Hermes Lite 2 and Thetis Installations and Configurations Including 3rd Party examples for Digital and Logger Applications Plus Tips and Suggestions

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Outline:

This document is not intended to show you everything nor describe the use of Thetis or any 3rd Party application. It is strictly intended as a source to get your download and Installation of Thetis correct and through examples of screen shots give you some basic idea of how to configure some popular 3rd party applications. I suggest any 3rd party application you intend to use or install you refer to and read the operating instructions or watch possible videos explaining the use of and operation.

Throughout this document I have captured screen shots of application settings and outlined areas which need input such as comports, baud rates, stop bits, parity, audio etc. Some 3rd party applications have links to their websites and or user groups. These are in **BLUE** and clicking on them should take you to that website.

To help you get up and running within as little time in configuring those 3rd party applications for rig control, CW, Digital Modes, and logging I have shown how my comport pairings are used in the screen shot examples, this hopefully helps in your setup and configurations. *One thing to note my Comport pairings will most likely be much different than yours!* For the sake of making this easy to follow and configure I have setup 3 pairs of comports I use in the examples, I use separate pairs of ports for the sake of being able to use a digital application and a logger at the same time or perhaps like in Ham Radio Deluxe or FLDIGI were there are several possibilities of rig control, logging, digital modes and CW settings which can use separate comports.

The listings below are Comport Pairings I use throughout the examples. I would suggest you substitute any pairs I have used for those you have. To make this easy use the space below to list your pairs that will basically cross reference to the pairings I have.

Logging programs, I use: Comport Pairs 7&8:	List what Pairs you will use here
Digital Modes I use Comport Pairs 11&12:	List what pairs you will use here
PTT I use Comport Pairs 5&6: RTS enabled	List what pairs you will use here
CW keying, I use Comport Pairs 9&10 RTS enabled	List what pairs you will use here

For applications that use TCI I use the following **127.0.0.1** also known as **"localhost"** and UDP port **40001** If you are using a different TCI IP address and UDP Port List them here ______ UDP______

Now you can simply swap the comport pairs or TCI info I use in the examples with the pairs you have listed as a cross reference above to make things easy!

Hermes Lite 2 Thetis Installation and Configuration

Revised 5/14/2024 09:51 V8

Please note the proper versions of Thetis for a Hermes Lite 2 is the modified version(s) available from Reid Mi0BOT- there are several changes in this version of Thetis that pertain to the Hermes Lite 2.

- 1) The 31-step attenuation, not available in non-modified for Hermes Lite 2 Versions
- 2) Smoother TX power slider control- Changed to accommodate the PA in Hermes Lite 2
- 3) Corrected algorithm for Pure Signal when used with Hermes Lite 2
- 4) Optional WAN support for Remoting to your Hermes Lite 2

Step 1

You will need a Full version of Thetis installed prior to any modified Mi0BOT version. Download and install a full version of Thetis you can obtain here: <u>GitHub - ramdor/Thetis: The main working repo for changes to Thetis for the Apache Labs line of radios</u> I would recommend the most current full version unless noted a specific version is required from the notes on Reids Mi0BOT modified version so read any notes there prior. See photo below the current release is listed on the right side click there to download!

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E randor / Thetis (Public)				Q. Notifications ↓ Fork 7 ☆ Star 122 +
Code 🕤 Issues (41) 11 Pull requests 🕥 Actions 🖽 Projects 🔘 Security	🗠 Insights			
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	Isurencebarker added change log for	r 2.10.1 arced	es last month 3 257 commits	ine main working reporter changes to Thetis for the Apache Labs line of radios
	.github/ISSUE_TEMPLATE	Update issue templates	last year	C Readmo
	🖿 As	Revert "Testing git collab"	last year	☆ 22 stars
	Documentation/Radio	PureSignal and SNB improvements. ChannelMaster code de	anup. 3 months ago	⊗ 14 watching
	Project Files	version and build date updated for V2.10.1 release	last month	¥ 7 forks
	🖿 Skins	update skins	4 years ago	Neport repository
		Update .gitignore	3 years ago	Belavier ()
	ReadMe.md	update release notes	2 months ago	
	Release Notes for 2-6-4.docx	file update	4 years ago	S unels op
	Thetis v2.10.1 Change Log.docx	added change log for 2.10.1	last month	+ 7 releases
	Thotis v2.6.8 Change Log.pdf	Create Thetis v2.6.8 Change Log.pdf	4 years ago	
	Thetis v2.6.9 Change Log.pdf	Update Thetis v2.6.9 Change Log.pdf	3 years ago	Contributors 6
	Thetis v2.8.11 Change Log.odt	v2.3.11 10-20-2020	3 years ago	
	Thotis v2.8.11 Change Log.pdf	v2.3.11 10-20-2020	3 years ago	
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	Thetis v2.8.8 Change Log.pdf	update files	3 years ago	Maketile 0.0% Other 1.2%
	Thetis v2.8.9 Change Log.pdf	v2.8.9 10+13+2020	3 years ago	
	Thotis v2.9.0 Change Log.pdf	update for v2.9.0	last year	
	: ReadMe.md			
	Latest Release v2	.10.0 June 19, 2023		
	2.10.0 (2023-19-0	6)		
	2.9.0 (2022-03-04	4)		

(But wait you said use the modified Version) *Yes, the modified version for now will require a full installation of Thetis this is required for metering containers, some graphics, and the Thetis Skins, and possibly a few other items not included in the modified zip beta release.*

Step 2

Now that you have the base full version of Thetis installed, you can proceed with the modified version for Hermes Lite 2. Using this link, <u>Releases · mi0bot/OpenHPSDR-Thetis (github.com</u>) You'll find the Modified Releases for Hermes Lite 2 Thetis versions. Again, I would suggest using the most current version of those available at the time you do your installation. *I will also note it might be good to check the link occasionally for any new releases or fixes that become available*: Note the current release will *be at the top of the page example photo below. (Beta Versions are Time Limited Full Releases are not!)*

👔 🖾 New teb X 🍳 thetis download 2100 - Search X 🐧 Releases -milliot/Open	HPSORT × +		- o ×
← ♂ (b) https://gthub.com/militot/OpenHPSDR-Thetis/releases			= = = = * • • • • • • • • • • • • • • •
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Product × Solutions × Open Source × Pricing			C Search or jump to
Y mi0bot/OpenHPSDR-Thetis (Pake) toked from SARCOpenHPSDR Thetis			Q. Notifications ↓ Port (32) ↓ ☆ Star (14) +
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>	V2.9.0.8-bota6	This is release v2.9.0.8-HL2 Beta 6 of Thetis for HL2.	
	Сопрана т	It isn't a proper install but a zip of an install and can be placed in an different directory (i use C\OpenHPSDR) so should allow the original release to still be used. Then just run Thetisexe within your new directory.	
		If you haven't already done so, you first need to install the latest pre-release of lihetis (x86 or x64 version) as it sets up things like skins and the resource file for the new meter module. The link is	
		https://gimub.com/tamenov/ineus-cou/neussar/ag/v2.00.0 Please read the release instructions associated with the above release as there has been updates to the skins which will	
		This release may require a reset of the database.	L,
		No warranty or guarantee, use at your own risk. It should use it's own database but do a backup of your current Thelis one just in case.	
		► Assets 4	
		1 perion reacted	
	11		
	😡 mi0bot	v2.9.0.6 (Latest	
	0 v2.9.0.6	This is release v2.9.0.6-HL2 of Thetis for HL2.	
	Compare *	It isn't a proper install but a zip of an install and can be placed in an different directory (Luse Cs/OpenHPSDR) so should allow the original release to still be used. Then just run Thetis.exe within your new directory.	
		If you haven't already done so, you first need to install the latest release of Thetis (x86 or x64 version) as it sets up things like skins. The link is	
		https://github.com/ramdor/Thetis-29.0/releases/tag/v2.9.0.6	
		Please read the release instructions associated with the above release as there has been updates to the skins which will affect some controls.	♥.

Again, please read any notes on installation pertaining to requirements that Reid has mentioned (Example using a specific full version perhaps).

STEP 3

Now that you have the modified zipped version downloaded, you will need to make a new directory: preferably on the same drive you have installed the Full Thetis version such as **c:\HL2** or whatever you wish to call it (NOTE DO NOT USE THE FULL VERSION DIRECTORY TO UNZIP THE COMPRESSED VERSION)

Step 4

Now uncompress the zipped file containing the beta version, *(Windows 8 to current has a built-in uncompressing utility)* that can be used for Zipped files simply right click the downloaded file and select Extract ALL for the menu option that appears, this will unzip the files, next copy the unzipped files to the new folder you made above (example c:\HL2).

Step 5

Using file explorer browser to the folder you copied the uncompressed files to; in that folder you will see an executable file called: *THETIS.EXE (my working folder example below)*

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$\leftarrow \rightarrow \lor \uparrow$ This PC \rightarrow Local Disk (C) \rightarrow	Thetis HL2 beta3 > Release				 C Search Rolesse ,ρ
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Software Software					

This is the executable file you will be using for *Thetis* going forward, I would suggest you simply make a shortcut to your desktop or taskbar to make it easy to launch and run the modified version of Thetis. When I did this, I renamed my shortcut once on the desktop to "Thetis HL2" this made it easy to note which version of Thetis I am using for my Hermes Lite 2. (Right click the shortcut once on your desktop and select rename- depending on your windows version you may need to select show more options then rename aka Win11).

Your almost ready

Now that you have the modified version its time to do a little configuration (please note the following screen shots are MY settings in some of the sections and may not pertain to how your using or your needs they are setting I use for amplifier power out, audio and cat control) I will try and circle or point out the required items on the tabs that pertain to most all configurations of Thetis for the Hermes Lite 2.

H/W Select F/W Set O Radio Model HERMES LITE Receive Only Region	ptions Calibration	Filters OC Control	Ant/Filters P	A Control letwork So Reu Ena Net Net	ADC R> ettings use Last IP Au able Static IP work Watchd work Throttle	K2 Nav ddress Address log a Index Tw Protocol 2	rigation	imit to S Firewa	Subnet III Check t Protocol
Extended		HL2 I/O Board		hl2.som 192.16 192.16 192.16 92.16	newhere.com 8.0.140 8.0.141 8.0.142 play IP:Port in	n Title Bar	0 0 0 0 0 0 5ele		1024 🔹 1024 🔹 1025 🔹 1024 🔹
Zip database.xml and log files	Open DB folder	Release Notes	F V II F	imware /er: 7.4.1(): Herm rotocol 1	00 nesLite		Hermes Lite IP: 192. MAC: 00-1	e Addre 168.0.1 C-C0-/	ess 140 A2-00-00

Select Hermes Lite from Drop Down list and Select your Region (extended is optional)

/W Select F/W Set Options Calibration Filters	OC Control Ant/Filters PA Control ADC RX2	Navigation
Options-1 Options-2 HL2 Options		-
Options All Mode Mic Disable PTT PTT Disable Split on Band Change Prevent TX when on different band to RX RX Delay Image: Compare the symbol of t	Miscellaneous Always On Top Title Bar Text Disable ToolTips Lock Snap Click Tune CTUN no 0 beat Zero Beat - RIT Mouse Tune Step Wheel Tunes VFOB (red x-hairs) Show CT Filter Show CT H Line ClickTune Drag	Custom Title Text Hermes Step Attenuator
PTT Delay 0 - CW Delay Key-Up (mS 10 - Key-Down (mS 7 -	 Limit to Spectral Mouse drag only Reverse Wheel Wheel Tunes Outside Spectral Sync RIT/XIT Shift zoom modifier Reverse VFOSync links CTUN Recover TuneStep per Mode for RX1 	Click Tune / Filter Offsets DIGU (Hz); 1500 DIGL (Hz): 2210 Process Priority Normal

Enter your Call or what you would like to appear on the Title Bar

Select boxes for Enable RX1 and the Auto ATT

	Audio		Options	Calibration	FA Settin	OC Control	Ant / Eitom	PA Control	ADC		Navigatie		
HF	VHF	SWL	Options	Calibration	Filters	00 001101	Ant/ Filters	FA Control	ADC	N/2	Navigau	211	
	.110	Receiv	ve Pins	.116 Tr	ansmit P	ine	Transmit	Pin Action				Ext PA Contr	rol (xPA)
Band	1 2	3 4	567	1 2 3	4 5 (6 7						RX	тх
160m							Pin 1	Mox/Tune/2	2Tone	~		Pin 1 🗌	
80m 60m							Pin 2	Mox/Tune/2	2Tone	~		Pin 2	\Box
40m	ŏč		ŏŏ₫			jõ	Pin 3	Mox/Tune/2	2Tone	\sim		Pin 3	
30m 20m							Pin 4	Mox/Tune/2	2Tone	~			0
17m							Pin 5	Mox/Tune/2	Tone	~		Fin 4 []	U _
15m							Pin 6	May/Tune/	Terre			Pin 5	
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6m 2m							Pin /	Mox/Tune/2	2Tone	~		Pin 7	
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Har	dware Pi	n State			HF R	eset		0	3x4 Split				\sim
1	234	56	7		Ext Contr	ol							
					N2ADR Fi	iter						ow Hot Switc	hing

Select / Click N2ADR Filter to prepopulate the Filter pins check compare with pic above.

You can check operations when radio on and selecting different bands the lights/blocks under hardware pins will show which pins are selected and in use for that given band.

- Setup													^
eneral	Audio	Displa	y DSP	Transmit	PA Setti	ings Appear	ance Keyb	bard Serial/	Network	/Midi CA	T Tests		
I/W Se	elect F	/W Set	Options	Calibration	Filters	OC Control	Ant/Filters	PA Control	ADC	RX2	Navigation		
PA	ATU	Amp											
PAC	ontrol												
~	Enable	Full Dup	lex										
	Enable	PΔ											
	LINGDIO												

Check these two options one for Full Duplex needed for Pure Signal the Other enables the Hermes Lite 2 PA to be toggled on, leaving this unchecked will results in NO power output on the ant connector or displayed in the metering

🖳 Setup	- 🗆 X
General Audio Display	/ DSP Transmit PA Settings Appearance Keyboard Serial/Network/Midi CAT Tests
PA Gain Watt Meter	
HERMESLITE - PA	Gain By Band (dB)
Default - HERME	SLITE V Delete Copy Offset for : 40M
160m: 50 🚖	VHF0: 38.8 🜩 VHF7: 38.8 🜩 Drive
80m: 70 🚖	VHF1: 38.8 + VHF8: 38.8 + 10 0.0 +
60m: 70 🚖	VHF2: 38.8 🜩 VHF9: 38.8 🜩 20 0.0 🜩
40m: 70 🖨	VHF3: 38.8 🜩 VHF10: 38.8 🜩 30 0.0 🚖
30m: 70 🚖	VHF4: 38.8 🜩 VHF11: 38.8 🜩 40 0.0 🜩
20m: 70 🚖	VHF5: 38.8 🜩 VHF12: 38.8 🜩 50 0.0 🜩
17m: 70 🚔	VHF6: 38.8 + VHF13: 38.8 + 60 0.0 +
15m: 70 🚔	70 0.0 🖨
12m: 70 🚖	Set to 100 for full output of Hermes
10m: 70 🚖	Set to 100 for full output of fiernies
6m: 38.8 韋	Lite PA, these are my settings for my
	amn shown
Reset Database Imp	ort Database OK Cancel Apply

For Full 5-7 watts output (this will vary per band and per device) select 100. If you're using a very low drive input amplifier you can adjust these individually to meet the drive requirements and not overdrive the input of your amp. Regardless of the TX slider it will not output more than selected here.

											-	~
eneral Aud	lio Displa E/W.Set	y DSP	Transmit	PA Settin	ngs Appear	ance Keybo	ard Serial/	Network	/Midi CA	T Tests		
RX1 Samp	le Rate		RX2 Sample 192000	Rate		Mercury (Dither Rando MaxRXFr	Dptions Enabled om Enabled eq: 38.40		hA2	Navigauon		
						LED Mind	or 2 3 4	5	6 7	89	10	

For Pure Signal to function / lock correctly select 19200 (I believe lower values will also work but have not tried) Higher 38400 value will cause Pure Signal glitches and frustrations.

eneral	Audio	Display	DSP	Transmit	PA Settin	gs A	ppearan	ce Ke	yboard	Serial/Network/Midi CAT Tests
Options	CW	AGC/ALC	: AM/	SAM FM	1 Audi	E	ER N	R/ANF	MNF	NB/SNB VOX/DE CFC
Buffer SSB RX: TX:	Size /AM 128 128	~	Filter S SSB RX: TX:	iize /AM 4096 4096		ilter Ty SSB/ RX: TX: FM	ype 'AM Low Late Low Late	ncy	>	Filter Windows RX BH - 7 TX BH - 7
RX: TX:	128	~	RX: TX:	4096	~	RX:	Low Late	ncy	~	Again, these are
CW			CW			CW				my buffer setting
RX:	128	~	RX:	4096	~	RX:	Low Late	ncy	~	yours may vary
Digit	al		Digit	al		Digita				depending on your
RX:	128	~	RX:	4096	~	RX:	Low Late	ncy	~	PC performance.
TX:	128	~	TX:	4096	~	TX:	Low Late	ncy	~	
	t	set i war	the ni	e sa ng v	me vill a	foi ap	r al pea	l m ar.	od	les or a hange : 3 13:08:36 utc

These settings will vary depending on your PC's performance and abilities to process data streams. If you note stumbling on your TX or RX raise the values. I would recommend you keep all RX/TX and mode values the same, a warning message will populate on this displayed tab if otherwise. * As of 2024 I currently use Linear Phase Option for Filter Types especially for AM mode

Now you should be ready with the basic configurations of Thetis for the Hermes Lite 2.

Time to enjoy , adjust your audio and setup other hardware and or software such as logging or digital applications, remember that Thetis always 4 separate comport configuration for external software or devices that talk back to it, this allows multiple applications or hardware to be at one time, example a digital mode and a logging program or contest logger and CW, you can a setup a CW keying port as well if needed .

Enjoy operating your Hermes Lite 2 SDR transceiver, when used along Thetis the combination is hard to beat especially for the cost involved in this remarkable transceiver!

Hermes Lite 2 Thetis Remote Configuration

Should you wish to operate your Hermes Lite 2 remotely, that is possible when using the latest Thetis for Hermes Lite 2 (* Beta 6 at time of this document).

NOTE: Opening and adding access to IP addresses over your WAN should be done so with caution and you should know how to make your network secure, if your unsure of how or what steps should be taken to secure your WAN access from the prying eyes of the internet you may wish to use a VPN and other options (TeamViewer, SpalshTop, Any Desk, TwinGate etc.) instead. ** You are solely responsible for your network! **

To use the direct WAN access remotely you will need to setup and configure (like outlined above) Thetis on your laptop or desktop where you intend to remote from.

On the system you are remoting from you will need to configure the following

The following is noted from Reid and Pez regarding Beta 6 and Remote operations. Cut and copied from the Hemes Lite 2 Google Group below:

You can now connect to one or more HL2s over a WAN connect. This has been tested with direct port access but should work over a VPN. WARNING, direct port access could open your network to hacking.

When selecting Static IP, there is a second option which needs to be unchecked to take the local subnet limitation off. This will widen the search for an HL2. You can also set the port so that more than one HL2 can be accessed. Please read up on NAT and port forwarding. There is a check box below the IP address to allow the currently connected device's IP and port number to be displayed on the title bar.

Setup		Unche	ck for Remot	ting
eneral Audio Display DSP	Transmit PA Setting	js Appearance Key	/board Serial/Network/Midi CA	T Tests
I/W Select F/W Set Options	Calibration Filters (OC Control Ant/Filter	s PA Control ADC RX2	Navigatic
Radio Model HERMES LITE ~	Hardware Op	tions	Network Settings Reuse Last IP Addre Reuse Last IP Addre	ess Virmit to Subnet
Receive Only			 Network Watchdog Network Throttle Ind 	Firewall Check
Region United States	🕑 HL2 I/	O Board	Protocol 1 Prot	tocol 2 O Auto detect Protoco
Extended			hl2.somewhere.com	0 1024 🖨
_			192.168.0.140	○ 🗌 1024 🖨
			192.168.0.141	0 1025 🖨
			192.168.0.142	0 🗌 1024 🖨
			Display IP:Port in Tit	lle Bar Select IP
			Firmware	Hermes Lite Address
Zip database.xml and log files Open	DB folder Re	lease Notes	Ver: 7.4.100 ID: HermesLite Protocol 1	IP: 192.168.0.140 MAC: 00-1C-C0-A2-00-00
eset Database Import Databas	se Export Data	base	ОК	Cancel Apply

You can now provide either a dot IP or a DNS style address.

Add the IP address or DNS address of your WAN where your Hermes Lite 2 is located and switch it on.

🛄 Setup		Unche	eck for Remoti	ng ×
General Audio Display DSP	P Transmit PA Setting	gs Appearance Ke	yboard Serial/Network/Midi CAT	Tests
H/W Select F/W Set Option	s Calibration Filters	OC Control Ant/Filte	rs PA Control ADC RX2	Navigatic
Radio Model HERMES LITE ~ Receive Only Region United States ~	Hardware Op	vitions	Network Settings Reuse Last IP Address Enable Static IP Address Network Watchdog Network Throttle Index Protocol 1 Protocol	s S Limit to Subnet Tweak Col 2 O Auto detect Protocol
Extended			hl2.somewhere.com 192.168.0.140 192.168.0.141	○ 1024 ♀ ○ 1024 ♀ ○ 1025 ♀
	Add the IP add your WAN when	ress of re your	192.168.0.142	Bar Select IP
		eu	Firmware	Hermes Lite Address
Zip database.xml and log files	pen DB folder Re	elease Notes	Ver: 7.4.100 ID: HermesLite Protocol 1	IP: 192.168.0.140 MAC: 00-1C-C0-A2-00-00
Reset Database Import Data	abase Export Data	base	OK	Cancel Apply

You can now name the static IP which will be displayed in the title bar. This is achieved via the Custom Title Box which is now multi lined. The first line is always displayed, and the next 4 lines are displayed dependent on the static IP address selected. If you need a blank line, just place a carriage return on that line.

Sample rate should be set at 48K. I have been able to have RX1 and RX2 running at the same time on different bands. You can also use MultiRX to get another receiver on VFO A.

The check box beside the static IP address allows for lower bandwidth by only enabling 2 receivers.

Very limited test transmissions have been made but don't expect PS (Pure Signal) to work. You should set your hardware TX Latency to 70 msec and hardware PTT to 30 msec. Both settings are in the F/W Set form under Hermes Lite Options.

Audio Display Dor Hallshit FA Jettings Appearance	Keyboard Saral/Network/Midi CAT Teste
/W Select F/W Set Options Calibration Filters OC Control Ant/	Filters PA Control ADC RX2 Navigation
RX1 Sample Rate RX2 Sample Rate I	Mercury Options
48000	Dither Enabled
	Random Enabled
	MaxRXFreq: 38.40
	ED Mimor
	1 2 3 4 5 6 7 8 9 10
Database Jacob Database Count Database	OK Count Arch
set Database Import Database	
Setup	- 0
Setup neral Audio Display DSP Transmit PA Settings Appearance	Keyboard Serial/Network/Midi CAT Tests
Setup neral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup neral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant /ptions-1 Options-2 HL2 Options	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup neral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant options-1 Options-2 HL2 Options Hermes Lite Options	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup neral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant Options-1 Options-2 HL2 Options Hermes Lite Options Band Volts TX Latency 70 -	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup neral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options Band Volts TX Latency 70 Disable PS Sync PTT Hang 30	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup Ineral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant Options-1 Options-2 HL2 Options Hermes Lite Options Band Volts TX Latency 70 Disable PS Sync PTT Hang 30 Reset On Disconnect	/Filters PA Control ADC RX2 Navigation
Setup Ineral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options ■ Band Volts TX Latency 70 ÷ □ Disable PS Sync PTT Hang 30 ÷ □ Reset On Disconnect □ Ext 10MHz (CL1 Input)	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup neral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options ❷ Band Volts TX Latency 70 ↓ Disable PS Sync PTT Hang 30 ↓ Reset On Disconnect Ext 10MHz (CL1 Input) Enable CL2 116.000 ↓ MHz	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup neral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options Band Volts TX Latency 70 Disable PS Sync PTT Hang 30 Reset On Disconnect Ext 10MHz (CL1 Input) Enable CL2 116.000 MHz Hermes Lite Step Attenuator	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup neral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options ❷ Band Volts TX Latency 70 ÷ Disable PS Sync PTT Hang 30 ÷ Reset On Disconnect Ext 10MHz (CL1 Input) Enable CL2 116.000 ÷ MHz Hermes Lite Step Attenuator ❷ Auto Rx Attenuator Delay 100 ÷	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup Ineral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options @ Band Volts TX Latency 70 @ Disable PS Sync PTT Hang 30 @ Reset On Disconnect @ Ext 10MHz (CL1 Input) @ Enable CL2 116.000 @ MHz Hermes Lite Step Attenuator @ Auto Rx Attenuator Delay 100 	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup Ineral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options Band Volts TX Latency 70 Disable PS Sync PTT Hang 30 Reset On Disconnect Ext 10MHz (CL1 Input) Enable CL2 116.000 MHz Hermes Lite Step Attenuator Auto Rx Attenuator Delay 100 I/O Board I/O Board Pin States	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation
Setup Ineral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options @ Band Volts TX Latency 70 Disable PS Sync PTT Hang 30 Reset On Disconnect Ext 10MHz (CL1 Input) Enable CL2 116.000 MHz Hermes Lite Step Attenuator @ Auto Rx Attenuator Delay 100 I/O Board I/O Board Pin States Rx 11 i2 i3 i4 i5	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation Enable 12C control (
Setup Ineral Audio Display DSP Transmit PA Settings Appearance (W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options @ Band Volts TX Latency 70 @ Disable PS Sync PTT Hang 30 @ Reset On Disconnect @ Ext 10MHz (CL1 Input) @ Enable CL2 116.000 MHz Hermes Lite Step Attenuator @ Auto Rx Attenuator Delay 100 I/O Board I/O Board Pin States Rx i1 i2 i3 i4 i5 	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation Enable 12C control (12C Control 12C 1 12C 2 1
Setup meral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options ② Band Volts TX Latency 70 ① Disable PS Sync PTT Hang 30 ② Reset On Disconnect ③ Ext 10MHz (CL1 Input) ③ Enable CL2 116.000 MHz Hermes Lite Step Attenuator ② Auto Rx Attenuator Delay 100 1/O Board 1/O Board 1/O Board Pin States Rx i1 i2 i3 i4 i5 ③ 0 o1 o2 o3 o4 o5 o6 o7 ④ 0 o1 o2 o3 o4 o5 o6 o7	Enable I2C control
Setup Ineral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant)ptions-1 Options-2 HL2 Options Hermes Lite Options Band Volts TX Latency 70 Disable PS Sync PTT Hang 30 Reset On Disconnect Ext 10MHz (CL1 Input) Enable CL2 116.000 MHz Hermes Lite Step Attenuator Auto Rx Attenuator Delay 100 //O Board I/O Board I/O Board Pin States Rx i1 i2 i3 i4 i5 O o1 o2 o3 o4 o5 o6 o7 Pin Control	Enable I2C control I2C Control I2C Address Reg/Control F‡ F‡
Setup Ineral Audio Display DSP Transmit PA Settings Appearance /W Select F/W Set Options Calibration Filters OC Control Ant /ptions-1 Options-2 HL2 Options Hermes Lite Options Band Volts TX Latency 70 Disable PS Sync PTT Hang 30 Reset On Disconnect Ext 10MHz (CL1 Input) Enable CL2 116.000 MHz Hermes Lite Step Attenuator Auto Rx Attenuator Delay 100 //O Board //O Board Pin States Rx i1 i2 i3 i4 i5 	Keyboard Serial/Network/Midi CAT Tests /Filters PA Control ADC RX2 Navigation Enable 12C control I2C Control I2C Control I2C Address I2C I I2C Address I2C I I2C I

One other suggestion is to check under Display RX1 and RX2 set the Fast Fourier Transform size when you switch the "Sample Rates" to 48000 for Remote you may need to resize the rate- the 5th marker may be a good place to start- this will reset the panadapter displayed waveform making things a bit easier to see and quicker when using a remote connection.

Concerned RX 1 RX 2 TX	Cuggoosted	
Fast Fourier Transform Size	when using	-120 - Low Color:
Bin Width (Hz) 2.930 Window Hann		-80 Vaterfall AGC AGC Offset 0.0 Palette Enhanced Noise Floor Compensation
Panadapter Detector: Peak ✓ Averaging:	Waterfall Detector: Peak ~ Averaging:	Update every 2 rame 33.33 (ms) Band for Low/High Levels: 40M Opacity:
Log Recursive Time (ms): 30 + J Hz BW: Av / Sa	Log Recursive Time (ms):120	Spectrum Grid Max: -5 Min: -150 Step: 5 Align: Auto
✓ Show Noise Floor	Time (ms): 100 ♀ Drop (dBm/s): 6.0 ♀ □ Fill	Band for Max/Min Levels: 40M Adjust Min to Noise Floor 5.0 + dBm offset Maintain delta

I would like to thank Pez for opening his network and allowing me access to his network of two HL2 and help test. It's pretty cool, to sit and listen to two different band in Oz sitting in Northern Ireland. You can't get much further for testing the system. (**Reid's comment to Pez**)

You should now be able to connect to your WAN and access your Hermes lite 2- Please note your successful use of remoting requires good internet connections as both ends. Happy Remoting!

Hermes Lite 2 Thetis Digital Modes and Loggers

Configuration of 3rd party programs such as Digital applications and Loggers can easily be achieved using Thetis and the various tabs within the (Serial/Network/Midi Cat) section.

To get started you will need to create Comport pairs for your various applications, there are several programs that can be used to do this, examples (<u>vspMgr</u>, <u>ComoCom</u>) I have used vspMgr since I ran an old Flex 3000 years ago. There are others out there as well just search for "Virtual Comport emulators" once you find one look for tutorials on how to setup and use it.

You can create several pairs of comports and this will depend on the number of applications you intend to run or number at once connected to Thetis (Currently 4 applications can be run at one time and connected back to Thetis) or if you choose to the same paring but one application at a time. The choose is yours, I find creating separate pairs for each application easier to keep straight and configure, but that's my personal preference and opinion. Refer to the cross reference listing you hopefully made at the beginning of this document as suggested!

If your running Digital modes you will also need Virtual Audio as well, this can be accomplished via the original <u>Virtual Audio Cable Program</u> by Eugene Muzychenko or using <u>VB-cables</u>, both these applications I have used in the past and currently with successful results, each will require either a purchase of license or donationware. Please configure and setup according to the instructions provided by the application, you will need a minimum of 2 pairs (in and an out).

There is also TCI (Transceiver Control Interface) a utility created by Expert Electronics which allows rig control between applications that also use TCI interfacing, I'll show a couple examples of this as well (Please Note currently the Thetis implementation of TCI only supports rig control it doesn't currently support audio over TCI as well like (SunSDR radios do) that said you can use TCI for rig control and VAC for the Audio.

With the above installed and configured let's run through a few popular applications ****** (Note my COMPORT PAIRS may not be the same numbers as yours are) Don't worry it is the virtual pairings that matter.

Below is how I have laid out my Serial Ports, as mentioned I use separated pairs for various applications, in the boxes below the cat control you can label what that pair is used for (this makes configuration and troubleshooting much easier)

erial	Network	MIDI	Ontione	Lleer Interfac	a Androi	neda	ic incyboard			103	.0	
	Network	MIDI	Optiona	Oser Internet		licua						
CAT	1 Control		VFO B	-CAT2 Contro	bl		CAT3 Contro	bl		CAT4 Contr	ol	
2	Enable (CAT1		🕑 Enable	CAT2		🔽 Enable	CAT3		Enable	e CAT4	
	Port:	COM7	~	Port:	COM11	~	Port:	COM15	~	Port:	None	~
	Baud	115200	~	Baud	115200	~	Baud	115200	~	Baud	115200	~
	Parity	none	~	Parity	none	~	Parity	none	~	Parity	none	~
	Data	8	~	Data	8	~	Data	8	~	Data	8	~
	Stop	1	~	Stop	1	~	Stop	1	~	Stop	1	~
N3FJ	P/N1MM	/LogHX		Digital Modes	•		HRD					
PTT	Control	т		To con	figur	e un	check	the e	nabl	e to an	vla	
Both courses settings then reenable to make active												
	COMD		×									
	RTS	DTR										

Note: If any of your application(s) require a PTT control create and assign a pair of virtual comports to trigger the PTT command.

Again, my Comport pairs may not be the same as your simply substitute them for your pairs:

Pairs I am using are: 7&8, 11&12, 15&16 and 5&6 (pair for PTT) and later pair 9&10 for CW.

One other Note more mentioning is Serial/Network/Midi Cat sub menu Options here you can select the type of emulation and testing of Cat Commands- I have set my CAT ID as a TS-2000

🔛 Setup			– 🗆 X
General Audio Display DSP Transmit	PA Settings Appearance Keyboard Set	rial/Network/Midi CAT	Tests
Serial Network MIDI Options User In	terface Andromeda		
RTTY Offset Enable Offset VFO A Enable Offset VFO B DIGL DIGU 2125 2125 2	Other Always recenter VFOs DigL/U Returns LSB/USB Allow Kenwood Al Command ZZSN: 0000-0000 Apply power limits to CAT/TCI power related queries (out)	CAT Testing Test CAT Commands	ID as: TS-2000
Reset Database Import Database	Export Database	ОК	Cancel Apply
	·		

WSJTX

In my examples for Digital modes, I use pair 11&12 and pair 5&6 for PTT keying.

rial	Network	MIDI	Options	User Interfac	e Andror	meda						
CA	T1 Control		VFO B	CAT2 Contro	1		CAT3 Contro	bl		CAT4 Contr	ol	
~	Enable (CAT1		🔽 Enable	CAT2		🔽 Enable	CAT3		Enable	e CAT4	
	Port:	COM7	~	Port:	COM11	~	Port:	COM15	~	Port:	None	~
	Baud	115200	~	Baud	115200	\sim	Baud	115200	~	Baud	115200	~
	Parity	none	~	Parity	none	\sim	Parity	none	~	Parity	none	~
	Data	8	~	Data	8	~	Data	8	~	Data	8	~
	Stop	1	\sim	Stop	1	~	Stop	1	~	Stop	1	~
N3F.	JP/N1MM	/LogHX		Digital Modes			HRD					
PTT PT Por	Control Enable PT t: COM5	T	× .		1	Com sett Mod	nport pa ings foi les (exa	air an ^r Digi mple	d tal			

WSJTX Radio Tab

Settings	? ×
General Radio Audio Tx Macros Reporti	ing Frequencies Colors Advanced
Rig: Kenwood TS-2000	✓ Poll Interval: 1 s
CAT Control	PTT Method
Serial Port: COM12 V	
Serial Port Parameters	CAT ORTS
Baud Rate: 115200 \checkmark	Port: COM6 ~
	Transmit Audio Source
Data Bits	Rear/Data Front/Mic
🔿 Default 🔿 Seven 💿 Eight	Mode
Stop Bits	None USB O Data/Pkt
🔿 Default 🧿 One 🛛 Two	Split Operation
Handshake	O None O Rig O Fake It
• Default O None	
○ XON/XOFF ○ Hardware	
Force Control Lines	Test CAT Test PTT
DTR: RTS:	
These	are the Comport settings
and P	TT Methods I use for
WSJT	X and JTDX
	OK Cancel

These settings are the same for **JTDX** just apply them where needed for that program.

These are the VAC soundcard settings I'm using- Again make sure you download, setup and configure VAC or VB cables to use a Virtual Sound Card Device!

Settings	5						?
General	Radio	Audio	Tx Macros	Reporting	Frequencies	Colors	Advanced
Soundca	rd						
Input: Line 2 (Virtual Audio Cable)							
Output:	Line 1 (V	irtual Audio	Cable)				 ✓ Mono
Save Dir	ectory						
Location	: C:/Users	s/n8sdr/Ap	pData/Local/Ws	SJT-X/save			Select
AzEl Dire	ectory						
Location	: C:/Users	s/n8sdr/Ap	pData/Local/WS	х-тс			Select
	TI Se	nese ound	are the setting	VAC gs I			
	us JT ye	se for FDX, I ou ha	·WSJT) make s ve ena	(and ure bled			
	V/ 01 01	AC an VB c utline	d setur able as ed earli	o VAC er.			
						C	K Cancel

MY VAC soundcard settings for either WSJTX

For **JTDX** here are the application screen examples:

Settings			? ×
General Radio Audio Sequencing Tx Macros Reporting Frequencie	s Notifications Filters	Scheduler Advanced	
Rig: FlexRadio/ANAN PowerSDR/Thetis 🛛 🗸 🔻 Poll Interval: 1 s 🗘	On Off Rig power	✓ S meter	✓ Output power
CAT Control	PTT Method		
Serial Port: COM12	<u>○ vox</u>		A
Serial Port Parameters	_ с <u>а</u> т	• R <u>t</u> s <	
Baud Rate: 115200	Port: COM6		•
Data Bits	Share PTT port		
Default Se <u>v</u> en O Eight	Transmit Audio Source		
Stop Bits	Rear/Data	O Eront/M	ic
○ Default			
Handshake	Mode		0
Default O None	○ None	⊖ us <u></u>	Data/Pkt
○ XON/XOFF ○ <u>H</u> ardware	Split Operation		
Force Control Lines	None	Rig	🔘 Fake It
DTR: RTS: *			
	Test CAT		Test PTT
	Tx delay:	0.0 s	*
			<u>O</u> K <u>C</u> ancel

For Rig Control and PTT

For Audio:

		? ×
Genera <u>l</u> <u>R</u> adio	o Audio Sequencing Tx Macros Reporting Frequencies Notifications Filters Scheduler Advanced	
Soundcard		
Refresh		
Input:	Line 2 (Virtual Audio Cable)	▼ Mono ▼
Output:	Line 1 (Virtual Audio Cable)	• Mono •
Audio files save di	lirectory	
Location: C:/Us	isers/n8sdr/AppData/Local/JTDX/save	Select
Remember power	settings by band and mode	
✓ Transmit	V Tune	

TCI and MSHV Digital Application

My personal preference for Digital modes like FT8, FT4 and meteor scatter is <u>MSHV</u> it also supports TCI (transceiver control Interface) as does Thetis (For *RIG CONTROL ONLY* at present time) so let's do a quick setup.

In Thetis go to **Serial/Network/Midi Cat** and Sub menu tab **Network** set as shown below some of the options won't be needed for MSHV but other TCI programs I'll try and show a later. (obviously replace my call (N8SDR) with your own and pick a color for your call appearance (again this wont matter currently with MSHV) the nice thing about TCI is you can connect many application to it at one time it uses UDP orts over the network, so unlike a virtual CAT which is limited to 1 connection per pair, TCI isn't! it can support multiple instances of applications running, Hopefully Ritchie or some other Thetis programmer will finish the importation of TCI because it also can support Audio as well back and forth, and won't require a VAC audio path. That is how it works with SunSDR / EE transceivers. If the 3rd party uses TCI, it can pass both rig control and audio together.

🖳 Setup	– 🗆 X				
General Audio Display DSP Transmit PA Settings Appearance K	Keyboard Serial/Network/Midi CAT Tests				
Serial Network MIDI Options User Interface Andromeda					
TCI Server (0 clients)	TCP/IP CAT Server (0 clients)				
Bind IP:Port 127.0.0.1:40001	Bind IP:Port 127.0.0.1:13013 Def IPv4				
Rate Limit (ms) 100 🛋 Def IPv4	Send version on client connect				
	Server Running				
Send Initial VFO state on connect (out)	Show Log				
Duplicate RX2 VFOb to RX2 VFOa (infott)					
CWL/CWU becomes CW (out)	N1MM+ WaterfallBandmap				
Emulate ExpertSDR3 protocol	dB scaling				
Emulate SunSDR2Pro device					
Show TCI Spots	Enable RX2				
Max Spots : 50 🚖	Send UDP to: 127.0.0.1:13064 Def IPv4				
Spot Lifetime : 5 🚔 mins	Send Rate: 8				
Own Call Appearance N8SDR					
Server Running	Apply these settings as outlined.				
Show Log	come won't be needed for some				
	unnlications				
Reset Database Import Database Export Database	ipplications				

Above settings for Thetis TCI, again some of these settings won't be used for some applications, but while you're here might as well configure for the future!

In MSHV open Options, then Interface control and set as shown

S Interface Control Apply as shown below.
Port 1:
Network:
Connected to 127.0.0.1 Port 40001 - 1.8, HERMESLITE, SDR ON - Port: None 💌
Server: 127.0.0.1 Port: 40001 Disconnect
TCI Channels: 2 ▼ Samples: 2048 ▼ Type: float32 ▼
PTT Method:
PTT OFF O PTT Via RTS O PTT Via DTR O PTT Via CAT COMMAND Enable Read RTS ON
RIG: TCI Client RX1 PTT O PTT MIC O PTT DATA
🗌 Tuning Default RIG Freq Only By Pressing Button F 🛛 🕱 Tuning Default RIG Freq From Mode
START PTT TEST
-Selected Constant TX Audio Frequency FT Q65 (RIG frequency must be readable & writable via CAT)
● Use Selected Constant TX Audio Frequency FT Q65 Select Audio Frequency: def=1500 2500 Hz 🔷
Transverter Local Oscillator Or RIG Offset: For Band 7 MHz How to set: 1. In Interface Control set Port to None. 2. Choose your band from the Band Menu. 3. In Interface Control set up your Transverter or RIG offset. 4. In Interface Control choose your Port to start communication.
Off O Sum O Subtract Frequency In Hz:
Port 2:
PTT Method:
Baud Rate: 9600
START PTT TEST NO PORT SELECTED
Tx Watchdog:
Off ● In Time def=20 2 minutes 🚔 O In Number Of TX Periods def=10 10 Periods 🛓

You really don't need to set anything starting from Transverter and Port 2 Method, I would suggest you set a TX watchdog method either is your choice. What is important is the TCI server and Port number and that you choose under the section for RIG: TCI Client from the dropdown menu, note you can assign RX1 or RX 2 from that menu, yes you can use run two instances of MSHV each on a separate RX1 or RX2, you simply need to create and run a second MSHV application placed in a sperate directory.

MSHV Audio Options-Sound Settings menu set as shown below.

Settings		×
Sound Output Settings	VAC audi	o settings
Output Devices:		
Line 1 (Virtual Audio C	able)	-
Direct Sound Buffer: 1000	Bits Per S	Sample:
Sound Input Settings: Input Devices: Line 2 (Virtual Audio C	cable)	
Latency in ms: Bi	uffer Polls in ms: 1000	Bits Per Sample:
Left C	hannel O Right (Channel
Settings:		
Display Refresh Spee Level Meter Refresh S	ed, MSK JTMS FSK I Speed (fastest=0 slo	ISCAT JT6M : 0 + owest=5) : 2 +

You will find videos on YouTube and the MSHV user groups.io for more info on how to use it, that is not going to be covered here, these are intended as quick configurations to get you setup with an application for Rig and Audio control, not a user operations document, sorry.

You can use the above methods for various Digital programs they operate and are confirmed in a similar manner. Just apply the principles shown here to them and you will be set up in no time!

JS8CALL

JS8Call is another Digital application which will require a PTT trigger port, again I use comport pairs 7&8 for Rig control and 5&6 for PTT.

Cortal	N	MIDI	0.0		a i	, pp co. o.				100		
belial	Network	MIDI	Options	User Interfac	ce Andron	neda						
CA	T1 Control		VFO B	CAT2 Contr	ol		CAT3 Contro	bl		CAT4 Contr	ol	
100	Enable	CAT1		🕗 Enable	CAT2		🔽 Enable	CAT3		Enable	e CAT4	
	Port:	COM7	Y	Port:	COM11	~	Port:	COM15	×	Port:	None	~
	Baud	115200	¥.	Baud	115200	~	Baud	115200	~	Baud	115200	~
	Parity	none	×	Parity	none	~	Parity	none	~	Parity	none	~
	Data	8	×	Data	8	~	Data	8	Y	Data	8	~
	Stop	1	Y	Stop	1	~	Stop	1	×	Stop	1	Y
N3F.	JP/N1MM	/LogHX		Digital Modes	8		HRD					
PTI	T Control						-					-
E	Enable PT	Т			1							
Por	t: COM5		<		Eo	r	1580	all	VOI	1 34/	ill h	oth
					10	<u>л с</u>	500	all	you			oth
	RTS	DTR										

ig: Kenwood TS-2000	<		▼ Poll Interval: 1s
CAT Control Rig Options			
Serial Port: COM12)	~
Parameters			
Baud Rate: 115200			
Data Bits			
O Default	O Seven	O Eight	
Stop Bits			
O Default	O One	⊖ Two	
Handshake			
O Default	O N	one	
O XON/XOFF	Он	ardware	
Force Control Lines			
DTR:	▼ RTS:		•
	2000 and an	+ .	- f
Select 15	-2000 and en	ter setting	stor
vour com	nort nairs		
your com	porchans		
lest C	AL	Test PT	1

In JS8CALL this is how I configure (** again swap comport pairings for those which you have setup)

And for PTT under Rig Options, I setup like this.

	Audio	Reporting	Frequencies	Saved Mes	sages N	lotifications	UI					
Rig: Kenwood TS	6-2000								-	oll Interval:	<u>1 s</u>	+
CAT Control	Rig Options											
PTT Method												
⊖ vox												
◯ CAT					O RTS							
Port: COM6											~	
Mode												
O None							O Data/Pk	t 🧹				
Transmit Audi	o Source											
🔿 Rear/Data	а				O Front/	Mic						
Split Operation	n											
O None							🔿 Fake It					
Advanced												
PTT command	l:											
Tx delay:	0.2 s										÷	
Hold PTT I	between frame	es while there a	are more to be t	ransmitted								

And For Sound settings use your VAC settings, if you want to hear the notification etc. then enter a sound output device as well (like your speakers etc.)

Settings	? ×
General Radio Audio Reporting Frequencies Saved Messages Notifications UI	
Modulation Soundcard	
Input: Finter your VAC or VB-cable setting	s for
Output: Line 1 (Virtual Audio C	
Notification Soundcard	
Output: Speakers (2- Realtek(R) Audio)	
Save Directory	
Location: C:/Users/ Bsdr/AppData/Local/JS8Call/save	Select
Remember power set ngs by band	
🖉 Transmit 🖉 Tune	
If you wish to listen to the squabbling can enter your Speaker or sound outp	you ut
device here	
	OK Cancel

VarAC

<u>VarAC</u> is an interesting mode sort of a combination of FT8 and RTTY, yep **NON-ZOMBIE LIKE**, you'll actually get to engage and have a QSO via keyboard, even send small files and pictures back and forth. Theres plenty of videos on VarAC and a great <u>FB user group</u>- Setup similar to other digital modes using Rig Control and a separate PTT, also there is a separate applications VARA which is used for the Soundcard input and output. See the screen shots below- again these are my Comports pairs shown so substitute the pairings you have set up for your virtual ports.

First let's again look at my Thetis CAT control settings. I'll be using pairs 11&12 for Cat control and 5&6 for PTT as shown.

🛃 Setup	p										—		×
General	Audio	Display	DSP	Transmit P	A Settings	Appear	ance Keyboard	Serial/N	etwork/N	Aidi CAT Test	8		
Serial	Network	MIDI	Options	User Interf	ace Andro	meda							
CAT	F1 Control	0	VFO B	CAT2 Con	itrol		CAT3 Contro	1		CAT4 Contro	ol		
	Enable	CAT1		🔽 Enab	le CAT2		🔽 Enable	CAT3		Enable	CAT4		
	Port:	COM7	~	Port:	COM11	\sim	Port:	COM15	\sim	Port:	None	~	
	Baud	115200	~	Baud	115200	\sim	Baud	115200	\sim	Baud	115200	~	
	Parity	none	~	Parity	none	\sim	Parity	none	\sim	Parity	none	~	
	Data	8	~	Data	8	\sim	Data	8	\sim	Data	8	~	
	Stop	1	\sim	Stop	1	\sim	Stop	1	\sim	Stop	1	~	
N3FJ	IP/N1MM	I/LogHX		Digital Mod	es		HRD						
PTT	Control	-						_					
	nable PI	1				Con	nport pa	air an	d				
Port	t: COM5	5	~			sett	tings for	Digi	tal				
	RTS	DTR				Мос	des (exa	mple	e)				
Reset D	atabase	Impor	t Databas	e Exp	oort Databas	e			O	Ca	ncel	Apply	

In VarAC this is how I have cat and PTT configured- I have chosen Anan-Thetis as the rig type then applied the CAT port end 12 and PTT port end 6 don't forget RTS under PTT as well.

Settings	– 🗆 X
PTT Configuration	VARA Modem Configuration
◯ CAT Anan Thetis O CAT Anan Thetis	VARA modem type VaraHF ~ 127.0.0.1 8300 8100
OmniRig OFLRig OmniRig OFLRig None	VARA file path C:\VARA\VARA.exe Start modem
O DTR/RTS ○ VOX/None I Load last freq. Offset Hz (?) 0	VARA monitor path (Optional) (?) C:\VARA\VarMON\VAR Port 8350
TEST PTT ON PTT OFF Read freq. every 2 v sec	
CAT Configuration Antenna tuner OFF (?)	QSO Configuration
○ COM Port ○ TCP USB-D ~ 7105000 ~ TEST	A ta disconnect
Port COM12	Auto disconnect 5 (?) Allow incoming pings (?)
Baud 115200	Show distance in MI V Allow info request (?)
Host localhost Port COM6 V	Callsigns block list (?) Auto QSY Band skip (F) (?)
DeterBas Querry DTP Line of 12345 Type RTS	Auto away in 10 v minutes (?) Load broadcasts history (?)
	Ele Transfer
Host 127.0.0.1	Incoming file size limit (bytes) 1000 (2)
Port 60000	Incoming files directory C:\VARA\Incomming
CAT Test Error Log (?) I'm having trouble with CAT	Outgoing files directory C:\VARA\Outgoing
Helay notification (?)	DX Cluster unloade Reacone / COs
Allow patking (?)	Finable TEST Reacon interval (minutes) 15
Logging	Host ve7cc.net Dicipant via (2)
ADIF file C:\VARA\VarAC_V7_1_4\VarAC_qso_log.adi (?)	Port 7373 CO Slot wait time (econde) 200 (2)
Submode VARA HF (2) Q Load history upon connection (2)	Usemame Q China data adapter (2) Clate size (4-) 750 (2)
Send log N2E IP/TCP)	Password (2)
P>Nteporter ☑ Upload (?) ☑ Self report (?) Custom map &timerange=21600&sho (?)	Misc. Debug mode (?) Linux compatible mode (?) SAVE AND EXIT

And for the Sound card setup in VARAHF

🖉 SoundCard 🛛 🔪 🗡
Device Input
Line 2 (Virtual Audio Cable)
Device Output
Line 1 (Virtual Audio Cable)
Tune Drive level: -2 dB -2 dB Press Tune and set the Drive Level for ALC=1/3
TUNE USB-D FIL2 50 11:47 RF PWR
P.AIVIP1 AGC-F AN NB S 1 3 5 7 9 +20 +40 +60dB Po 0 25 50 100%
COMP 0 5 10 15 20 dB 10 16V
SWR 1 1.5 2 2.5 3 00 TEMP ID 0 + + 5 + + 10 + + 15 + + 20 + + 25A
Close

Make sure you adjust the drive level, In Thetis set your meters dropdown to show SLC and adjust slider. Usually around -2 to -1 should get you close here if you're using VAC, VB-Ocable maybe slightly different. It is better in Vara to error slightly less as your connections will be more stable and quicker at transfer speeds, if you overdrive the system compensate and will roll back your data throughput. Less is better than a MAX or near max ALC for VARA!

FLDIGI

FLDIGI has been around for some time, it is a nice multi digital and CW application, it can use built in Macros for many contests or simply basic operation. <u>Download FLDIGI</u> There are several ways which Rig Control operations can be setup with FLDIGI, I have been using the HAMLIB method, but first lets again refer to how I have Comports setup for digital modes in Thetis.

🚽 Setup	p										-)
General	Audio	Display	DSP	Transmit PA	Settings	Appearar	nce Keyboard	Serial/N	etwork/M	idi CAT Test	s		
Serial	Network	MIDI	Options	User Interfa	ce Androi	meda							
CAT	F1 Control		VFO B	CAT2 Contr	ol		CAT3 Contro	bl		CAT4 Contr	ol		
 	Enable	CAT1		🔽 Enable	e CAT2		Enable	CAT3		Enable	e CAT4		
	Port:	COM7	~	Port:	COM11	~	Port:	None	~	Port:	None	~	
	Baud	115200	~	Baud	115200	~	Baud	115200	~	Baud	115200	~	
	Parity	none	~	Parity	none	~	Parity	none	~	Parity	none	~	
	Data	8	~	Data	8	\sim	Data	8	~	Data	8	~	
:	Stop	1	~	Stop	1	~	Stop	1	~	Stop	1	~	
N3FJ PTT	IP/N1MM	/LogHX		Digital Modes			HRD						
Port	t: COM5			Sett FLD	tings IGI in	In th The	e Exan tis	nple I	use	for			
Port	t: COM5		t Databas	Sett FLD	ings IGI in	In th The	e Exan tis	nple I	use	for	ncel	Δορίγ	

In FLDIGI I use **HamLib** as my Rig Control. See the example settings below again subsite any comport pair shown for those in which you have created. Also make sure you **Initialize** and **Save settings** as we move through the setup.

Fldigi configuration	Jsing HAMLIB Here are my settings.	Make sure you Initialize.	- 🗆 X
Configure Colors-Fonts Contests Contests Ds Logging Modem Misc Operator-Station Rig Control firig CAT (rigcat)	Rig Control/Hamlib Rig: FlexRadio/ANAN PowerSDR/TI Retries Til 10 8 Write delay (msec) Po 0 0	OUse Hamlib Device: COM12 meout (msec) 00 Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: COM12 B Device: C	Defaults Understein 115200 Stopbits 1 Defaults Understein 1 Defaul
GPIO Hamlib Hardware PTT - C-Media PTT • Soundcard • UI • Waterfall • Web	PTT via Hamlib command Audio on Auxiliary Port DTR +12 RTS/CTS flow control Advanced configuration:	Mode de Sideband: ORTS +12 OXON/XOFF flow control	Aay (msec) 1 200 Rig mode CW is LSB mode RTTY is USB mode
Collaps	e Tree Restore defaults	Save	Close /

FLDIGI will require a separate PTT Trigger for Digital Mode TX operation see below example. (Again change my Comports for those you used in the cross reference listing for PTT keying)

Fldigi configuration) ×
Configure	Rig Control/Hardware PTT		
+ Call + Colors-Fonts + Contests + IDs	OPTT tone on right audio channel		
+ Logging + Modem + Misc			
Operator-Station Rig Control	Device: COM6 ♥Use RTS	□RTS = +V	
CAT (rigcat)	OUse DTR	ODTR = +V	
GPIO Hamlib	Select Hardware PTT under		
C-Media PTT	Rig Control	Initialize	
+ UI	PTT delays valid for all CAT/PTT types		
+ Web	Init	ialize	
	Image: Constraint of the second se		
Collapse Tree	Restore defaults Save	Close	

Next for CW keying will need to go to Modem and expand the CW option then move down to DTR-RTS Keying and setup as shown in example (*Again change my Comports for those you used in the cross-reference listing for keying*)

Fldigi configuration			>	<
- Configure	A	Modem/CW/DTR-RTS keying	Select DTR-RTS Keying under CW	
Colors-Fonts Contests I Ds		DTR/RTS keying may be assigned share the Separate PTT senal po	t to ffrig, share the RigCat serial port, rt, or be assigned to separate serial port.	
Elegging Modem	1	No settings for baud, stops bits,	etc are needed.	
General Timing and QSK		Use: firig DTR/RTS keying	Disable flrig CW PTT	
Extended Chars. Punctuation-Noise		 Share RIGCAT port 		
nanoIO		 Share Separate PTT port 	Keying compensation (msec)	
CAT keying		Use Separate Keying Seria	al Port	
CAT comp'		COM10	Connect	
Feld Hell				
FSQ		Speed test Resul	t	
MT-63	•			
Collapse Tree		Restore defaults	Save Close /	-

Next will need to move to Soundcard and again expand the options and look for DEVICES, set as shown in example with your VAC or VB-Cable settings used in Thetis.

Fldigi configuration	Soundcard/Devices Sound	card-Devices set VAC	- 0	×
	Ooss	Device:		
	€PortAudio	Capture: Line 2 (Virtual Audio Cable)	\$	
Operator-Station Rig Control firig	Γ 🔺	Playback: Line 1 (Virtual Audio Cable)	\$	
CAT (rigcat) GPIO Hamlib	□ PulseAudio	Server string:		
Hardware PT C-Media T Soundcard	□File I/O only	ODevice supports full duplex		
Alerts	Audio device shared by	y Audio Alerts and Rx Monitor		
Right channel	Speakers (2-Realtek)	(R) Audio) 🗧 🗘 🗆 Er	nable	
Settings Signal Level Wav file recording	Not	e: must be selected and enabled for Rx Audio monitoring!		
)			
Collapse Tree	Restore defaults	Save	Close	<

Almost done we need to make sure that the soundcard sample rates match those in Thetis and HOPEFULLY your VAC or VB-cable rates as well (Typically those should be 48000) move down to Settings and adjust if needed to match your sample rate.

Fldigi configuration		– 🗆 X
Fldigi configuration Configure Coll Colors-Fonts Contests Contests IDS Contests Contests Coperator-Station Rig Control firig CAT (rigcat) GPIO Hamlib Hardware PTT	ur Sample Rates they shou	Converter Best Sinc Interpolator
C-Media PTT Soundcard Alerts Devices Right channel Settings Signal Level Wav file recording UI UI Waterfall	Frequency Correction 480	000 most times is standard Digi Mode applications.
Collapse Tree	Restore defaults	Save Close /

Thetis and Loggers:

In similar fashion to the Digital modes Thetis is easily configurable to work with loggers as well.

Again, the examples below will be using comport pairings I have setup and may not look like yours, again simply substitute my pairs for your Virtual comport pairs and you should be ready to log.

N3FJP Loggers: Regardless of which the basic, **Amateur Contact Log** or one of the **Contest Loggers** the setup is the same. I'll use Amateur Contact Log for this example. Again, for this I'll be using Comport pairs 7&8 and 9&10 (CW mode) for examples.

Setup													-	
eneral /	Audio	Display	DSP	Transmit	PA Set	tings	Appeara	ance Keyboard	Serial/N	etwork/Mi	idi CAT	Tests		
erial N	Vetwork	MIDI	Options	User Inte	erface	Andror	meda							
CAT1	Control		VFO B	CAT2 Co	ontrol			CAT3 Contro	bl		CAT4 (Control		
🖂 E	Enable (CAT1		🖂 Ena	able CA	T2		🖂 Enable	CAT3		E	nable (CAT4	
Po	ort:	COM7	~	Port:	C	OM11	~	Port:	COM15	~	Por	rt:	None	~
Ba	aud	115200	~	Bauc	d 1	15200	\sim	Baud	115200	~	Bai	ud	115200	~
Pa	arity	none	~	Parit	ty n	one	~	Parity	none	~	Par	rity	none	~
Da	ata	8	~	Data	8		\sim	Data	8	~	Dat	ta	8	~
St	op	1	~	Stop	1		\sim	Stop	1	~	Sto	p	1	~
N3FJP/	/N1MM	/LogHX		Digital Mo	odes			HRD						
-PTT C PTT C Ena	Control able PT COM5	Т	~		My	CA	T se	ttings fo	or s					

🛃 Setup		—		×
General Audio Di	isplay DSP Transmit PA Settings Appearance Keyboard Serial/Network/Midi CAT Tests			
Options CW A	AGC/ALC AM/SAM FM Audio EER NR/ANF MNF NB/SNB VOX/DE CFC			
CW Pitch (Hz) Freq: 650 -	Connections Options Primary: Radio Secondary: COM9 PTT Line: None Key Line: RTS Disable UI MOX Okde B Disable UI MOX Strict Char Space Weight: 50 €			
	comport options.			
Reset Database	Import Database OK Cancel		Apply	

N3FJP settings:

Settings Rig Interface as below: Note I used 115200 baud for my settings you can add that by clicking "Other" then manually enter 115200- If you're using an older PC or one that is being Taxed with resources from applications, you should use a slower baud rate to avoid hiccups.

Select Rig:	Com Port:	Paud Pater	Description:
None Client API	COM11 COM12	• 1.2 • 2.4 • 4.8 • 9.6 • 11.5 • 14.4 • 19.2 • 28.8 • 38.4 • 56 Other	To use the Rig Control interface, select the appropriate parameters
Elecraft Flex API FlexRadio Icom	COM13 COM14 COM15 COM16	Parity: Data Bits: Stop Bits: Odd • None • Even • 7 • 8 • 1 • 2	for your radio and click test. Be sure to select the RTS or DTR
Icom2 Icom 735 Kenwood	COM20 COM21 COM5 COM6	Connection Power: Radio Polling Rate: ● None ○ RTS ○ DTR ○ Both ● 100 ms ○ 500 ms ○ 2 sec ○ 10 sec	connection power option if your interface requires it. Many interfaces require RTS.
N3F.JP API Ten Tec Argonaut VI Ten Tec Eagle Ten Tec Ent PnI Ten Tec Comi VI Yaesu - Older Yaesu 300 Yaesu 800 Yaesu 900 Yaesu 920 Yaesu 920 Yaesu 920	COM7 COM8 COM9 COM10	Mode Determined By: O Rig OFrequency On't Use Mode by Frequency: Return All Mapped Modes Mode by Frequency: Return All Mapped Modes Mode by Frequency: Return All Mapped Modes These are the settings i use for Loggers-Note in N3EIP citck OTHER then enter the 115200 Baud Rate if you prefer, again these would Command to Read Frequence Command to Read Frequence (F;)	Icom users, after selecting Icom, don't forget to enter your rig ID into the command strings, which you will find in your rig's manual under CAT control. I have the detailed successful settings users have sent along for many rigs here: http://www.n3fjp.com/help/righelp.ht ml
Save Settings	Load Settings	Importance PC when running Thetis and your logger. Mode: Test End Test	More rig interface help and settings!
Unprocessed data Converted f	returned: rom hex:		Copy Data to Clipboard
Multi Radio Configurati Rig 1: C:\Users\n8sdr\Docume Rig 2:	on: (Main Form Ctrl - nts\Affirmatech\N3f Brow Brow	X) To test the change fir MHz and click Send. as well, depending o modes by clicking on	quency command, enter a frequency in The mode should change to SSB or CW the frequency you enter. Test changing the mode buttons:
Rig 3: Help	Brow Test Swap	Be Frequency: 21.4 Done CW USB LSB	46 X Sticky Parawoord * X Stody Parawoord was locked automatically after the computer Vesicide of annucles United:

Com Port:							Descripti	on:		
COM11 COM12 COM13 COM14 COM15	⊂Keying O _l ○ None	otions OR OD	TS OWinkey	er Config API Winke	Configure Winkeyer Volume to build or purchase an interface connect from your computer's serial p your transmitter. Schematics and purc options are available on my website					t, you will e to port to rchase
COM16 COM20 COM21 COM5 COM6 COM7	Timing Op ○ Sleep	otions	• Timer	○ Loop	(www.n3fjp.com). To use the N3FJP CW macros you can set CW Keying for RTS select your Comport end for CW and RTS					
		Word	Character				Alternatively y		elect the Winl	kever
COM10	WPM	Space	e Space	Canal	F 0		device, which v	vill key yo	our rig indepe	endently
	Faster	More	More	Charac	ters	S:	from your PC's solution if your	process	or, which is a or's code is e	a great erratic.
Save Settings	18	18 0		Test	Test		connect right to	your PC lease vis	s USB versio s USB port. t www.k1el.c	For more
Load Settings	Slower	Less	Less				CW PTT for	Amps	Lead (ms) 10	Tail (ms) 5
CQ OHQP DE N	18 2.3	F4	N8SDR	F	7	CQ OHQ	P DE N8SDR	F10	STATE?	
2 599 BUTLER	TSM - Tab	F5	AGN	F	-8	BUTL		F11	TU	
-3 599 BUTL	TSM - Enter	F6	RR GL	F	-9	CNTY?		F12	Key	board
Multi Radio Configu Rig 1:	ıration: (Mai	n Form	Browse) Fa a SI <u>Clic</u>	aster Esca how Mini c k for more	ape Check on Startup e info on rig to	□ Seria	al 0, 1 & 9 a: interfaces.	s cut #s
(ig 2.										

And if you wish to use N3FJP CW macros: Select Settings -Transmit- CW Setup and as outlined below.

LogHX

I use <u>LogHX</u> it supports TCI so here is a quick setup for LogHX or loggers which support TCI (Aka Log4OM) as another TCI supported Logger. Setup works the same as outlined here for LogHX

💀 Setup	- 🗆 X
General Audio Display DSP Transmit PA Settings Appearance	Keyboard Serial/Network/Midi CAT Tests
Serial Network MIDI Options User Interface Andromeda	
TCI Server (0 clients)	TCP/IP CAT Server (0 clients)
Bind IP:Port 127.0.0.1:40001	Bind IP:Port 127.0.0.1:13013 Def IPv4
Rate Limit (ms) 100 🖨 Def IPv4	Send version on client connect
Send initial VFO state on connect (out)	Server Running
✓ Use RX1 VFOa for RX2 VFOa (in+out)	Show Log
Duplicate RX2 VFOb to RX2 VFOa (out)	
CWL/CWU becomes CW (out)	N1MM+ WaterfallBandmap
Emulate ExpertSDR3 protocol	Enable BY1 0.30
Emulate SunSDR2Pro device	
Show TCI Spots	
Max Spots : 50	Send UDP to: 127.0.0.1:13064 Def IPv4
Spot Lifetime : 5 🚔 mins	Send Rate: 8
Own Call Appearance N8SDR	•
Server Running	Apply these settings as outlined,
Show Log	some won't be needed for some
	applications
Reset Database Import Database Export Database	

Again, refer to the TCI setup in Thetis below:

For CW Macros or keyboard CW see example below:

ieneral	Audio	Display	DSP	Trans	mit P/	A Settings	Арреа	arance	Keyboard	Serial/Net	work/Midi (AT Te	ests		
Options	CW	AGC/AL	LC AM	/SAM	FM	Audio	EER	NR/AN	IF MNF	NB/SNB	VOX/DE	CFC			
CW Pi	tch (Hz)	Co	onnectio	ns			Opti	ons							
Freq:	650		Primary	r:	Radi	o ~		lambic							
			Seconda	ary:	CON	19 🗸) Sideton	e						
			PTT Lin	e:	Non	e 🗸) Reverse	Paddles						
			Key Line	e:	RTS	~		Mode B							
CW B	reak-In					R			de Swch						
<u>_</u> S	EMI		C) Disab Chan	ole UIM ges	iox 🔪) Strict C	iar Space						
Delay	(ms): 3	806 🜲					We	eight:	50 🌲						
							N								
							V	CW	Key	ing					
							N	CW cor	Key npor	ing t opti	ons.				
							V	CW cor	Key npor	ing t opti	ons.				
							V	CW cor	Key npor	ing t opti	ons.				
							V	CW cor	Key npor	ing t opti	ons.				
								CW cor	Key npor	ing t opti	ons.				

LogHX select – Setup-Radio Setup 1 or 2 then choose TCI and name your Rig example below.

🙀 Radio	1 Setup					×
CAT interfa None HXCat i OmniRi TCI Hamlib Flrig	ace interface g interface	Freq step 1000 Hz CW priority Not CW C	One port fo PTT Setup Port type None		CW Setup Port type COM Port number COM10	•
	Setup		Control	_	Control	-
-Set Radio	names		·	· ·		· ·
CatHX	CatHX1			ntrol v	ia TCI	2 setup
OmniRig	OmniRig1		Nig CO		ia i Ci,)
TCI	HL2+		мате	your R	ig	_
Hamlib	Hamlib1		- port		PTT line	••
Flrig	Flrig1		Tune	setup		•
		ОК	Cancel			



Now click the SETUP button under TCI and configure as shown here:

Enable spots and when you start and use the Spot collector in LogHX the Spots will be displayed on your panadapter in Thetis.



If you're using Log4OM the setup is very similar to that of LogHX see example below (*Thanks David VE3TOS*) for the screen shot. Log4Om can also send spots via TCI for display on Thetis Panadapter like LogHX and N1MM



N1MM

A popular logger for contests and general logging with many options esp. for contest.

Here I'll show how I setup N1MM for the Hermes Lite and Thetis, using Cat control for the Rig, CW Keying and TCI for displaying the spots captured in N1MM to be displayed on the panadapter in Thetis.

Sounds confusing? Nah simple. Again, my Comport pairings may differ from yours so just substitute the pairing where needed with those you have created.

First let's look at the various settings used in Thetis for CAT control, CW Keying and then TCI for Spot displaying.

🖳 Setu	p										_		×
General	Audio	Display	DSP	Transmit P/	Settings	Appear	ance Keyboard	Serial/N	etwork/N	Aidi CAT Test	s		
Serial	Network	MIDI	Options	User Interfa	ce Andror	neda							
CA	T1 Contro	0	VFO B	CAT2 Cont	rol		CAT3 Contro	1		CAT4 Contr	ol		
	Enable	CAT1		🔽 Enabl	e CAT2		🔽 Enable	CAT3		Enable	CAT4		
	Port:	COM7	~	Port:	COM11	\sim	Port:	COM15	\sim	Port:	None	~	
	Baud	115200	\sim	Baud	115200	\sim	Baud	115200	\sim	Baud	115200	~	
	Parity	none	~	Parity	none	\sim	Parity	none	\sim	Parity	none	~	
	Data	8	~	Data	8	\sim	Data	8	\sim	Data	8	~	
	Stop	1	~	Stop	1	\sim	Stop	1	~	Stop	1	~	
N3F.	JP/N1MM	1/LogHX		Digital Mode	s		HRD						
PTT PTT Por	T Control Enable PT t: COM5	T 5 O DTR	~	N	ly CA oggir	Г se Ig P	ttings fo rogram	or S					
Reset D	atabase		t Databas	e Expo	ort Database	ð		(Oł	(Ca	ncel	Apply	

Here again I have used Comport pairs 7&8 for Rig control.

And pairs 9&10 for CW Keying

🖶 Setup										_		\times
General Au	udio Dis	play DSP	Transmit P	A Settings	Appearance	Keyboar	d Serial/Net	work/Midi C/	AT Tests			
Options C	W AG	GC/ALC AM	/SAM FM	Audio	EER NR/	ANF MN	F NB/SNB	VOX/DE	CFC			
CW Pitch Freq: 65	n (Hz)	Connectio Primary Seconda PTT Lin Key Lind	ns : Rad ary: CON e: Non a: RTS	io ~ 49 ~ e ~	Options lambi Sidet Reve Mode	c one rse Paddle B Mode Swc	s					
CW Breal	k-In MI ns): 306	¢) Disable UI M Changes	IOX	Strict	Char Space	ine Internet					
					Cl	W Key mpo	ving rt opti	ons.				
Reset Datab	ase	Import Databa	ase Exp	ort Databa	ise			ОК	Cance		Apply	

And again, Hers is a look at TCI settings in Thetis (this is where we will gather the spots in N1MM clusters) and display them on the panadapter in Thetis. TCI will also be used if you wish to display the Panadapter in N1MM as well.

💀 Setup	- 🗆 X				
General Audio Display DSP Transmit PA Settings Appearance	Keyboard Serial/Network/Midi CAT Tests				
Serial Network MIDI Options User Interface Andromeda					
TCI Server (0 clients)	TCP/IP CAT Server (0 clients)				
Bind IP:Port 127.0.0.1:40001	Bind IP:Port 127.0.0.1:13013 Def IPv4				
Rate Limit (ms) 100 🚔 Def IPv4	Send version on client connect				
Send initial VFO state on connect (out)	Show Log				
 Duplicate RX2 VFOb to RX2 VFOa (out) 					
CWL/CWU becomes CW (out)	N1MM+ WaterfallBandmap				
Emulate ExpertSDR3 protocol Emulate SunSDR2Pro device	dB scaling ✓ Enable RX1 0.30 ←				
Show TCI Spots	Enable RX2				
Max Spots : 50 🗢	Send UDP to: 127.0.0.1:13064 Def IPv4				
Spot Lifetime : 5 🚔 mins	Send Rate: 8				
🕑 Own Call Appearance N8SDR					
Show Log					
Reset Database Import Database Export Database	OK Cancel Apply				

In N1MM for Rig control refer to the following for my example

🔛 Confi	gurer											×
Hardware	Functio	on Keys	Digital Mo	des (Other	Winkey	Mode C	ontrol	Antennas	Score Rep	porting Broadcast Data	WSJT/JTDX Setup
Port		Radio		Dio	i CW	Other Det	ails	IP 4	ddr:Port	O S01V	/ 🔘 SO2V 🔾 SO2R	
COM8		TS-20	00			Se	et		(ddf.) off		115200 N 8 1 DTR=PTT	PTS=CWTy=1
COM10		None				Se	et				DTR=Always Off RTS=	CWTx=1
COM6		None				Se	et				, and the second s	011,1X 1
None		None				Se	et				-	
None		None				Se	et					
None	~	None		jo		Se	et				-	
None	~	None		jo		Se	et				-	
None	~	None		jc		Se	et				-	
LPT1						Se	et				-	
LPT2						Se	et					
LPT3						Se	et					
										_ •		
		Sel	ect yo	bur	COI	mpoi	rt en	d p	air fo	r Rig (Control	
		and	use	TS-	200	00 fo	r Ra	dio	Туре	- Sele	ct your	
		end	pair	for	CV	V key	ing	anc	ld che	ecckb	ox for	
		CW/	Othe	r								
			ок		0	Cancel				Help		
				_					_			

Now click **SET** next to each of the above and refer to below.

Rig Control set options.

Com8			×					
Speed	Parity	DataBits	Stop Bits					
115200 🗸	N \sim	8 ~	1 ~					
DTR (pin 4)	RTS (pin 7)		Radio Nr					
PTT V	cw ~		1 ~					
PTT Delay (msec)	Radio Polling Ra	ate						
30	Normal	~						
PTT via Radio Command SSB Mode PTT via Radio Command CW Mode PTT via Radio Command Digital Mode FootSwitch (pin 6)								
Settings	used for	r Rig co	ntrol.					
Suggested TS-200 38400, N, 8, 1, Han	0 Kenwood Settin dshake, Handshal	gs: ke						
The radio can not b	be in Memory or Ca	all mode.						
Help		0	Cancel					

CW Set options.

Com10		×							
DTR (pin 4)	RTS (pin 7)	VFO Nr							
Always Off \sim	cw ~	1 ~							
PTT Delay (msec) 30 Rig Blaster Inter WinKey	rrupt								
Two Radio Protoco	FootSwitch (pin 6)								
None ~	None ~								
Settings used for CW macro keying.									
Help		OK Cancel							

For TCI spots in N1MM select Config- Then configure ports-Etc. then select Broadcast Data sell settings below.

Configurer							×	
Hardware Function Keys Digital N	lodes Other	Winkey	Mode Control	Antennas	Score Reporting	Broadcast Data	WSJT/JTDX Setup	
Select the type of data you wish Use 127.0.0.1 for the local mach 255 in the low order octet will br	n to broadcast, a nine. Use 12060 roadcast to you	and the the as the po r current s	e IP Address(es ort unless the re subnet.) and port(s) ceiving appli) for the receiver(s ication requires a c) of the data. lifferent port.		
Type of data	IP Addr:Port IP A	Addr:Port						
Application Info	127.0.0.1:1206	51						
Radio	127.0.0.1:1206	60						
Contacts 🗌 All Computers	127.0.0.1:1206	0						
Spots Rotor	127.0.0.1:1206 127.0.0.1:1204	62 10						
Score Score	127.0.0.1:1206	0						
💽 External Callsign Lonkup	127.0.0.1:1206	0						
For spots use the following loopback IP shown and the UDP port number following to send info to TCI for Spots								
ок	C	ancel			Help			

If you enable the waterfall option in N1MM for your Spectrum Source, select for all other radios then Thetis-1 should appear.

Mage Thetis_1 Spectrum (Ra	idio 1)	Thetis sho	uld be an option under	spectrum source- all ot	hers.		>
CQ > 15.0 0 sigs 15 Hz 35 kHz							
7048		natilis initerational and and and	ahigentifikenseessa setti katalahin setsama katalahin Maraasa Ba 7063	n gan and a grant to any and a support of the suppo	neralharingalturburgan 7073	zan international material and in the attended of the strands of t	антария 7083 Static
						•	

Loggers- There are many loggers available. Hopefully the examples shown here using Cat control and or TCI will help you with other various logger setups. Once you set up a couple, you'll soon get the hang of how many of them are configured. Happy Logging!

Hermes Lite 2 Thetis Tips and Suggestions

For General SWL listening it maybe helpful to enable the High Pass filtering

Select Setup-General-OC Control then the SWL tab and enable as shown below.

I/W Sel	ect F/	W Set	Options	Calibration	Filters	OC Control	Ant/Filters	PA Control Al	DC RX2	Navigatio	n	
HF	VHF	SWL										
Band	<u>J</u> . 1 2	16 Receiv	ve Pins	<u>J161</u> 1 2 3	Transmit	Pins 5 7	Transmit	Pin Action			Ext PA Contro	ol (xPA)
L/MW 120m							Pin 1	Mox/Tune/2Tor	ne V		RX Pin 1	TX
90m							Pin 2	Mox/Tune/2Tor	ne v		Pin 2	
61m 49m							Pin 3	Mox/Tune/2Tor	ne v		Pin 3	\Box
41m 31m		000					Pin 4	Mox/Tune/2Tor	ne v		Pin 4	
25m							Pin 5	Mox/Tune/2Tor	ne v		Pin 5	
22m 19m				ÖÖC			Pin 6	Mox/Tune/2Tor	ne v		Pin 6	
16m 14m)000)000					Pin 7	Mox/Tune/2Tor	ne v		Pin 7	
13m											_	_
1111							lere i	s a sugg	ested	Tip w	hile	
					SWL	Reset	isting	to SWL	- enab	le the	High	
Hard 1	dware Pi 2 3 4	in State – 156	7			-	Pass b	and filt	er as s	hown	I.	

Using a manual tuner or perhaps a manual amplifier?

Do you have an excel file or perhaps a paper sheet containing your presets for frequencies and bands so you can quickly re-tune for changes? Here is a great utility I have used since Ernst OE3IDE introduced it called <u>Tuner Reminder</u>.

It's a quick setup using TCI from Thetis again recall the example below showing the TCI settings in Thetis under: Setup-"Serial/Network/Midi Cat"- then open the tab for "Network"



Download Tuner Reminder and unzip (copy folder if needed and place in a new directory on your drive) example create c:\TunerReminder and place the files there- The program doesn't create an installation rather it is a self-contained executable you can create a shortcut to Tunereminder.exe and place on your Desktop, Taskbar etc. Once you have that go and have launched the exe click on Settings where you be presented with the following screen regarding communication types: see below for TCI setup.

Settings	_		\times
Save and Close			
C Select communication			
Please select the connection type			
TCI Settings			
IP-Address localhost The IP-Address of the computer where & You can use 'localhost' or '127.0.0.1' if it	ExpertSDR2 is runr is running on this m	ning on. nachine.	
Port 40001 Default port would be 40001			
Receiver 1			
Receiver 2			
- OmniRig Settings-			
Notice: Big 1 If you up OmpiBig in combination with multiple software (like			are
etc) normally OmniRig is running with administrative privileges O Rig 2 So if you run in troubles on programm-start (i.e. unhandled ex			uro,
please start the application with administrator privileges.			
use VFO-Freq instead of TXFreq			
Notice: If you have the problem, that the frequency readout shows 0	, try this option.		
aiways on top			
	save a	nd clos	e
Tip: localhost is also			
known as 127.0.0.1			



Save and close the screen, next you just need to enter the device names (you can create 2) I chose my manual Tuner a AT2K and then a Acom1000 you will manually enter the names for the devices.

Then you can start adding the presets for those devices and when you tune to those frequencies you be presented with that information going forward. Easier than updating paper listings as it replies with the setting of exact frequencies, or the closest settings entered for a frequency. Easy to use just click ADD change choose the proper device and update or add new presets as you go. Just reminder to Save your updates. You 'll find that the TunerReminder program creates an Excel file of the names and device presets. The program just wraps this up in a very nice easy to use GUI.

The AMAZON USB WHEEL AIMOS USB Volume programmable wheel

Using the Amazon USB wheel for your panadapter tuning. Here's a nice feature in Thetis you might want to look at. In Thetis there is an option to have it focus on the panadapter all the time regardless of where your mouse is pointed, also you can set it to only control panadapter and not, other things that the mouse is pointed to, this is very helpful. *Setup-General-Navigation*: in the dropdown one of the HIDs is the USB wheel choose it and see settings in pic below.



Setting this way is great use the mouse for big jumps in tuning and fine tune with the wheel works very well! This also helps when your mouse is focused on say a Logger or digital program!

Radio Reset

If you ever need to REST your HERMES LITew or Hermes Lite 2, this can be done using the KEY jack, to do you will need a TRS (TIP RING SHEILD) 3.5mm plug and short al I3 connections on it, then insert it into the KEY jack, and power on the Hermes Lite wait approximately 40-60 seconds and it should reset. I have experience where I had to do the REST procedure 2 times before it reset (That could have been me being impatient)



CW KEYER

Note the CW KEY jack is a TRS jack, if you plug a TS plug into it, the radio will go into TX mode.

Please use the correct jack. The tip connector is the key input. Ground it to put the Hermes-Lite into transmit mode and generate a CW signal. The Hermes-Lite does not have an internal keyer or sidetone, so connect your external keyer with sidetone or a straight key to the CN4 tip. Starting with gateware 71p2 you can connect a foot switch to the ring to turn on transmit and then key CW using the tip. Previously the functions were separate.

The ring and tip status are sent to the PC so that your SDR software can react to them. For details see the protocol page. The PC can also set transmit mode and send CW without using CN4. See the documentation for your SDR software.

In normal operation, software will trigger PTT or the CW KEY. Male sure you're in CW mode overwise it might trip the and go to TX mode. I unplug the keyer in Digi or SSB modes, I have had that happen, with my bencher dual paddle I am using.

🖳 Setup	—	\times
General Audio Display DSP Transmit PA Settings Appearance Keyboard Serial/Network/Midi CAT Tests		
Options CW AGC/ALC AM/SAM FM Audio EER NR/ANF MNF NB/SNB VOX/DE CFC		
Options CW Add/Add AM/SAM FM Addio EER NH/ANF MNP NB/SNB VOX/DE CH CW Pitch (Hz) Connections Primary: Radio Image: Side one Image: Side one		

Actual settings I use once CW is enabled in Thetis.



Voice Modes Operation

By default, the Hermes Lite 2 doesn't have a separate MIC input, however you can use a PC microphone plugged into your PC soundcard or a USB style microphone or XLR to USB adapter to pass voice audio through your Hermes Lite, you just need to select it as your input source in Thetis. You can then use the Key jack for PTT using the TIP connector and grounding it for PTT, or keyboard assigned KEY for PTT or MOX.

If you wish you can also use the <u>AK4951 Companion board</u>, this board coverts your Herms Lite 2 to the Hermes Lite 2 Plus. Giving you a Mic TRS 3.5MM connector and another 3.5mm connector for headphones or external amplified speakers. The board also produces CW SIDE TONE as well when using CW and you enable the monitor button in Thetis.

There are Positives and Negatives I suppose to either choice, So I'll leave that for you to explore which is a better option for your operations!

Upgrading Firmware or Gateware Via SparkSDR

*Correction to this section: In some of the example pictures there is mention of *.RBN file that is incorrect the file should be an *.RBF*

At times new firmware or gateware versions may be released to correct or add new features for your Hermes Lite 2 or Hermes Lite 2 Plus. Using SparkSDR is probably the easiest way to perform those updates!

After downloading and installing SparkSDR launch the application, turn on your Hermes Lite 2 or 2+ then in the upper right of the SparkSDR Title bar you should see your Hermes Lites IP address, (*DO NOT CLICK THE POWER ON BUTTON*) Right Click the Title Bar listing for your Hermes Lites IP address and an option to upload new firmware will appear click the option.

🗲 SparkSDR 0	-	o x
ひ 🌞 ⑦ [] (J) Hermes Lite 2 10.10.30.100		_
ස් ¹ Last Session		
	Your Hermes Lite IP address should be shown here.	

RIGHT Click the IP address to access the "Upload New Firmware" option.



Click on the "Upload New Firmware" text to open the programmer option window.

SparkSDR 0		- 0	×
ひ 🌞 ⑦ 「] (リ Hermes	Lite 2 gn 100		
	Upload New Firmware		
C ² Last Session			
	Click to open the		
	programmer		
	window.		

The programmer windows will appear,

Upload Gateware		×
RBF File		
Program		
C:\Users\n8sdr\OneDrive\Documents		
5		I
2014		
2021_03_07		
3DMark		
A multiband HF antenna that works	files	

Next you need to enter the firmware or gateware *RBF* file you have downloaded. You can use the search option to browse to the location you have saved the firmware/gateware *RBF*.

Upload Gateware	—	×
RBF File		
Program		
Enter RBN file here you search using options b	i can elow	
C:\Users\n8sdr\OneDrive\Documents	~	1
2014		
2 021_03_07		
3DMark		
A multiband HF antenna that work	ks_files	

Once you have that showing in the windows click Program and wait till you get a confirmation on successful update. Then close spark and reset your Hermes Lite 2 or Hermes Lite 2+, you will need to reset the Hermes Device for the new firmware to be active. (** Correction to screenshot pic should say ENTER RBF file here)

Upload Gateware	—	×
XXXX.rbn		
Program		
Click Program after you have RBN and wait for confirmation on upgrade!		I
2014 2021_03_07		
3DMark		
A multiband HF antenna that work	s_files	

(Correction to example pic should say XXXX.RBF)

Again, wait for confirmation that the Firmware or gateware has upgraded. Then restart your Hermes.

SparkSDR can also be used for IP address and Mac Address settings.

SparkSDr can also be used for setting a *Static IP* address of your Hermes Lite 2, You can also set a different MAC address as well, both if these are very useful tools if you're running more than one Hermes Lite on you network or directly connected to a NIC (Network Interface Card)

Start SparkSDR and power on- then follow below screenshots to change MAC or set Static IP addresses.



Power on and click the 3 ... on ride side to open Radio Settings panel.

Now you can set a Static IP address or assign a MAC address, don't forget to click the set option, then power off and back on your Hermes for the changes to take place.



QUISK SDR for setting or adjusting your BIAS:

Version 8 created 5/14/2024 09:51

N8SDR