

SalCo ARES Digital Messaging Reference ICom IC-7100

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FOREWARD

I would like to thank S. Porter, KA5GOQ and J. Bratton, AA5AD for their assistance in testing and preparation of this guide. It takes a team!

Some additional notes about Winlink Gateways: You may get frustrated or think you can't connect to ______ gateway when it doesn't respond on your first connection attempt (usually 10 tries), but don't give up! The way the Winlink Gateway software works is it "scans" each frequency for approximately 6 seconds before moving to the next. So, for example, our Gateway (AD5EO) has (in essence) two possible gateways – 40 meters narrow and wide modes. The narrow and wide modes reside on different frequencies within the same band. (In our case, 7.096.00 (40m narrow); and 7.103.00 (40m wide). So it takes approximately 12 seconds to complete the cycle. When you click "start" to start the connection from your radio it is probable you will not hit perfectly within the scanning software of the gateway.

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Icom IC-7100

Direct USB Connection to IC-7100

Winlink Installation

Download RMS Express from <u>https://winlink.org/ClientSoftware</u>; Winlink Express (right side of page), then scroll to bottom of page for download (do not install yet).

For Icom radios, go to this link to download the most current virtual Com port drivers: <u>https://drivers.softpedia.com/get/Other-DRIVERS-TOOLS/Icom/Icom-ID-7100-Transceiver-USB-Driver-120.shtml_</u>or

https://www.icomjapan.com/support/firmware_driver/?keyword=7200&open=tab2&type=5#download _result

Select the appropriate download for your operating system.

Install the drivers as directed (before you connect the USB cable to the computer !).

Install a <u>shielded</u> USB A to mini B cable between the computer and the radio using the mini B USB port on the rear of the radio. Correct procedure: insert USB Micro B connector into back of radio, **turn radio on,** then insert USB cable into the computer. Failure to follow these steps will result in the incorrect drivers to be installed.

Your computer should automatically load the appropriate drivers and create two com ports. (FOR Windows 7 Pro; Windows 10 Pro) Click on the Windows orb at the lower left side of the screen Navigate to "Computer" and right click. Select Properties Select Device Manager Expand Ports (Com and LPT)



NOTE: your com port number may be different than mine.

Make note of these two com port numbers, they will be required in the Winlink set-up process.

Install Winlink Express (following the screen prompts).

Open Winlink Express and you will see:

Winlink Express Properties		X
Call Signs	Contact Information (Optional)	
Callsign suffix (optional): (Used for country code)	Name:	
Show password	Street address 1:	
Password recovery e-mail:	Street address 2:	
(Non-Winlink e-mail address where lost password will be sent when requested)	City:	The first
Remove Callsign Request password be sent to recovery e-mail	State/Province:	AR
	Country:	18
Auxiliary Callsigns and Tactical Addresses	Postal code:	72015
Add Entry	Web Site URL (optional):	
Remove Entry	Phone number:	591.672.5559
Edit Entry	Non-Winlink e-mail:	lgSdr(@ut.ort
	Additional information (optional):
My Grid Square: Lat/Lon to Grid Square Wnlink Express registration key:		۵. ۲
Path to propagation forecast program: C.\itshfbc\	Recalculate HF path quality if SFI	changes more than: 30
Service Codes	Keep logs for 🚺 🚔 weeks.	Keep deleted messages for 30 days.
PUBLIC	Display list of pending incomin	g messages prior to download
(Use PUBLIC for ham call signs. Separate multiple service codes by spaces.)	Warn about connections to sta	ations holding messages
If you change service codes, you must update the list of channels.	Allow diagnostic information to	be sent to the Winlink Development Team
Update Cancel	 Automatically install field test (p) 	clay versions on version. Express

At a minimum, fill in the areas I have circled. (The Winlink Express Registration key is not required, however if you wish to donate to the furthering of this software, \$24.00 is the registration fee (as of February 2018)). After you've filled in these blanks, please press "UPDATE".

To verify the program was installed correctly (and to complete the installation), On the pull-down menu near the top of the window, select "Telnet Winlink" from the options:

Winlink Express 1.5.11.0 - KG5DN	IF	12.000	Ches (Fr.		1.5	and a				
KG5DNF - Settings	Message	Attachments	Move To:	Saved Items	•	Delete	Open Session:	elnet Winlink	- Logs	Help
	≿ 🚽) 🛃 ≫ 📀								
No active session										
System Folders	D	ate/Time 🔍	Message ID	Size	Source	Sender	r Recipie	ent Subje	ect	
Inbox (0 unread)										
Quthox (0)										
Sent Items (0)										
Saved Items (0)										
Drafts (0)										
Personal Folders										
1										
Global Folders										
Contacts										

Then "click" on the "Open Session" text (it actually is a button).



On the window that opens up, press "Start" to begin the session

You will then connect to one of the RMS (Radio Message Servers) via your internet connection.



After Winlink completes its connection press either Exit or the Red "X" to exit the session.

The email you provided in the set-up process will receive an email from Winlink Express.

Now you're ready to set up Winlink Express for use with your radio.

Before you proceed, some setting on your radio need to be verified/changed: Press the [SET] button on the radio, navigating to the third page of the menu (3 of 4), selecting Connectors. Ensure your radio is set to the following options:

USB Audio SQL:	Off (C	Open)
ACC/USB Output Select:	AF	
ACC/USB AF Level:	50%	
ACC/USB IF Level:	50%	
ACC MOD Level:	50%	
DATA MOD Level:	50%	
USB MOD Level:	50%	
DATA OFF MOD:	MIC,A	ACC (This will need to be set to USB for non-data
		mode rig control, MIC, ACC for Voice)
DATA MOD:	USB	
External Keypad:	(No ch	hanges)
CI-V:		
CI-V Baud Rate:		19200
CI-V Address:		88h
CI-V Transceive:		OFF
CI-V Output (for AN	(T):	ON

Press the [SET] button once again to return the radio to normal operating mode.

Winlink Vara HF Setup

VARA HF is a high-speed Digital HF modem. It is usable without a license key (\$69.00 at time of writing) but higher speeds will not be available without the license.

Before setting up Winlink Express for VARA HF, you must first close Winlink express, and download the VARA HF software: <u>https://rosmodem.wordpress.com/</u>. Once the software has downloaded, install following the screen prompts.

The option at the end of the install is to "Launch Application". This will allow you to setup VARA HF.



Select [Settings] [VARA Setup]



The Main VARA settings screen will be as follows:

🎄 VARA Setup	×
Command D	ata 8301
VARA Licenses Callsign: KG5DNF	Begistration Key:
Callsign: AD5E0	Registration Key:
Callsign:	Registration Key:
Callsign:	Registration Key:
Allow VARA of internet serve	check for updates via r
☐ 500<->2300 (☑ Tuner enhand	Gateway Compatibility cement
CVV ID	т
Retries:	
[Close

Enter your calls sign (and registration key if you have one) and ensure the indicated boxes are checked. Then press [CLOSE].

Select [Settings] [Soundcard Setup]



In the two pull-down lists, select the USB Audio CODEC (NOTE: I have renamed my CODECs to appropriately indicate which Soundcard is being used since I have multiples; If you have multiple USB Audio CODECS you may have to try a few times to select the correct one).

When finished, press [CLOSE]

Providing your radio (and soundcard) are turned on, the main screen of VARA should look similar to the following image:



Please note the "VU" meter should have the needle pointing in the green section at or below the midway point. If it is higher than that, you will need to adjust the microphone level.

To do so, leave the VARA main screen up on your display, move your mouse to the lower right corner of the display and [Right Click] on the speaker icon. Click on [Open Sound Settings]

	_	>
ound		
utput		
noose your output device		
IC7100 Tx (USB Audio CODEC)		
ertain apps may be set up to use different sound devices than the one elected here. Customize app volumes and devices in advanced sound otions.		
evice properties		
aster volume		
80		
anage sound devices		
unut		
100se your input device		
IC7100 Rx (USB Audio CODEC)		
ertain apps may be set up to use different sound devices than the one elected here. Customize app volumes and devices in advanced sound otions.		
evice properties		
st vour microphone		

Select the appropriate USB Audio CODEC from the [Input] pull down box, then click [Device Properties]

Settings
 Device properties
 IC7100 Rx Rename
 Disable
 Volume
 41
 Start test

Adjust the [Volume] slider until the VU meter is adjusted appropriately.

Please note the screenshots for computer settings are from a machine running Windows 10.

Now you may close all these open windows. (VARA and Sound Settings)

Now, restart Winlink Express, Select [VARA HF Winlink] from the pull down:

Winlink Express 1.5.32	2.1 - KG5DNF					- 0	×
KG5DNF - S Logs Help	Settings Message	Attachments Move	To: Saved Items	✓ Delete	Open Session:	Vara HF Winlink Telnet Winlink Packet Winlink Pactor Winlink	
No active session						Robust Packet Winlink	
System Folders Inbox (0 unread) Read Items (0) Outbox (0) Sent Items (0) Saved Items (0) Deleted Items (2) Drafts (0) Personal Folders	Date/Time	✓ Message ID	Size Source	Sender	Recipient	Winmor Winlink Ardop Winlink Vara FM Winlink Iridium GO Winlink 	
Contacts ALAN_CATE_KD5ONL DAVID_WILIMOT_KF5TOC JOE_BRATTON_AA5AD MARK_BARNHARD_KD5AI SALCOARES STEVE_PORTER_KT5H							<

Then press the "Open Session" button:

Winlink Express 1.5.11.0 - KG5D	NF		10	11					□ X
KG5DNF - Settings	Message Attachments	Move To:	Saved Items	•	Delete Open Se	ssion: Winmor W	inlink 👻	Logs	Help
	눈 🛃 🗁 📎								
No active session									
System Folders Inbox (0 unread) Read Items (0) Outbox (0) Saved Items (0) Saved Items (0) Deleted Items (0)	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject		
Drafts (0) Personal Folders									•
Global Folders									
Contacts									Ţ

Yes, [Open Session] is an actual button not text!

A new window will appear entitled VARA Winlink Session. Click on [Settings]:

🗱 Vara Winlink Session - KG5DNF	– 🗆 X
Exit Settings Switch to Peer-to-Peer Channel Selection Map For	op Abort
AD5EO Center Freq. (kHz): 7103.000 Dial Freq. (kH	96
Favorites:	
Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected	
*** Launching VARA TNC *** Successfully connected to VARA TNC. ** Vara signal bandwidth is 2300 Hz. ** Using Loom 7100, COM13, 19200 baud *** Ready *** This is a registered version of Vara TNC that can operate at full speed. 1	
	~

Select [VARA TNC Setup]

🗱 Vara Setup		×
Virtual TNC host address/name:	127.0.0.1	
Virtual TNC Command Port:	8300 - Data Port: 8301	
Session Bandwidth:	2300 ~	
VARA Modem location:	C:\VARA\Vara.exe	
Automati	ically launch Vara TNC when session is opened	
🗹 Identify v	with Morse code at end of session	
Update	Cancel	

Ensure all items are as indicated in the above screenshot. When finished, Click [Update] then click [Close]

Next, click on [Settings] [Radio Setup]

🗱 Vara HF Winlink Sett	ings			×
Radio Selection				
Select Radio Model	Icom 7100	~ Ant	enna Selection	Default 🗸
Icom Address 8	B USB 🔾	USB Digital	● FM ○	Use Internal Tuner
Codan login and	optionl password:			
Radio Control Port Serial Port to Use	OM13 ∨ Baud	19200 ~	Enable RTS 🗹	Enable DTR 🗹 🛛 TTL 🗌
PTT Port (Optional) Serial Port to Use CI-\	· ~	Baud 9600	∨ Enal	ole RTS 🗹 Enable DTR 🗹
	Update		Close	

Ensure settings are as indicated in the above screenshot (**NOTE**: your serial port (COM) will more than like be different from mine. The two COM ports that appeared when you connected the radio USB to your computer are the comm ports required for this section (use the lower of the two numbers)! When finished, click [Update] then click [Close].

The next step is to click on "Channel Selection":

			^
Exit Settings	Switch to Peer-to-Peer Channel Selection Map Forecast Best chan. Next chan. Start Stop Abort		
AD5EO	Center Freq. (kHz): 7103.000 Dial Freq. (kHz): 7101.500 Bearing: 270 Quality: 96		
avorites:	 Select Add to favorites Remove from favorites 		
annel Busy In: 0/	/0 Out: 0/0 BPM: 0/0 Disconnected		
Successfully come Vara signal bandwi Using Icom 700 Ready This is a registered	the is 2000 Hz. JOM13, 19200 baud version of Vara TNC that can operate at full speed.		

A new window will appear. Select (click) on "Update Table Via Internet":

🗱 HF Chann	el Selector							-	Σ	3
Exit Selec	ct Update T	able Via Internet	Update Tab	ole Via Ra	dio Forecas	t SFI All	RMS		•	
Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate	^
KB5LZK	3598.500	1600	EM34UT	00-23	PUBLIC	36	039	99	99	
AD5EO	3590.000	1600	EM34QN	00-23	PUBLIC	8	270	99	99	
AD5EO	7103.000	1600	EM34QN	00-23	PUBLIC	8	270	96	96	
KB5LZK	7101.200	1600	EM34UT	00-23	PUBLIC	36	039	96	96	
N4JGW	3597.000	1600	EM74LR	00-23	PUBLIC	686	086	91	55	
K9EYZ-10	3589.100	1600	EM50PM	00-23	PUBLIC	574	140	91	54	
KD7UHR	3588.500	1600	EM58BQ	00-23	PUBLIC	516	027	90	56	
KF5FNP	3583.500	1600	EM30WI	00-23	PUBLIC	469	175	90	55	
AK4SK	3570.000	500	EM60VL	23-12	PUBLIC	746	126	90	52	
AK4SK	3591.000	1600	EM60VL	23-12	PUBLIC	746	126	90	52	
WX4PCA-10	3591.000	1600	EM73NU	00-23	PUBLIC	708	094	90	55	
W9FE	3597.000	1600	EM59AA	00-23	PUBLIC	546	024	90	56	
WW4MSK	3592.500	1600	EM74UW	00-23	PUBLIC	754	084	90	54	
KOSI	3586.500	1600	EM39UA	00-23	PUBLIC	496	002	89	56	
NSOA	3510.000	500	EN41WK	00-23	PUBLIC	793	015	88	54	
NF9D	3595.000	1600	EN51TW	00-23	PUBLIC	896	023	87	53	
AJ4FW	3595.000	1600	FM07BC	00-23	PUBLIC	1174	072	86	53	Ŧ

Just a few words on this. This part of the program uses the new software to project the propagation for the various RMS stations. (Your table may not look like the picture until it has completed updating.)

Once the table has been updated you select which station you wish to connect to by double clicking on the call sign. Please note that considerable information is provided here: The frequency used by the RMS station, where it is located, distance from your location, bearing (in degrees) from your location and the path reliability and quality projected at the current time.

Note that the information from the channel selection window has been propagated into the fields on the Winmor Winlink Window, AND your radio should have been automatically set to match the frequency and mode (USB-D). [NOTE: if your IC-7100 does not respond to the rig control, on the radio check [SET][Connectors][DATA MOD] (Should be USB).

At this point, I usually manually enable the tuning on my AT-100ProII to ensure it doesn't attempt to tune while the Winlink program is attempting to establish communications with the RMS server. Also, it is extremely important to note that LDG recommends a power level setting of 35 watts OR lower to ensure the tuner is not damaged by the intensity of the signal. (You may be surprised how little power is required to make contact! I usually start at 5 watts and increase only if band conditions are unfavorable.)

When ready, press "Start" on the VARA Winlink screen to initiate contact. If all settings are correct, your radio will switch between transmit and receive is indicated by the Winmor TNC Soundcard screen with the waterfall. Do not assume program problems if you do not initially make contact with a station. All the facets of USB communication come into play including band fading.

Sit back and enjoy the show! This type of message transmit and retrieval is nowhere near as fast as an internet connection, however, it will get through when internet infrastructure is inoperable.

When the connection has completed, you may exit all windows including the main Winlink Express window. If you have received a message you will see it in the System Folders (Inbox) section of the main Winlink Express screen.

VARA FM Setup

This setup assumes you have already set up Winlink Express and Vara HF.

You do not need CAT7200 nor Soundmodem for VARA FM to work

Download the most current version of Vara FM here: https://www.winlink.org/tags/vara

Once the zipped folder has completed downloading, Expand all files and install to default folders.

(Your computer may balk at installing this file as it does most non-microsoft applications. Bypass the warnings and install anyway).



When the program has completed installing the VARA FM modem window will appear.

Click on the Settings item.









Be sure to enter your call sign and Registration Key (If you have one). For now, leave all other settings alone. When finished, click on the [CLOSE] button.

Next, click on the settings button and click on Soundcard.

SoundCard	×
Device Input ICom (5- USB Audio CODEC)	_
Device Output ICom (5- USB Audio CODEC)	
Auto Tune	Channel CL CR ©L+R
Tune Drive level:	-15 dB
Close	

As previous, select the USB Audio CODEC related to you IC-7100 for both items. When finished, click on the [CLOSE] Button.

Next, Click on the Settings button and the PTT button.	Next,	click or	the	Settings	button	and	the	PTT	button.
--	-------	----------	-----	----------	--------	-----	-----	-----	---------

🗃 РТТ	×
PTT Via	
	-
COM Port:	-
Brand:	
Model: IC-7100	
Baud: 19200 💌	
RTS	
DTR	
CI-V Address: 88	
Close	

The COM Port number will be the same one you used previously. Ensure all other settings match the window shown above. When finished, click on the [CLOSE] Button.

Finally, close the VARA FM Modem window.

Now, open Winlink Express.

Winlink Express 1.7.13.4 - AA5FO Х - Settings Message Attachments Move To: Saved Items Delete Open Session: Vara FM Winlink \sim Logs Help Telnet Winlink Packet Winlink 🗋 | 🖻 🏠 😥 | 🛧 🎰 | 🔍 | 🕂 🌐 📼 📱 🛬 | 🛃 🛬 | 🥥 Pactor Winlink Robust Packet Winlink No active session.. Ardop Winlink System Folders Date/Time Message ID Source Sender Recipient Size . Vara HF Winlink /ara FM Wi 2024/03/17 07:19 V8TH2QCZBEXU ox (0 unread) KA5GOQ KA5GOQ AA5EO ^ â Iridium GO Winlink Read Items (0) Outbox (0) Packet P2P Sent Items (10) Pactor P2P Saved Items (0) Robust Packet P2P Deleted Items (10) Ardop P2P Drafts (0) Vara HF P2P Personal Folders Vara FM P2P Message ID: V8TH2QCZBEXU Telnet P2P ^ Date: 2024/03/17 07:19 (UTC) From: KA5GOQ Pactor Radio-only Vara HF Radio-only To: AA5FO Vara FM Radio-only Cc: AA5AD Telnet Radio-only Source: KA5GOQ Global Folders Downloaded-from: RMS:AD5E0-10 Telnet Post Office Subject: sitrep, 202403170230L situation nominal, no utility outages 😵 Vara FM Winlink Session - AA5FO \times Exit Settings Channel Selection Start Stop Abort KB5LZK Freq.: 145.770 Range: Bearing: 039 Connection: Direct via · Select Add to favorites Remove from favorites Favorites: In: 0/0 Out: 0/0 BPM: 0/0 Disconnected Time to next Autoconnect = Disabled Launching VARA FM TNC: C:\VARA FM\VaraFM.exe Successfully connected to VARA FM TNC at 127.0.0.1 port 8300 * Ready VARA FM v4.3.6 AA5FO Settings View Ping Log* Help 1.0 1.0 0.8 0.8 0.6 0.6 sdq 0.4 0.4 0.2 0.2 0.0 0.0 DATA ACK IDLE VU CPU TX Delay S/N NACK BREAK -96 dE REQ QRT Audio Input RX Disconnected NARROW TCP 😑 DCD

Select Vara FM Winlink from the session type then click on [Open Session].

Click on Settings, then click on VARA TNC Setup

🗱 Vara FM Setup	_		×
			_
Virtual TNC host address/name: 127.0.0.1			
Virtual TNC Command Port: 8300	Data Port:	8301	
VARA FM Modem location: C:\VARA FM\Varal	FM.exe		
Automatically launch Vara FM TNC w	when session i	is opened	
Show Vara FM TNC screen when it's	launched		
Automatic Calling			
Autoconnect time: Disabled ~	-		
Automatically call when there are per	nding outgoing	g messages	
Update Ca	ncel		

Ensure settings are as shown. When finished, click on the [Update] button.

Finally, if you are connected to the internet, click on the [Channel Selection] button, then [Update Table via Internet] this will populate the table of the closest Vara FM RMS Gateways. Double click on the station of your choice and it will set the parameters for your session.

NOTE: Vara FM CAT control will not tune your radio to the selected station – you will have to do that manually.

When finished, click on the [Start] button and let the program do its' magic.

NOTE: creating and sending/receiving messages is the same as in all other Winlink sessions.

Winlink ARDOP Set-up

The procedure for setting up ARDOP is very similar to VARA HF, but you do not need to download any additional software. All ARDOP software is included in the Winlink Express software.

Select [ARDOP Winlink] from the pull-down menu, then click [Open Session]

Winlink Express 1.5.32	- KG5DNF		- 🗆 🗙
KG5DNF - S	ttings Message Attachments Move To: Save	ed Items V Delete Open Session:	Vara HF Winlink
	+ 🛚 눈 🚽 🌧 🌮 🞯		Packet Winlink Pactor Winlink
No active session.			Robust Packet Winlink
System Folders Inbox (0 unread) Read Items (0) Outbox (0)	Date/Time v Message ID Size	Source Sender Recipient	Vinmor Winlink Ardop Winlink Vara HF Winlink Vara FM Winlink Iridium GO Winlink
Sent Items (0) Saved Items (0) Deleted Items (2) Drafts (0) Personal Folders			Packet P2P Pactor P2P Robust Packet P2P Winmor P2P Ardop P2P Vara HF P2P Vara FM P2P Telnet P2P
Global Folders			Pactor Radio-only
Contacts ALAN CATE_KD5QNL DAVID_WILMOT_KF5TOC JOE_BRATTON_AA5AD MARK_BARNHARD_KD5AI SALCOARES STEVE_PORTER_KT5H			

Select [Settings] [ARDOP [TNC Setup]

55 Ar	dop Winlir	nk Session - KG5DNF				×
Exit	Settings	Switch to Peer-to-Peer	Channel Selection Man	Forecast Best chan, Next chan, Start Stop Abort	_	
	Arde	op TNC Setup	3584.000 Dial Fren	(kHz): 3582.500 Bearing: 270 Quality: 99		
Envo	Rad	io Setup	- Salast Add to fi	nuerites Permane fram francistes		
Channe	Trar	nsmit Level Test	Select Add to fa	avorites Remove from favorites		
*** :	DSP	Speed Test				
···· Waiti	Best	t channel setup	1			
read	y to start ca	ung.				×
	88	Ardop Setup			×	
			Ident	ify with Morse Code 🗹		
		Ardop (Capture Device:	IC7100 Rx (USB Audio CODEC)-0c $\qquad \qquad \lor$		
		Ardop Pl	ayback Device:	IC7100 Tx (USB Audio CODEC)f9 $\qquad \lor$		
	v	irtual TNC host	address/name:	127.0.0.1		
		Virtual TNC	Command Port:	8600 - Data Port: 8601		
		Ses	sion Bandwidth:	2000 ∨ Drive Level: 90 🛓		
			Update	Cancel		

Again, your USB Audio CODEC name will be different than mine! Please select the appropriate CODEC from the pull down menus in both the Audio Capture Device and the Audio Playback Device.

Then ensure the other fields are propagated as indicated in the above screenshot. When finished, click [Update], then click [Close]

🗱 Ardop Winlink Session - KG5DNF — 🗆	×
Addp Winlink Session - KoSDNH - Exit Settings Switch to Peer-to-Peer Ardop TNC Setup Channel Selection Map Favor Radio Setup - Favor Transmit Level Test - DSP Speed Test Best channel setup -	
	\sim

Next, select [Settings, [Radio Setup]:

Select Radio Mod	el Icom 7100	✓ Antenna Selection Internal 1	
Icom Address	88 USB 🔾	USB Digital FM O Use Internal Tuner	
Codan login a	nd optionl password:		
Radio Control Port			
Serial Port to Use	COM13 ∨ Baud	19200 🗸 Enable RTS 🗹 Enable DTR 🗹 TT	
PTT Port (Optional)			
	N11/	Paud 0000 Enable DTS Z Enable DTS	
Serial Port to Use (.I-V V	Daug 3600 V Enable KTS V Enable DTF	1 []

Select Icom 7100 from the [Select Radio Model] pull-down, and ensure all other fields are filled in as indicated remembering that your COM port number will more than likely be different from mine.

When finished, click [Update] then click [Close]

Just to ensure everything is correct, click on [Channel Selection] and [Update via Internet]. When this window has finished updating, double click on the station you wish to connect to, the window will close and the station fields on the ARDOP Winlink Session will be propagated.

Click on [Start] to connect to the station you have selected and enjoy the show!

Winlink Packet Set-up

This is still part of the Winlink suite of software.

In order to use this mode, you will need two additional free software downloads. First is the UZ7HO soundmodem file which can be found here: <u>http://uz7.ho.ua/packetradio.htm</u> scroll down the page until you reach the soundmodem##.zip file (where the ## = the most recent number). Download and extract (or unzip). (we'll configure that shortly.)

Also you will need the CAT7200 program which can be found here:

<u>http://www.cantab.net/users/john.wiseman/Downloads/CAT7200.zip</u> download. We'll get into the install shortly.

CAT7200 Installation:

Move the downloaded CAT7200.zip file to a "permanent" location on your pc. (I have made a directory on the C: drive called installation packages.) Double click on the "CAT7200 application" file and extract the files into the same directory. After extraction is complete, you will need to perform some manual configuration in the device manager. (DO NOT attempt to start the program at this point!)

Click on Settings -> Devices

Click on the windows "orb" in the lower left corner of your screen; click on computer -> System Properties -> Device Manager:



RIGHT click on the computer name (In this case my computer name is "**JCSLTop2016**". Select "Add Legacy Hardware". A new window opens, select "Next".

Then, select "Install the hardware that I manually select from a list (Advanced)", followed by clicking the "Next" button.

e wizard can help you install other hardwa	re
The wizard can search for other hardware a know exactly which hardware model you w	nd automatically install it for you. Or, if you ant to install, you can select it from a list.
What do you want the wizard to do?	
Search for and install the hardware as	utomatically (Recommended)
Install the hardware that I manually s	elect from a list (Advanced)

Scroll down and select "Ports (COM & LPT), then click "Next"

If you do not see the ha	irdware category you v	vant, click Show All Devices	
Common hardware typ	es:		
Memory technolog	gy driver		*
and Modems			
The serial action of the seria	lapters		
Network adapters			
PCMCIA adapters			=
Portable Devices			
Ports (COM & LPT			
🖶 Printers			
SRD2 IEEE 1304 Dep	rices		-

Ensure "Standard Port Types" is selected in the left window, and "Communications Port" is selected in the Right Window. Click "Have Disk"

Select the manufacturer and model of your hardware device and then click Next. If you have disk that contains the driver you want to install, click Have Disk.	Select the device driver you	rant to install for this hardware.
Manufacturer (Standard port types) (SBPQ) Hewlett Packard Intel This driver is digitally signed. Model Model Genematications Port Fig. Printer Port Have Disk Have Disk	Select the manufacture disk that contains the d	and model of your hardware device and then click Next. If you have a iver you want to install, click Have Disk.
This driver is digitally signed.	Manufacturer (Standard port types) G8BPQ Hewlett Packard Intel	Model Communications Port CP Printer Port Multiport Communications Port
Tell me why driver signing is important	This driver is digitally signed <u>Tell me why driver signing is</u>	Have Disk

In the "Install from Disk" window, go to the pull down window and open it, select "...\CAT7200\VCOM64" (If you have a 64 bit machine). If you have a 32 bit computer select "...\CAT7200\VCOM32", then click "OK".



Ensure the "G8BPQ Virtual Com Port" is shown. (Please ignore the "This driver is not digitally signed" prompt) Click "Next"

dd Hardware Select the device driver you want to install for	this hardware.
Select the manufacturer and model of you disk that contains the driver you want to in	ur hardware device and then click Next. If you have a nstall, click Have Disk.
Model G8BPQ Virtual COM Port	
This driver is not digitally signed!	Have Disk
Tell me why driver signing is important	< Back Next > Cancel

Your new window that appears should resemble this:

The wizard is ready to install your hardware									
Hardware to install:									
G8BPQ Virtual COM Port									
To start installing your new hardware, click Next.									
	< Back (Next > Cance								

After you click "Next", the virtual com port will be created. Then, in Device Manager, expand the "Ports (COM & LPT)" group and make note of the new COM port number associated with "G8BPQ Virtual COM Port (COM xx)":



Now you are ready to install the CAT7200 software. (Which is required to send the CI-V commands to the IC-7100 via the Data2 port on the rear of the radio. Without this piece of software, the other software cannot key the radio.)

Navigate your way back to where the unzipped folder for CAT7200 resides on your computer. Once there, double click on "CAT7200" application. The new window appears and this is where some of the notes you took earlier will pay off! On the left side of the new window, select the COM port number associated with the G8BPQ Virtual COM Port (Application Port), On the Right side of the window, select the COM port number associated with the lowest number USB CODEC from the previous USB connection with your radio (CAT Port) (We'll finish configuring this application after the screen shot):



Select 19200 from the drop down menu item (This should correspond with the CI-V Baud Rate setting on your radio (Set -> Connectors -> CI-V Baud Rate)). Next select "88" (default address) associated with your radio (Set -> Connectors -> CI-V Address). (note: the "h" is silent). Finally press "Open". Then minimize this window.

Soundmodem Installation

Navigate to where you extracted the files from the download and double click "soundmodem.exe". Once the new application window opens, select "Settings -> Device Settings".

SoundModem by UZ7HO - V Settings View Clear monitor A: AFSK AX.25 1200bd 💽 17	Calibration About	Hold pointers	×
	Settings Sound Card Output device Speakers (USB Input device Microphone (US Dual channel V TX rotation V Single channel output V Color waterfall V Stop waterfall V Stop waterfall on minimize Server setup AGWPE Server Port 8000 KISS Server Port 8100 PTT Port Select PTT patt COM15 V	Audio CODEC) SB Audio CODEC) SB Audio CODEC) TX SampleRate 11025 TX corr. PPM 0 RX SampleRate 11025 RX corr. PPM 0 Priority Highest • Enabled Dual PTT Swap COM pins for PTT	*
	OK	Cancel	

Ensure you select the USB Audio CODEC for both the speakers and microphone output/input devices. Ensure the AGWPE Server port is set to 8000 and is enabled; and the KISS Server Port is set to 8100 and enabled. Then elect the COM Port number associated with the new virtual COM port you recently created. Finally, click on OK and close the window.

Next, click on "settings -> Modems"

Modem settings	
Modem filters ch: A	Modem filters ch: B
BPF Width 1400 Show	BPF Width 2400 Show
TXBPF Width 1600 Show	TXBPF Width 2500 Show
LPF Width 650 Show	LPF Width 900 Show
BPF Taps 256	BPF Taps 256
LPF Taps 128	LPF Taps 128
✓ Default settings	Default settings
PreEmphasis filter 🛛 🔽 🗸 All	PreEmphasis filter None 🚽 🔽 All
✓ KISS Optimization	✓ KISS Optimization
non-AX25 filter	non-AX25 filter
Modem type ch: A	Modem type ch: B
Mode AFSK AX.25 1200bd 💌	Mode BPSK AX.25 1200bd 👻
TXDelau 900 msec	TXDelau 250 msec
TXT ail 100 msec	TXTail 50 msec
Add BX 0 pairs	Add BX 0 pairs
Add BX shift 30 Hz	Add BX shift 30 Hz
Bits Hecovery NUNE	Bits Recovery INUNE
Ok	Cancel

If I recall correctly, the default settings are correct. The previous screen shot is for comparison. If all items match, click on OK, then close the window.

Since Packet (AX.25) is a non-digital mode, on the radio, double check the following:

[SET] [Connectors] [DATA MOD OFF] {Setting should be USB} (Don't forget to change this setting back to Mic, Acc for voice operations.

After all settings have been established, Close Soundmodem.

Winlink Express Packet Session Setup

Start CAT7200

Start Winlink Express

Select [Packet Winlink] from the sessions menu

🗱 Winlink Express 1.7.13.5 - AA5FO — 🗆 🗡	<
AA5FO - Settings Message Attachments Move To: Saved Items - Delete Open Session: Packet Winlink - Logs	
Help Telnet Winlink	
Pactor Winlink Robust Parket Winlink	
No active session Ardop Winlink	_
System Folders Date/Time Versage ID Size Source Sender Recipient Vara HF Winlink	^
Inbox (0 unread)	
Read Items (0)	
Sent Items (20) E 2024/03/22 15:06 NF4140SRP1D5 226 KA5GOQ KA5GOQ AA5FO Packet P2P	
Saved Items (0) actor P2P Robust Pactor P2P Robust Packet P2P	
Deleted items (10) Drafts (0) 2024/03/22 11:18 AL7U1CWVTE89 278 KA5GOQ KA5GOQ AA5FO Ardop P2P	
Personal Folders Vara HF P2P Vara FM P2P	~
Message ID: V8TH2QCZBEXU Telnet P2P	^
Date: 2024/03/17 07:19 (UTC)	
From: KA5GOQ Pactor Radio-only	
To: AA5FO Vara Hi Kadio-only	
CC: AASAD Valerwinkadio-only	
Global Folders Dour Ce: ALSCOQ	
Subject: sitrep. 202403170230L Telnet Post Office	
situation nominal, no utility outages	¥

Then click on [Open Session]

In the Packet Session Window, click on [Settings]

Packet Winlink/P2P Setup					
TNC Connection					
Packet TNC Type: KISS					\sim
Packet TNC Model: NORMAL \sim			Serial Port:	TCP	~
	TCP Ho	st/Port:	127.0.0.1	81	100
	-T-I HAM 9	-	Mtatak \ooun		
(For KISS mode)	gital main a	ontware	Winink sour	amodem.e	Browse
Automatical	ly launch p	acket so	und modem		
TNC Parameters	0.000		0.000		
	O 1200 E	Baud	9600 B	aud	
TX Delay (Milliseconds):	400	\sim	300	\sim	
Maximum Packet Length:	128	\sim	255	\sim	
Maximum Frames:	4	\sim	7	\sim	
Frack:	2	\sim	2	\sim	
Persistance:	160	\sim	224	\sim	
Slot time:	30	\sim	20	\sim	
Maximum Retries:	5	\sim	5	\sim	
Disable Xmt Level Adjust Transmit Level:	100	4 T	100	*	
Enable IPoll:					
Automatic Calling					
Autoconnect time: Disabled	~				
Automatically call when there are	pending of	utgoing r	messages		
Update		(Cancel		

Ensure settings are as above. In the Packet Soundmodem for KISS Mode, click on [Browse] and go to the location where Soundmodem.exe resides, select it, then ensure the box for [Automatically launch packet sound modem] is checked. Then click [Update].

Packet Session Channel Selection

🕵 Packet Cha	nnel Selector						\times
Select Chann	el Update T	able Via Interne	et Update Ta	able Via Radio	Exit		
Stations found	within 300 kil	ometers of you	ır grid square.				
Callsign	Frequency (MHz)	Baud	Grid Square	Group	Distance (km)	Bearing (Degrees)	
AD5EO-10	145.030	1200	EM34QN	PUBLIC	800	270	
KB5LZK-10	147.495	1200	EM34UT	PUBLIC	036	039	
KB5LZK-10	145.590	1200	EM34UT	PUBLIC	036	039	
W5TCB-15	145.010	1200	EM34MN	PUBLIC	038	270	
KB5IOC-10	145.010	1200	EM23XL	PUBLIC	183	229	
W5VG-10	145.050	1200	EM32PU	PUBLIC	191	185	
N9SEO-10	145.050	1200	EM36TG	PUBLIC	191	004	
NA0D-10	145.050	1200	EM25WU	PUBLIC	203	315	
W5HB-10	145.090	1200	EM25VU	PUBLIC	209	314	
KB7QL-10	145.010	1200	EM32QN	PUBLIC	222	182	
KD5BS-10	145.090	1200	EM54BW	PUBLIC	246	079	
K4SPB-10	144.990	1200	EM55CD	PUBLIC	259	075	
WB5L-10	145.050	1200	EM26TK	PUBLIC	267	322	

Click on [Channel Selection], then click on [Update Table via Internet]

Select the station you want to connect to, then double click to select. NOTE: Winlink does not support CAT operation on VHF/UHF so you will need to manually tune your radio to the frequency indicated.

Fldigi (NBEMS) Software

Fldigi (Fast Light Digital Modem) by W1HKJ also associated with NBEMS (Narrow Band Emergency Messaging System) is a suite of open source software for the most popular OS (Windows, MAC, Linux) that you can use with or without an interface between your computer (tablet, smart phone) and your radio. Which allows an opportunity of any licensed operator to be capable of interfacing into the digital data system. There are many facets of the software that can be used together to form a comprehensive Messaging system. In this section, I am going to focus on what is necessary to install and configure this suite of software for the Icom IC-7100 to a laptop computer (running Windows 7 Professional) using only a usb cable.

Sourceforge.net is the preferred source for the required files. (Again, I reiterate this section will focus on the IC-7100 connecting to a laptop or computer running Windows 7 Professional 64 bit). Here is the location of the files: <u>https://sourceforge.net/projects/fldigi/files/?source=navbar</u>

Name 🗢	Modified 🗢 Size 🗢	Downloads/Week 🗢
C flamp	2019-01-31	388 🖵
	2019-01-31	443 🗔
Cfimsg	2019-01-31	2,179 🖿
	2019-01-29	1,786 🖿
C Jaloha tasta	2010-01-10	4

(I recommend "save as" to your desktop to download all the required files instead of downloading and installing directly from the site.) You will need to download: fldigi, flrig and flmsg. One you have saved these files to your desktop, move the zipped folders to a common location (I have created a repository folder on my C: drive entitled Install packages to keep everything together in a location I can find again).

Flrig Installation

First, we'll start with flrig: navigate to where you stored your downloaded folder/program and double click on "flrig-####_setup: (the #### sign is for the current version number you downloaded). Agree to the license information and accept the default information to create shortcuts, etcetera.

On your desktop, you will now see a shortcut to flrig. Double click on the shortcut. Once the program has initialized, click on [Config] [Setup] [Transciever]

I/O Ports	
Xcvr TCPIP PTT Aux Poll Send	Cmds Restore Close
Rig: IC-7100	Retries 4 2 DB
Ser. Port COM12	Retry intvl 4 50
Baud: 19200	Cmds 4 20
1 2 -StopBits	Poll intvl 📢 4 200 🕨
🗹 Echo	Byte intvl 🕊 🚺 🕨
OPTT via CAT ORTS/CTS	0x88 CI-V adr Default
OPTT via RTS ORTS +12 v	
OPTT via DTR DTR +12 v	

In the [Transceiver] [Xcvr] tab Rig pull down, select "IC-7100"; in the Ser Port pull down select the lowest com port number associated with the Silicon Labs CP210x USB to UART Bridge you created when installing Winlink Express; In the Baud pull down, select 19200 (or the baud rate listed in your IC-7100 [SET] [Connectors] [CI-V] [CI-V Baud Rate] setting); Select 2 Stop Bits; Select PTT via CAT; and finally select "0x88 (or the appropriate CI-V address listed in your IC-7100 [Set] [Connectors] [CI-V] [CI-V Address]). Then click Init. (NOTE: Radio should be on to avoid errors). Then close the window.

Flmsg Installation

Install FLMSG that you previously downloaded from sourceforge, allowing for the standard options. Once complete, double click the flmsg icon placed on your desktop. Click on [Config] [Personal Data]

flmsg config	
Personal Da	tte/Time Files Radiogram ARQ UI
Call	
Tel	
Name	
Addr	
City/St/Zip:	
Email addr.	

Fill in the indicated fields. When finished, click the red [X] to close the configuration window, then close FLMSG.

Fldigi Installation:

Navigate to where you stored the downloaded "fldigi-####_setup" file (Where the #### is the current version number of the downloaded file). Agree to the license information and accept the default information to create shortcuts, etcetera. On your desktop there will now be a shortcut for fldigi. Double click on the icon.

Select [Configure] [UI] [Operator]

Operator	UI	Waterfall	Modems	Rig	Audio	ID	Misc	Web	Autosta	rt IO	PSM		
Sta	tion	/ Operator											
		Stat	tion Callsign					>	>				
		4	Station QTH	:								 \supset	
		Stat	tion Locator				\square)					
		Opera	ator Callsign	n: [>					
		Ope	rator Name						>				
			Antenna										
	_											 	

Most of this is self-explanatory, bur for clarity, Station callsign is your callsign; Station QTH is you home city and state; Station Locator is your Maidenhead grid coordinates; Operator callsign is your callsign; and Operator name is your first name. Antenna is optional. Once filled in, click "Save".

Next, click on the "Rig" tab then on the second row of tabs, click on "flrig".

Fldigi configuration									
Operator UI Waterfall Modems Rig Audio ID Misc Web Autostart IO PSM									
firig RigCAT Hamilib XML-RPC Hardware PTT GPIO									
firig is the preferred method of tranceiver control									
firig xmlrpc server parameters these controls are mirrored on the IO configuration tab									
127.0.0.1 Addr 12345 Port Default Reconnect									
"Disable PTT keys modem if multiple instances of fldigi (client) are connected to a single flrig (server).									
Plrig PTT keys modem									
Restore defaults Save Close									

Ensure both the "Enable flrig xcvr control with fldigi as client" and "flrig PTT keys modem" are both checked, then click "Save". (Note: do not change the address from 12345!)

Next, click on the [Audio] [Devices] Tab.

Fldigi	configuration	23
Operator	UI Waterfall Modems Rig Audio ID Misc Web Autostart IO PSM	
Devices	Settings Right channel Wav Alerts	
	Ooss Device:	
	Capture: Microphone (USB Audio CODEC)	
	Playback: Speakers (USB Audio CODEC)	
	OPulseAudio Server string:	
	□File I/O only	
	⊘Device supports full duplex	
Re	testore defaults Close Close	7

Ensure "Port Audio" is checked and that the appropriate USB Audiio CODEC settings are selected in both the Capture and Playback drop downs. Once completed, click "Save".

If you would lifk an alert sound to be played when FLMSG receives a message, click on the [Alerts] tab.

Fldigi configuration			
Operator UI Waterfall Modems Rig Audio ID Misc 1	Web Auto	start IO PSM	
Devices Settings Right channel Wav Alerts			
REGEX detected wav	Browser	Sound:	CEnable
dmer_bel	Select	dinner_bel	🗘 Test
MYCALL detected way	n Browser	Sound:	Enable
dmer_bel	Select	dinner_bel	🛊 Test
finso received way finso inter	face		OEashie
		Sound:	Cenade
desel	Select	diesel	🗢 Test
minogramed out wav		Sound:	⊖Enable
beeboo	Select	beeboo	🛊 Test
RsID audio alert wav	tion	Sound:	Enable
phone	Select	phone	🗘 Test
Restore defaults		Save	Close 🧭

You can select the sound that will play by clicking on the pull-down box under Sounds. When finished with your selections ensure the "enable" box is marked.

Next, click on the "Autostart" tab.

Fidigi con	figuration	-			-					x
Operator U	Waterfall	Modems	Rig Audio	ID Misc	Web	Autostart	IO PSM			
			Auto	start progra	ams with	n fidigi		Enable		
firig:	::\Program Fil	es (x86)\fr	ig-1.3.42\firi	g.exe		>	Locate	0	Test	
flamp:							Locate] 0	Test	
finet:					_		Locate] 0	Test	
flog:							Locate] 0 [Test	
Prog 1:	:\Program Fi	es (x86)\fin	nsg-4.0.8\fin	nsg.exe		>	Locate]@	Test	
Prog 2:			_				Locate	0	Test	
Prog 3:							Locate] 0 [Test	
Resta	re defaults	_				Sa	ve		Close	75
- Near						30		I		_

To automatically start flrig when you start fldigi, click on the "Locate" button on the line for flrig and navigate your way to "C:\Programfiles (x86)\flrig-####\flrig.exe" where the #### represents the current version of flrig you are using, and note: the flrig-#### is a folder in the Program Files folder!). Single click on the flrig.exe file then click "Open" This should populate the blank field next to flrig. One this is accurately accomplished click in the "Enable" box to activate the sequence. Repeat under Prog1 for FLMSG. Click [Save] then Click [Close].

One last thing before you close the program, on the main window, please ensure that RxID, TxID and AFC are all "checked" to allow for automatic mode switching (automatically changes to the correct digital mode the transmitting station is using) and automatic signal following (in case someone transmits slightly off center of the passband).



Once these items have been verified, please close the program and agree to save the configuration.

WINLINK EXPRESS USE:

Using the Winlink Express software is fairly universal to any radio once the radio and appropriate interface has been set up. (NOTE: Winlink (any mode) does not permit keyboard to keyboard interaction. If you wish to converse keyboard to keyboard prior to sending a message, use FLDIGI.)

Winmor/ARDOP Winlink to RMS

In the main (first) screen of the Winlink express suite, click on "Message -> New Message".



Select "Send As" Winlink Message (!). Fill in any appropriate information including subject)and select attachments (if there are some), Compose the main body of the message, then click "**Post to Outbox**".

The next time you connect to an RMS server, you message will be sent. If you are sending to an RMS server for another operator to pick up, just enter their call sign in the "To" block. If you wish to send the message to an internet based email account, enter the appropriate email address(es) in the "To" block. (Multiple addresses may be separated by a comma.)

Packet RMS Message

Packet Winlink is slightly different. First you must ensure CAT7200 and Soundmodem are running. If not, close Winlink Express, start CAT7200 (verify settings then click [OPEN]). Then start Soundmodem (verify settings), then start Winlink Express. Select Packet Winlink from the session mode menu, click on [settings]:

8	Packet Winlink/P2P Setup				- Sec.	X
	TNC Connection					
	Packet TNC Type: KISS			•		
	Packet	TNC Model:	NOF	MAL 👻	AutoConnect	Time
		Serial Port:	TCP		Disabled	-
	TC	P Host/Port	127.	0.0.1	8100	
	If Auto Connect is enabled, ope	n session whe	n Win	link Express is	s started	
	TNC Parameters					
1		1200 Bau	bu	🔘 9600 B	laud	
	TX Delay (Milliseconds):	400	•	300	•	
	Maximum Packet Length:	128	•	255	•	
	Maximum Frames:	4	•	7	•	
1	Frack:	2	•	2	•	
	Persistance:	160	•	224	•	
	Slot time:	30	•	20	•	
1	Maximum Retries:	5	-	5	•	
	Disable Xmt Level Adjust Transmit Level:	100	×	100	* *	
	Enable IPoll					
	Update		C	Cancel		

After ensuring the settings are as illustrated above, click on update.

Next, click on the Open Session Button. A new window opens:

Racket Winkink Session	
Exit Settings Switch to Peer-to-Peer Session Channel Selection 1200 Baud St	art Stop
Connection type: Direct ADSEO-10 Via	
Connection script:	ove script
Time to next Autoconnect = Disabled	
Initialization complete Ready	

For those of us in the local area, select [Direct] in the connection type and enter [AD5EO-10] for the gateway selection. This is the Packet Gateway at the Saline County EOC (NOTE: this can also be done in the Channel Selection window).

Ensure your radio is tuned to 145.030 MHz FM. (NOTE: <u>Rig control is not supported for VHF</u> <u>operations</u>). Once you are prepared to transmit, click on the [Start] button and the software does the rest for you. Once the entire communication process has completed,(indicated by "disconnect reported"), close the session window and check your inbox to see if you have received any new messages.

Illustration of completed session (no messages sent or received:

Racket Winlink Session		23
Exit Settings Switch to Peer-to-Peer Session Channel Selection 1200 Baud Start Stop		
Connection type: Direct - AD5EO-10 Via ,		
Connection script:		
Received: 54 Sent: 89 Time to next Autoconnect = Disabled		
*** Starting to call AD5EO-10 *** Opening KISS over TCP Host 127.0.0.1 Port 8100 *** Connecting to AD5EO-10 *** Connected to AD5EO-10 at 2019/02/01 15:52:53 [WL2K-5.0-B2FWIHJM\$] *PQ: 32833059 CMS via AD5EO > :FW: KG5DNF [RMS Express-1.5.18.0-B2FHM\$] :PR: 34680171 : AD5EO-10 DE KG5DNF (EM34RN) FF FQ		*
 End of session at 2019/02/01 15:53:10 Messages sent: 0. Total bytes sent: 0. Time: 00:16, bytes/minute: 0 Messages Received: 0. Total bytes received: 0, Total session time: 00:16, bytes/minute: 0 Connected at 2019/02/01 15:53:19 		
Disconnect reported.		
		-

When completed, close all programs to ensure you don't have anything running in the background the next time you wish to use these programs.

VARA HF/ARDOP P2P

P2P (Peer to Peer) protocols differ only slightly from messages being sent to/through an RMS Server. P2P is exactly what it sounds like! In very simple terms – SIMPLEX. You will be connecting directly to the other operator's radio to pass traffic.

The only difference in composing the message is you will select [Peer-To-Peer Message] in the "Send As" block instead of Winlink Message. Once finished click [Post to Outbox].

When you are ready to connect to the other operator, you will need to select "VARA HF P2P, or "ARDOP P2P" in the session mode. Once completed, click on the [Open Session] button.

In the window that appears, instead of using the channel selection window, you will have to input the connection information manually:

Winmor Peer-to-Peer Session - KG5DNF	23
Exit Settings Switch to Winlink Session Channel Selection Forecast Best chan. Next chan. Hide TNC Start Stop Abort	
Center Freq. (kHz): Dial Freq. (kHz): Bearing: Quality:	
Favorites: KT5H @ 50500.000 • Select Add to favorites Remove from favorites	
Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected/Listening	
*** Using Kenwood Amateur, NONE, 9600 baud	^
ncauy	
	1
	-

In the first highlighted block, enter the call sign of the station you are going to connect with. (NOTE: you will not connect to this operator if you mis-enter the call sign!). In the second highlighted block, you need to enter the "Center Frequency" for the frequency to use. This is a little strange. Ultimately, when you enter this center frequency, the actual frequency you will be using will be listed in the Dial Frequency block, but you cannot enter any information in that block. The center frequency will be 1500 Hz higher than the dial frequency! One advantage of the IC-7100 using the firig software, is you may manually tune your radio to the desired transmit frequency and the software will reflect that change.

Once the Operator and dial frequency has been correctly entered, click on the [Start] button. (Software takes over and does the rest for you). Once the session is complete, close the session window and check your inbox for any new messages received.

Packet P2P

As previously mentioned in the Winmor/Ardop P2P message composition, enter all the information as required, select [Peer to Peer] as the message type, then post to outbox.

As with any packet operation, soundmodem must be running. The Icom IC-7100 also requires use of the CAT7200 software for keying the radio. If these programs are not currently running, close Winlink Express start CAT7200 verify settings then click [OPEN]), then start Soundmodem. Finally, restart Winlink express.

Select "Packet P2P" in the session type, then click on the "Open Session" button.

3	Pa	cket Peer-to	-Peer Sess	sion (KG5DNF)	Anna A		inere.	in the	fragment	And and a second second	23
Γ	Exit	Settings	Switch t	o Winlink Session	Channel Select	ion 120	0 Baud St	tart Stop			
	Conn	ection type	Direct		Via						
	Con	nection scrip	ot:			dit script	Add script	Remove script			
T	lime t	o next Auto	connect =	Disabled							
	** Starf	ting peerto-pe alizing KISS ov alization compl ning KISS ove ble to open Ti ble to open Ti	eer packet ver TCP Ho lete er TCP Hos CP	session st 127.0.0.1 Port 810 t 127.0.0.1 Port 8100	D						~

Ensure "Direct" is selected as the connection type, then enter the call sign of the operator you wish to connect to.

Tune your radio to the agreed upon frequency, then click "Start". The software will then take over and transmit your message to the other operator (providing the other operator has Packet P2P up and running). When the comm is complete, close the window and check your inbox for any received messages.

Appendix A

This quick reference guide is not for initial installation of the programs, however, it is intended for those of us who haven't used the system for a prolonged period to refresh our memories and ensure all the settings are correct.

Packet Configuration Quick Reference



Application port is the G8BPQ virtual com port you created (If you have forgotten which one it was, Open Device Manager -> Ports (Com and Lpt). CAT Port is the com port assigned to your IC-7100

Don't forget to click [Open]

Start Soundmodem

Settings	X
Sound Card	
Output device Speakers (5-US	6B Audio CODEC) 🗾 🚽
Input device Microphone (5-	USB Audio CODEC 🛛 🗨
🗖 Dual channel	TX SampleRate 11025
✓ TX rotation	TX corr. PPM
Single channel output	RX SampleRate 11025
Color waterfall	RX corr. PPM 0
Stop waterfall on minimize	Priority Highest 💽
Server setup	
AGWPE Server Port 8000	🔽 Enabled
KISS Server Port 8100	Enabled
PTT Port	
Select PTT port COM15 -	🗖 Dual PTT
	🔲 Swap COM pins for PTT
ОК	Cancel

Ensure the correct audio COIDECs are selected for Output and Input Devices, Select the G8BPQ virtual com port for the PTT port

RMS Express (Winlink Express)

Start RMS Express (Winlink Express)

Select Packet Winlink under [Open Session] Then click on [Open Session]

Select the appropriate gateway you wish to connect to (the AD5EO-10 gateway's frequency is 145.030)

Press [Start]

If you are able to reach the gateway, the rest of the operation is automatic.

Ending Session

Close Rms Express (Winlink Express) Close Soundmodem (Soundmodem has a nasty habit of hiding in the hidden icon box) Close CAT7200

Appendix B

Windows Update Issues

Windows 10 ver 2004

If your computer receives the Windows 10 2004 Update, there are some issues that will need to be resolved. The Audio CODECs for ARDOP, VARA and Soundmodem will all need to be reestablished in Winlink when you first open the respective session.

Additionally, the virtual Port created for the CAT7200 will also need to be recreated in the Device Manager, however, this update (June 2020) precludes installation of unsigned drivers (therefore, will not create the required virtual COM port). Follow the guide below for the work-around:

In order to achieve maximum security, Windows 10 requires digitally signed drivers.

This is usually a good feature if you're concerned about your safety, but sometimes you need to install <u>drivers</u> that aren't digitally signed, and today we're going to show you how to do that.

As a quick reminder, 64-bit versions of Windows require that you install digitally signed drivers. Digitally signed drivers come with an electronic fingerprint that guarantees that the driver was created by the hardware manufacturer and that it hasn't been modified since it was created. Thanks to driver signature enforcement you'll be sure that your drivers are authentic and not altered by a malicious third party. This feature is great if you want to protect your PC, but some manufacturers don't make digitally signed drivers and this can lead to all sorts of problems.

If your drivers aren't digitally signed you won't be able to install them at all which means that you won't be able to use the hardware that is associated with them.

This is a big problem, but fortunately, you can disable driver signature enforcement with ease.

Change the Startup settings:

This is the simplest way to disable driver signature enforcement on Windows 10 but bear in mind that this method will only disable driver signature temporarily.

After you restart your computer driver signature enforcement will automatically turn itself on.

To disable driver signature enforcement do the following:

1. Press and hold the **Shift** key on your <u>keyboard</u> and click the **Restart** button.



- 2. Choose <u>Troubleshoot</u> > Advanced options > Startup Settings and click the Restart button.
- 3. When your computer restarts you'll see a list of options. Press **7** on your keyboard to select **Disable driver signature enforcement**.
- 4. Your computer will now restart and you'll be able to install unsigned drivers.

Bear in mind that this method only temporarily disables driver signature enforcement, so be sure to install all the unsigned drivers as soon as you can.

Appendix C

Download Links Quick Reference

Winlink:

https://winlink.org/ClientSoftware

Icom Comm Port Drivers:

https://drivers.softpedia.com/get/Other-DRIVERS-TOOLS/Icom/Icom-ID-7100-Transceiver-USB-Driver-120.shtml

or

https://www.icomjapan.com/support/firmware_driver/?keyword=7200&open=tab2&type=5#download _result

Vara HF https://rosmodem.wordpress.com/

Vara FM https://rosmodem.wordpress.com/

UZ7HO Soundmodem http://uz7.ho.ua/packetradio.htm

CAT7200 http://www.cantab.net/users/john.wiseman/Downloads/CAT7200.zip

FLDIGI https://sourceforge.net/projects/fldigi/files/?source=navbar