIRST: there are small differences between the exact controls of different versions of Soundmodem. They all work very similarly, from version 0.95 forward, so please don't let that hang you up.



SECOND: either on the front screen, or on the SETTINGS | MODEMS (depending on which version you are using) you need to select for the protocol AX.25 1200 baud. It is named similar on different versions.

THIRD: Don't change the modem FILTER settings -- default is good. After we study individual transceivers we can possibly tell you whether or not to use "pre-emphasis" but impossible to do in an email. Our deployed raspberry servers are able to compensate for fairly large screwups in audio preemphasis, so don't get too hung up on this.

FOURTH: MODEM TYPE CHANNEL A --- what you put in Channel A is probably the most important. Again, AX.25 1200 Baud. "TX DELAY" allows for slow-to-get-going Chinese handhelds --- set to 500 or 600 for Baofengs. For fancy Icoms you may be able to go down to 300. 500 is safe for a start. TXTAIL just makes your signal keep going so you can HEAR it by ear -- I usually use 50 (milliseconds) here. Additional Receivers is really for HF (shortwave) usage --- not useful at all on VHF, so set to 0. The "shift" of additional receivers is therefore superfluous. The system can attempt small error corrections on its on -- SINGLE is Ok there.

FIFTH: DCD THRESHOLD -- I usually set that quite sensitive -- about 1/8 inch from the bottom. It is like a Squelch.

SIXTH: Some radios will work best if you just "open the squelch" on the radio itself and let Soundmodem do the rest. You'll see a continuous white "curtain" in the waterfall but the software does extremely well with this.

SEVENTH: Setting your radio & TNC receiver gain -- adjust so that the "white curtain" or signals or whatever you see looks "reasonable". Not all BRIGHT WHITE and not all BLACK, ok? this software is remarkably forgiving so if you can see received characters --- you're probably OK.

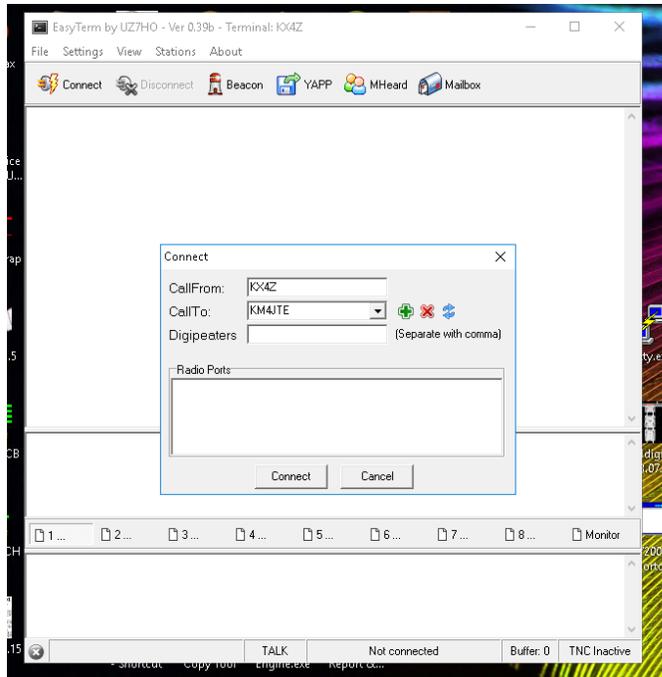
FINALLY: Setting TRANSMITTER GAIN --- If you send too strong an audio signal into your transceiver's mic input, all you'll get is "audio splatter" and other stations will not pick you up well. Conversely, if you send microvolts....your signal will be so "light" that they can't decode it. You want to be up towards the top of your "linear range" -- and here's where you need a 2nd receiver just to listen to your own signal. Some later versions allow you to send a "CALIBRATION" tone -- otherwise, just send a bunch of calls to an imaginary station so you get to listen to yourself 10 times or so. Turn the TX gain in your TNC up, and then BACK IT OFF UNTIL YOU DETECT THAT YOUR SIGNAL GOT WEAKER --- you want it somewhere between 60% and 90% of "full strength" audio in that receiver. In other words, so your system isn't "SHOUTING" into the mike, nor is it whispering, ok?

Sounds like a lot to do, but once you get the hang of it, this is simple and needs no readjustment until you change transceivers. The concept of not OVERMODULATING is a very important one in radio work, both on the HF and VHF bands, both on FM and SSB (single sideband). So well worth your time to set things up well.

**FIXED MOUNTING:** And as Jeff pointed out to me --- this is all SO MUCH EASIER for real emcomm work if you will just mount your little digital station on some sort of rigid platform/container --- wood, cardboard, or even an ICE CHEST like Art & Cindy -- makes it so much easier to move around.

Maps and more information on the website [qsl.net/nf4rc/](http://qsl.net/nf4rc/)

**CONNECT:** Generally the first thing you are going to do is CONNECT to another station, which may be a friend you wish to have a QSO with, or may be a BPQ or NET/ROM automated digital station. The CONNECT icon in the menu bar of EASYTERM brings up a dialog box to allow you to enter the name of the station you wish to reach; you can use their callsign or their ALIAS.



When you click Connect in this dialog box, the software will create an “SABM” connection-request AX.25 packet and send it out every few seconds in an attempt to make the connection.

### Human Contact

If your friend answers, you and they can then just type back and forth in a normal QSO. Your statement doesn't get sent until you hit the carriage return (enter) key. Your receiving “pane” is the top one; your typing pane is the next one down.

### Connecting to an automated Station

If you instead connect to an automated station, such as a linbpq or net/rom station, you'll get an automated reply and can usually get list of the possible commands.

From that point on, you just type commands as you wish to connect to additional stations however you wish.

Multiple sessions: YAPP has “pages” in the lower horizontal area that allow you to create more than one simultaneous connection. There is also an option to MONITOR (similar to the LIS command on linbpq, or what shows on the SOUNDMODEM screen) – and see everything that goes on.

**YAPP:** Allows you to send a file, error free. It is pretty automatic, particularly if the receiving station has checked “auto-receive” under FILE | YAPP auto-receive. Be careful however – it isn't easy to back out of sending a file if you type the wrong name! Packet isn't fast, so sending anything longer than 5,000 characters may be a mistake!

Once you have the basic EASYTERM options figured out and working, you can use it as a flexible way to connect to local friends or digital packet stations. EASYTERM does not work with other

modes that FLIDGI can do, such as PSK31 etc.

The next step once you have conquered basic EASYTERM operation is to learn more about what you can cause to happen when using specialized stations such as BPQ automated stations or WINLINK stations.

**SPECIALIZED BPQ COMMANDS:** There are multiple ways to create a multiuser conversation. There are probably even more than I know of, or can list here. In order to do FAST multi-participant conversations, you can't have error-free ARQ-type connections to every participant, because this requires some station to be sending each and every station individually to each other station, checking for receipt, and resending as needed. APRS doesn't work that way and neither do several applications on the Internet – instead they send out “UI” packets that are simple datagrams without acknowledgement options. If you get it, you get it, if you don't, tough luck. But it is faster!

Your first goal is to be able to SEE what everyone else manages to send. Multiple ways to do this:

1. Use a “monitor pane” or watch what goes across SOUNDMODEM. Works, but not very slick.
2. Use the bpq command “LISTen” (you only have to type LIS) – but you must indicate a PORT on a bpq station (to which you are connected) to listen to, and it can't be the one your're using to reach that station! (You can't connect to their port 7 and ask to LIS 7). Instead, try asking to LIS 2 (typically their MESH port) or if the station has two frequencies, you and your friends might all LIS to the “other” port. LIS 2 is probably more courteous. To get out of LIS status, just type LIS again

Your second goal is to be able to SEND something

1. The easiest way to do this is to use the CQ command like this: “CQ this is jim de K4AAA” and everyone gets to see the “this is jim de K4AAA” part.
2. A slightly slicker way is to use the UI command which allows you to enter the datagram mode and whatever you type (and hit enter) goes out as a datagram – but you must indicate a port and a recipient. It works to select port “2” and recipient “QST”: UI 2 QST
3. To get out of the UI command, type /ex

You'll want to back out in this order: first back out of SENDING, then back out of LISTening.

**SPECIALIZED WINLINK COMMANDS:** There are keyboard commands that will allow you – believe it or not – to retrieve and send email right from your Easyterm keyboard! Of course, they aren't quite as slick as the specialized WINLINK EXPRESS program, but in a pinch, they do work! Try out this set of instructions: <http://www.qsl.net/nf4rc/SendingWinlinkWithoutWindows.pdf>

-----LAYERS OF SOFTWARE FOR VARIOUS APPLICATIONS-----

Some applications include their own modem-layer, some include it for some protocols and not others; some don't include it at all. This table is an attempt to compare and contrast:

APP	FLDIGI	WINLINK	WINLINK	WINLINK	EASYTERM
Usage	Keyboard to keyboard	Email	Email	Email	Keyboard to keyboard
Protocols	PSK Olivia MT63 etc <b>NOT AX.25</b>	WINMOR (HF)	PACTOR (HF)	AX.25 Packet (VHF)	AX.25 Packet (VHF)
Modem Layer	Built into the software, to use soundcard.	WINMOR is built into the software to use soundcard	Requires a \$\$\$ \$ hardware modem.	Requires SOUND-MODEM software (KISS interface using tcp/ip)*	Requires SOUND-MODEM software (AGWPE interface using tcp/ip)
Physical Layer	Merely a soundcard interface	Merely a soundcard interface	\$\$\$\$\$ SCS-PTC modem	Merely a soundcard interface	Merely a soundcard interface

\*WINLINK can also use a hardware packet modem, in which case it doesn't need SOUNDMODEM.