

What is Winlink?

- **What is Winlink?** Winlink is a Global Radio Email *is a network of amateur radio and authorized government-licensed stations that provides worldwide radio email using radio pathways where the internet is not present.*
- It is an email service that also has additional forms used by emergency service organizations such as fire, police or home land security.
- Winlink can use HF, VHF and UHF frequencies to send email with attached forms for emergency situations. It can be used for normal email traffic as well.

Winlink Setup

- How to setup Winlink:
 - Winlink RMS Express is a Windows based program.
 - You will need a radio – VHF or UHF, a Windows based computer and a sound card device, a means to key the PTT on the radio, a TNC or TNC software and cabling to interface between the devices.

You will need an internet connection. You need to setup basically a packet station to use Winlink. There are two options for this type of setup.

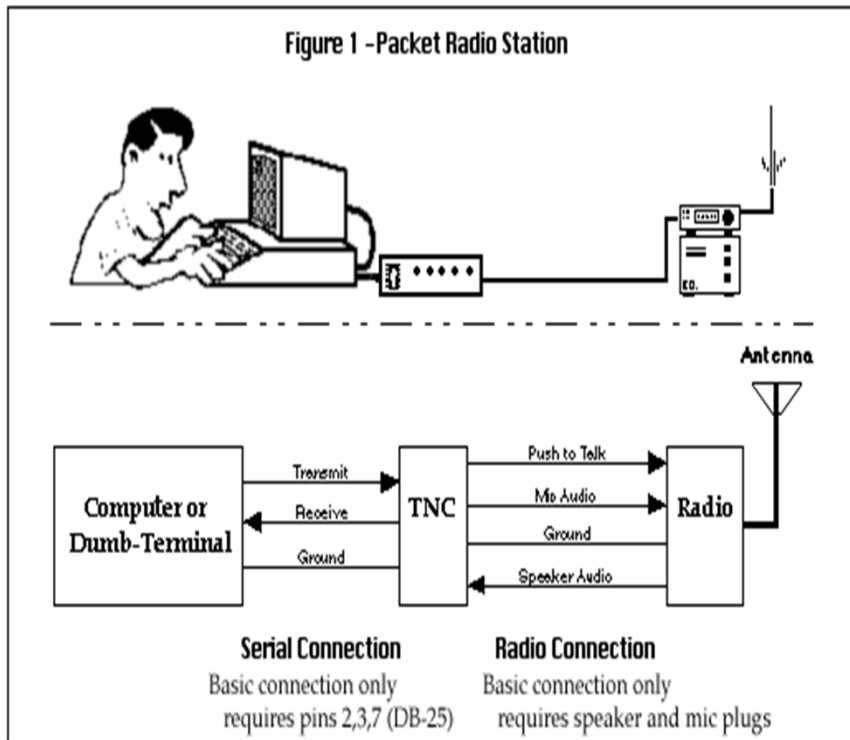
- 1. A computer, a Terminal Node Controller (TNC) such a Kantronics KPC-3 and VHF/UHF FM radio like a Yaesu FTM400.
- 2. A computer, TNC software such as Sound Card 114, a Signalink or Digirig and a radio such as FM radio – FTM400 others can be used.

Winlink Setup

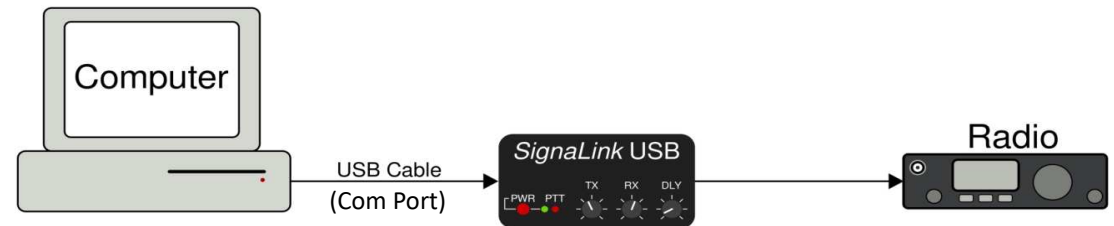
- You can use a terminal program called Easy Term by UZ7HO for a packet station to test your system before installing Winlink using the software TNC.
- You can use a module from Outpost call Ipserial which is a terminal program or HyperTerminal to use with a hardware TNC such as KPC-3.
- The TNC or Signalink or DigiRig are used since they can control the radio Push To Talk (PTT).

Winlink Setup Diagram

Hardware TNC Setup



Software TNC Setup



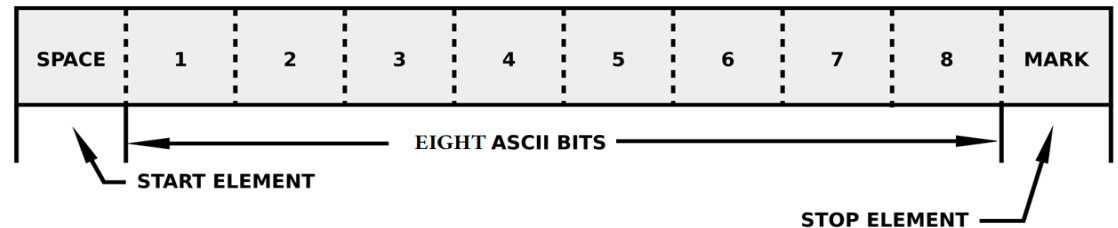
Com Port Settings Details

Bit timing = 1/Baud rate

Example : 9600 baud $1/9600 = 104.167$ microseconds per bit

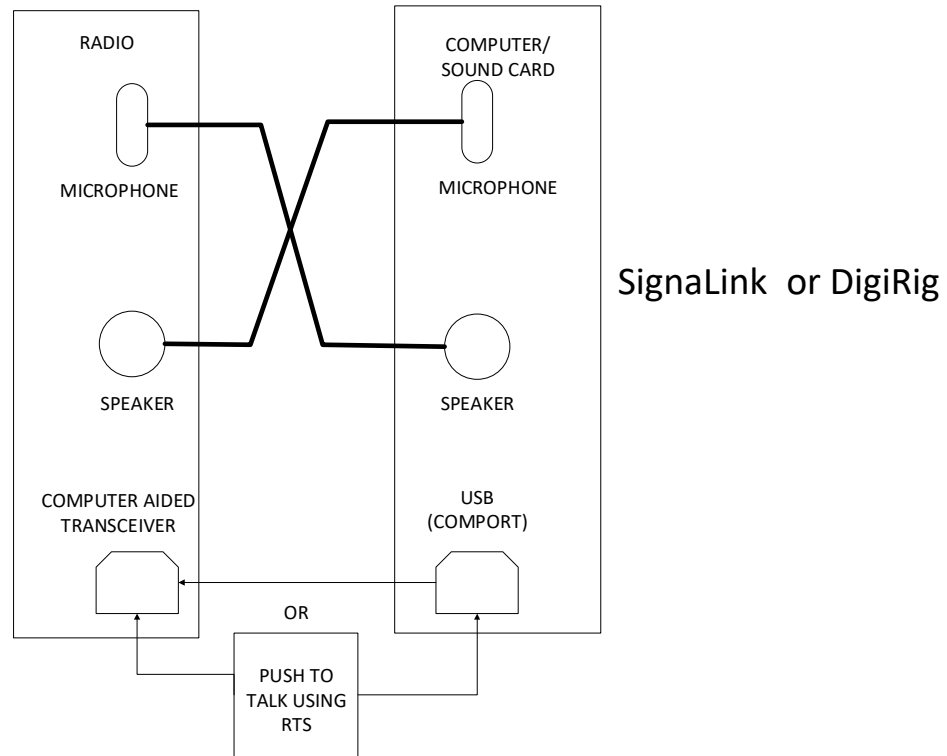
1200 baud $1/1200 = 833.33$ microseconds per bit

"Mark" is generally identified with the binary digit "1" and "space" with the binary digit "0"



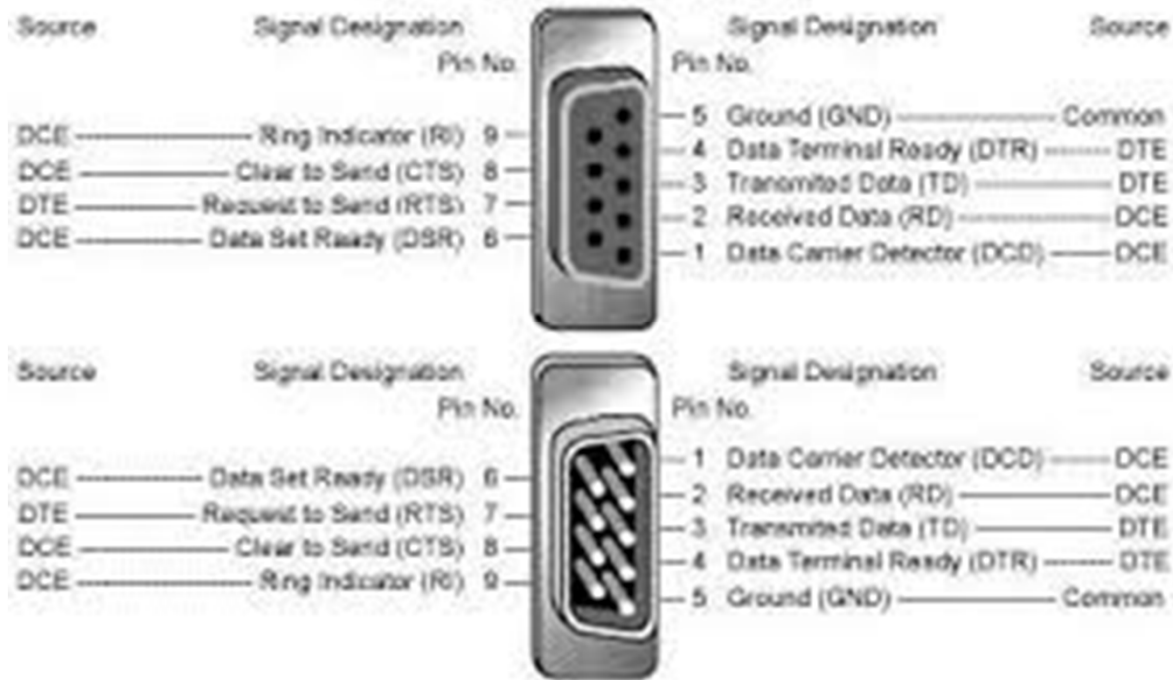
THE ORDER OF TRANSMISSION IS FROM LEFT TO RIGHT

Winlink Setup



WinLink Cabling with DB9 Connectors

V.24 / RS-232 DB9 Connector

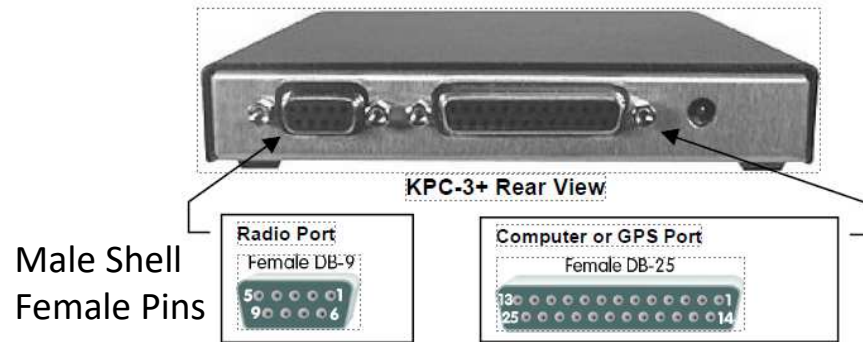


Male Shell with
Female Pins

Female Shell
With Male pins

Winlink Cabling Issue

Kantronics KPC-3+ Port Pinout Information



Male Shell
Female Pins

Radio Port (DB-9) Pin-out:

Pin no.	Signal name	Function	Related Jumpers
1	TXA	Transmit audio (AFSK out)	J9
2	XCD	External carrier detect (transmit inhibit) input or (via software command w/ 8.2 or higher firmware version) alternate GPS Input port	Software Command
3	PTT	Push-to-talk (to radio PTT/transmitter enable input)	
4	CTRLB/AN0	Control line B (or AN0 input)	J8
5	RXA	Receive audio (AKSK in)	J3, J4
6	GND	Ground	
7	EXT-IN	External input for Power/Reset	J6, J7
8	CTRLA/AN1	Control line A (or AN1 input)	J10
9	GND / RESET	Ground or Reset Input (jumper selectable – J5)	J5

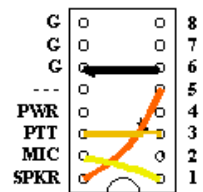
To find corresponding pin-outs for many radios, visit www.packetradio.com.

Winlink Cabling Issue

- Each radio, HF or VHF or UHF, have different connector type to wire to the TNC or Signalink.
 - A suggestion - Use a DB9 connector pair between the radio and the TNC or Signalink. The Signalink requires programming the audio and PTT using internal jumper setting. I have wired a male DB9 connector to a Cat 5 connector as follows :
 - Pin 1 Radio microphone
 - Pin 3 Radio PTT
 - Pin 5 Radio Speaker
 - Pin 6 Ground
 - The female DB9 connector pin out to the radio has pin 1 for the radio speaker and pin 5 for the microphone.
 - If you use multiple Signalinks, you make all the cables from the CAT5 connector to the DB9 the same. Now they are interchangeable.
 - Each radio will need a unique cable from the radio to the DB9 connector.
 - This idea eliminates matching Signalink boxes and radios since the radio are all wired differently.

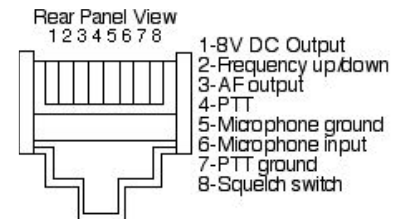
Winlink Cabling Issue using CAT 5 connectors and wiring with DB9 connectors

SignalLink jumper settings



Signalink to the DB9 Cable		DB9 Female Pins
8 pin Cat 5		Male Shell
1	Microphone	1
2	NC	
3	Push to Talk	3
4	NC	
5	Speaker	5
6	Ground	6
7	NC	
8	NC	
9	NC	

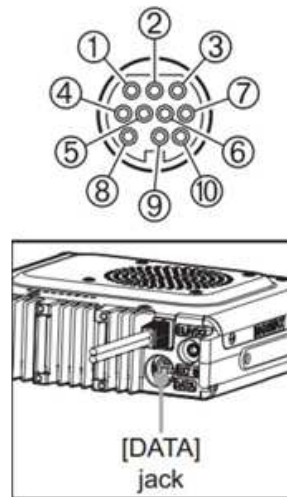
DB9 to the radio Cable	
DB9 Male Pins	Female Shell
1	Speaker
2	NC
3	Push to Talk
4	NC
5	Microphone
6	Ground
7	NC
8	NC
9	NC



Microphone Jack on ICOM 706 or FT857	
3	To speaker Tip (AF audio)
4	PTT
6	Microphone (needs series capacitor to block dc)
5,7	Pin 2 and Pin 5 and Speaker Gnd

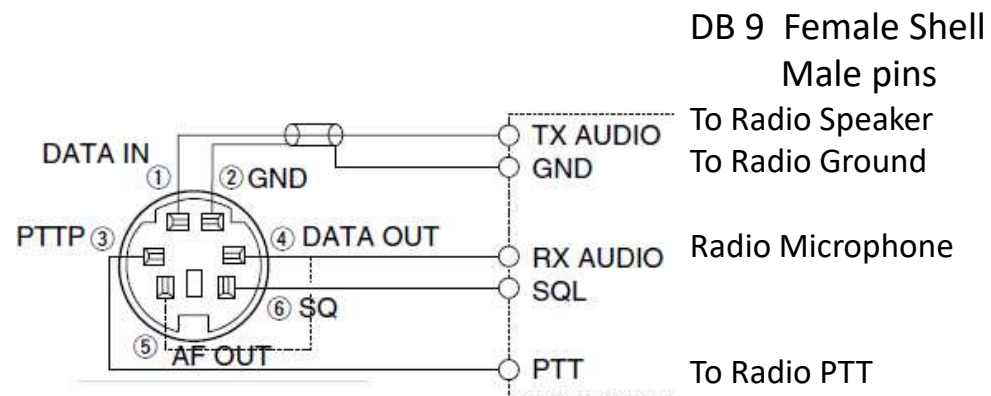
WinLink Cabling for FTM-400 female DB9 to Data port on radio

	FTM-400
DB-9 Male pins	FTM-400
Female socket	8 pin connector
1	5 (SKPR)
2	NC
3	3 (PTT)
4	NC
5	1 (MIC)
6	2 (GND)
7	NC
8	NC
9	NC
10	NC



WinLink Cable wiring for ICOM radios

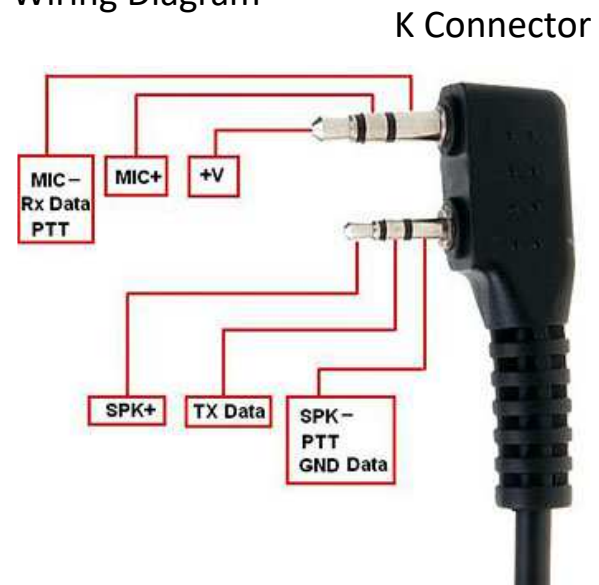
ICOM 6 Pin Mini Din Connector on the radio (rear panel view)



WinLink Cabling wiring for HT's

Baofeng / Kenwood HT Wiring Diagram

3.5 mm Connector		DB9 Female Shell	
Tip	open	NC	
Middle Band	Mic	pin 1	
Second Band	PTT	pin 3	
2.1 mm Connector			
Tip	Speaker	pin 5	
Middle Band	open	NC	
Second Band	Ground	pin 6	



Winlink Software Setup

- Download and install the software for your station setup.
Software locations : Winlink, Soundcard 114 TNC and Terminal program
 - <https://downloads.winlink.org/User%20Programs/>
 - <http://uz7.ho.ua/packetradio.htm>
- Registration for the Winlink software is not required. However you will need to make a password via the Winlink site.

Winlink Express Setup Configuration

Winlink Express Properties

Call Signs

My Callsign: My Password:
(Case sensitive)

Callsign suffix (optional): (Used for country code)

Password recovery e-mail:
(Non-Winlink e-mail address where lost password will be sent when requested)

Auxiliary Callsigns and Tactical Addresses

My Grid Square:

Winlink Express registration key:

Service Codes

(Use PUBLIC for ham call signs. Separate multiple service codes by spaces.)
If you change service codes, you must update the list of channels.

Contact Information (Optional)

Name:
Street address 1:
Street address 2:
City:
State/Province:
Country:
Postal code:
Web Site URL (optional):
Phone number:
Non-Winlink e-mail:

Additional information (optional):

Recalculate HF path quality if SFI changes more than:

Keep logs for weeks. Keep deleted messages for days.

Display list of pending incoming messages prior to download
 Warn about connections to stations holding messages
 Allow diagnostic information to be sent to the Winlink Development Team
 Automatically install field-test (beta) versions of Winlink Express

Winlink Software Setup

The screenshot shows the Winlink Express 1.5.40.0 interface for user KB9QG. The 'Open Session:' dropdown menu is open, and 'Packet Winlink' is selected and circled in red. The interface includes a folder pane on the left, a message list in the center, and a message details pane at the bottom.

System Folders:

- Inbox (0 unread)
- Read Items (0)
- Outbox (0)
- Sent Items (6)
- Saved Items (0)
- Deleted Items (0)
- Drafts (0)

Personal Folders:

-

Global Folders:

-

Contacts:

-

Date/Time	Message ID	Size	Source	Subject
2021/10/09 12:30	3QH47R4AYWYZ	185	K9RYN	
2021/10/06 12:56	U1EJFN1J7DVL	178	KD9QDL	js8call
2021/10/06 12:56	2FNKJ8W3T1JE	176	KD9QDL	RMS Ga
2021/08/22 17:30	322C6FRK41CG	542	KC9TYA	RMS Ga
2021/08/20 13:31	QYQG5L3W42PT	346	KC9TYA	The IWV
2021/08/18 23:48	LOVP1XY3WH5U	1884	N9NMR	IWW Co
2021/08/17 22:30	ZQAQPGEAS5UA	885	AB9ZA	Clear Fre
2020/12/03 15:21	U1KO3UPYX35J	750	KC9TYA	Re: Digit
2020/12/03 13:30	254C1TDODDMQ	190	KD9QDL	Indiana \
2020/11/30 21:10	Q7OMHX36WW...	180	KD9QDL	Thursday
2020/11/29 15:12	9QBQM2VNEKJB	2416	KB9WWM	test from
2020/11/29 15:07	MER96Y2QPQR	3078	KB9WWM	Hazardoi

Message ID: MC3TK4300W3E
Date: 2020/04/16 23:42
From: SERVICE
To: KB9QG
Source: SYSTEM
Downloaded-from: Telnet:cms.Winlink.org
Subject: Password Recovery Address Change Notification

Someone, possibly you, has changed the password recovery address for your

Winlink Software Setup

Winlink Express 1.5.40.0 - KB9QG

KB9QG Settings Message Attachments Move To: Saved Items Delete **Open Session** Packet Winlink Logs Help

Double click to start a session

No active session...

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
Inbox (0 unread)	2021/10/09 12:30	3QH47R4AYWYZ	185	K9RYN	K9RYN	WD9GC...	js&call
Read Items (0)	2021/10/06 12:56	U1EJFN1J7DVL	178	KD9QDL	KD9QDL	KB9QG	RMS Ga
Outbox (0)	2021/10/06 12:56	2FNKJ8W3T1JE	176	KD9QDL	KD9QDL	KB9QG	RMS Ga
Sent Items (6)	2021/08/22 17:30	322C6FRK41CG	542	KC9TYA	KC9TYA	K9JAJ...	The IWV
Saved Items (0)	2021/08/20 13:31	QYQG5L3W42PT	346	KC9TYA	KC9TYA	WB9YIG...	IWW Co
Deleted Items (0)	2021/08/18 23:48	LOVP1XY3WH5U	1884	N9NMR	N9NMR	K9JAJ...	Clear Fre
Drafts (0)	2021/08/17 22:30	ZQAQGEAS5UA	885	AB9ZA	AB9ZA	KC9TYA	Re: Digt
Personal Folders	2020/12/03 15:21	U1K03UPYX35J	750	KC9TYA	KC9TYA	K0RL...	Indiana \
Global Folders	2020/12/03 13:30	254C1TDODDMQ	190	KD9QDL	KD9QDL	KB9QG	Thursda
Contacts	2020/11/30 21:10	Q70MHX36WW...	180	KD9QDL	KD9QDL	KB9QG	test from
	2020/11/29 15:12	9QBQM2VNEKJB	2416	KB9WWM	KB9WWM	K0RL...	Hazardo
	2020/11/29 15:07	MER96Y2QPQPR	3078	KB9WWM	KB9WWM	K0RL...	Winter S

Message ID: MC3TK430OW3E
Date: 2020/04/16 23:42
From: SERVICE
To: KB9QG
Source: SYSTEM
Downloaded-from: Telnet:cms.Winlink.org
Subject: Password Recovery Address Change Notification

Someone, possibly you, has changed the password recovery address for your

VHF Packet Winlink

The screenshot shows the Packet Winlink Session window. The title bar reads "Packet Winlink Session". The main interface includes a menu bar with "Exit", "Settings", "Switch to Peer-to-Peer Session", "Channel Selection", and "1200 Baud". The "Settings" and "Start" buttons are circled in red. The "Start" button is also highlighted with a blue box. A red text overlay on the right side of the window says "Click on Start to connect to a digipeater." Below the menu bar, there are fields for "Connection type" (set to "Direct"), "KA9LCF-10", and "Via". There are also buttons for "Edit script", "Add script", and "Remove script". A status bar at the top indicates "Time to next Autoconnect = 14:50". The main window area displays a log of startup messages:

```
*** Starting WL2K packet session...
*** Launching E:\Amateur Radio\Amateur Radio Computer Software\Dire Wolf Software TNC\direwolf-1.5-beta3-win\direwolf.exe
*** Soundcard modem is running.
*** Initializing KISS over TCP Host 127.0.0.1 Port 8001
*** Initialization complete
*** Ready
```

Winlink Software Setup

Packet Winlink/P2P Setup

TNC Connection

Packet TNC Type: KISS

Packet TNC Model: NORMAL

Serial Port: TCP

TCP Host/Port: 127.0.0.1 8001

Packet sound modem: E:\Amateur Radio\Amateur Radio Computer Software\Dire Browse

Automatically launch packet sound modem

TNC Parameters

1200 Baud 9600 Baud

TX Delay (Milliseconds): 400 300

Maximum Packet Length: 255 255

Maximum Frames: 4 7

Frack: 2 2

Persistence: 160 224

Slot time: 30 20

Maximum Retries: 5 5

Disable Xmt Level Adjust Transmit Level: 300 300

Enable IPoll:

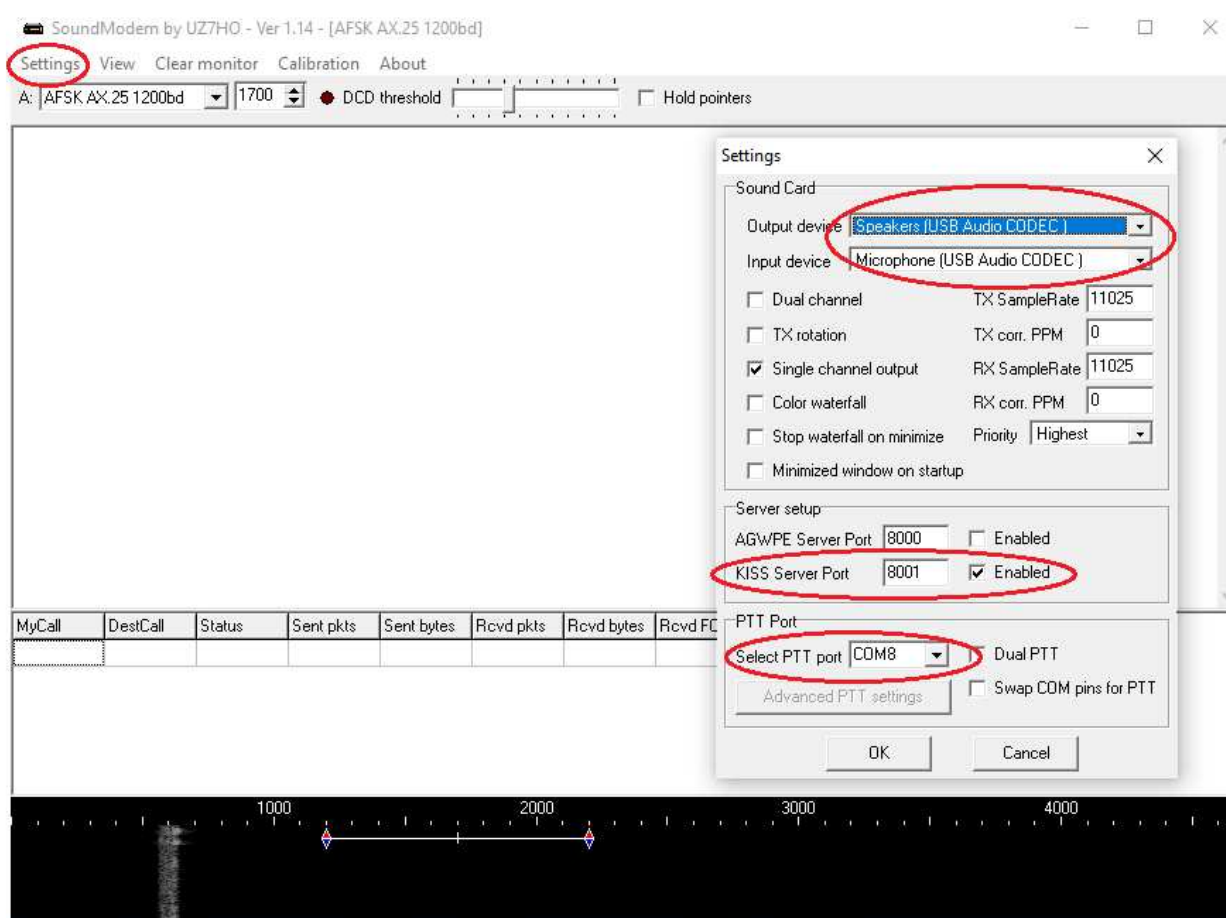
Automatic Calling

Autoconnect time: 15 Minutes

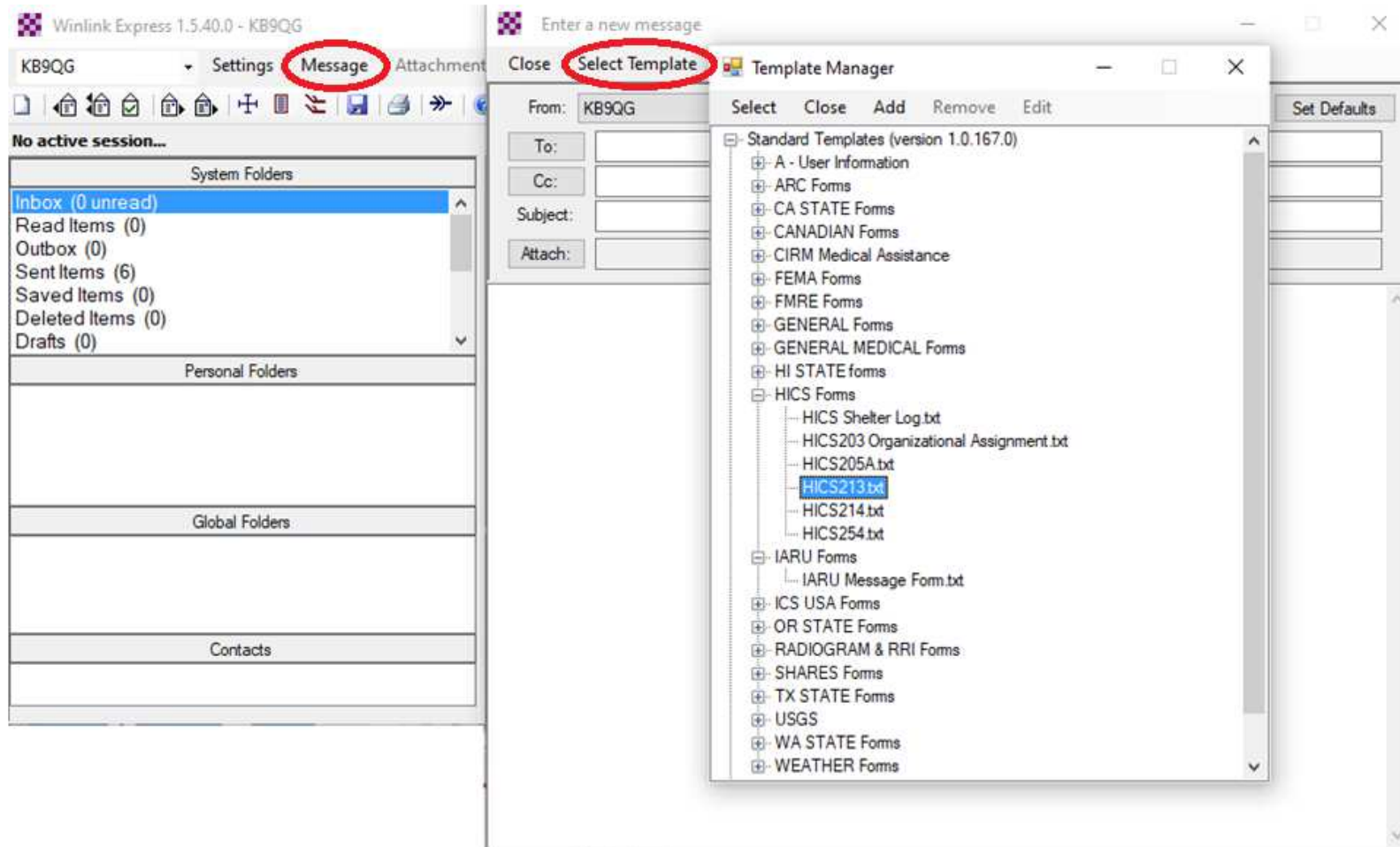
Automatically call when there are pending outgoing messages

Update Cancel

Software TNC Setup



Selecting Winlink Forms



Using Winlink Forms

(Example ICS 213 form)

[Setup](#) Click to add an agency or group name

General Message (ICS 213)

THIS IS AN EXERCISE [Load ICS213 INITIAL Data](#) [Form Instructions](#)

1. Incident Name:

2. To (Name/Position):

3. From (Name/Position):

4. Subject: 5. Date: 6. Time:

7. Message:

Be Brief and Concise

8. Approved by: 8b. Position / Title:

Optional Location Coordinates

Latitude Longitude MGRS Grid

LAT/LON and MGRS default to the center of the grid square listed in Express Settings, unless a GPS is used or Lat/LON or MGRS are entered manually.
For Winlink mapping and CSV export you must enter a latitude and longitude.

Ver 43.45