# **Operating your Radio Remotely**

W1WAB

### The Issue: My Ham Shack is in the Garage ----



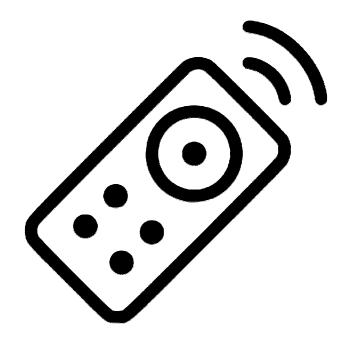
Provides Easy access to the antennas in the attic ....

- two large Cushcraft beams, one 70 cm beam,

- 20 meter dipole, and lots of VHF/UHF/CB antennas



The ham shack is nice, but it can be too hot or too cold ... I'm a lazy guy who dislikes leaving the office chair...



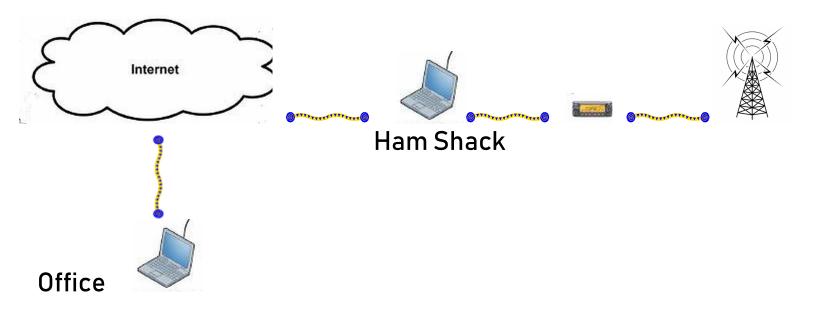
# Ineeded Remote Control

# Remote Radio Control:

Examples of <u>three</u> methods

- Ham Radio Deluxe
- Chrome remote
- RC Forb

- formerly used by SCC & KP ARC
- easy method for digital modes like FT8
- method formerly used by TARC

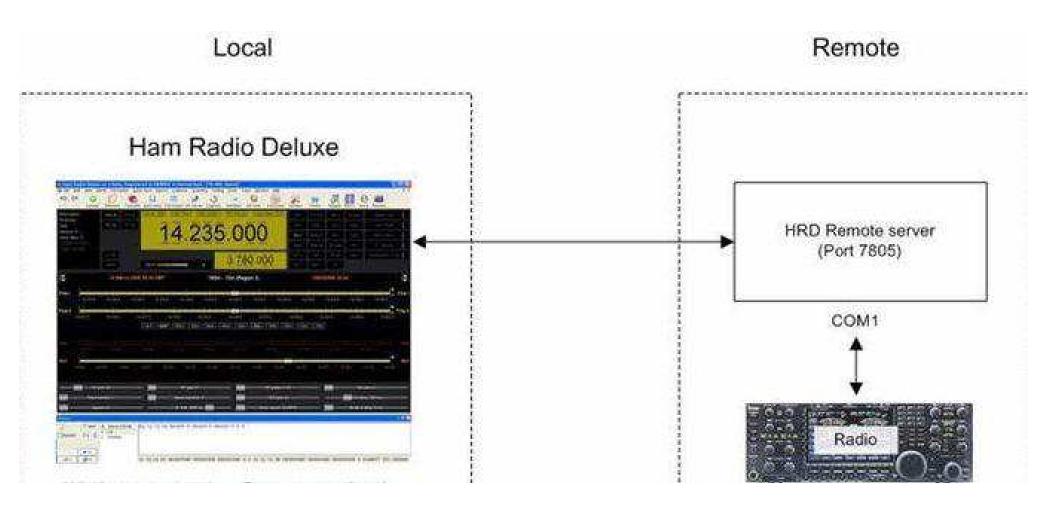


To accomplish remote:

- Office connect to the internet
- remote PC must be on, connected to internet & radio
- radio must be able to turn on/off (or leave on)
- antenna must be able to turn on/off (or leave on)

#### Method 1 – Ham Radio Deluxe

#### Overview - start HRD at Office and "dial-up" the remote PC



#### Setup- start the remote server

	Remote Server Configuration	×
	The status of the HRD Remote Server on this computer.	
■ HBD Rig Control - [TS-2000: Demo]          File       Edit       View       Bands       Favorites       Quick Save       Macros       Logbook       Radio Options       Scanning       Tuning       Tools       Voice       DStar       Window       Help           S       Image: Same Same Same Same Same Same Same Same	HRD Remote Server (Radio Support) HRD Serial Port Server (Keyer & Rotator Support)	
Connect Selection Favorite Quick Save Satellites Logbook DM780 Rotator Display Mapper Full Screen SW       Add Desktop Icon         Main Duty       VPOA       CH+         Main Duty       VPOB       CH-         TX-A       A>B       144.02305.0000         DSP:       Main       Sub System         Main       Sub System       System         Main	<ul> <li>Service name: HRD RemoteSvr</li> <li>Display name: HRD Remote Server</li> <li>Configuration: C:\ProgramData\HRDLLC\HRDRemoteSvr.cfg</li> <li>Logfile:</li> <li>Last started:</li> <li>Status: Stopped</li> </ul>	
Saturday, January 22, 2022         160m - 10m (Region         Shortware Database         10:52:27           Transverter         Transverter         Transverter         Transverter           Taxay         14:23:3.8         14:23:4.0         14:23:4.0         14:23:4.8         14:23:0.0         14:	Stop       Stop       Configure     View Log       Help     Install	ove
If and       14 000       14 005       14 005       14 005       14 005       14 125       14 150       14 175       Customize Layout Ctrl+F8       50       14 225       14 320         Image: Internet of the second	<ul> <li><b>1.0 Introduction</b></li> <li>The HRD Remote Server enables a connection between Han Radio Deluxe and a radio connected to a remote computer which can be contacted via TCP/IP.</li> <li><b>1.1 Requirements</b></li> </ul>	*

#### Method 1 – Ham Radio Deluxe (cont)

#### Configure the remote radio ports and define allowed users

	ort			User	Password	TX	M
COM6 - Generic (CO COM7 - Generic (CO					22	đi.	14
TCP Port for sharing:	7805	Default: 7805					
Welcome Message: (bla	ank for no message	e)	0	٢			
-	<b>m</b> 1			<u>R</u> emove User	Add/Edit User		
		te: All passwords are stored wi cryption and are also used by t mote Server without encryptior	he 🗠	Add/Update U	Password:		

#### Method 1 – Ham Radio Deluxe (cont)

#### On the Office PC-

#### Define the IP, Logon, PW and PTT COM ports

		Remote Connection						
Remote Connection	×	Connect to a computer running the HRD Remote Access Program						
Connect to a computer running the H	RD Remote Access Program	Previous Connections Address User Port PTT Config Protocol	New Connection Address: 127.0.0.1					
Address User Port PTT Config Protocol 127.0.0.1:7805 KB3NPH COM9 COM9, RTS TCP 127.0.0.1:7805 kb3nph COM9 COM9, RTS TCP	New Connection       Address:     127.0.0.1       Port:     7805       Username:     KB3NPH       Password:     ressee       If Save settings     □ UDP	127.0.0.1:7805 KB3NPH COM9 COM9, RTS TCP 127.0.0.1:7805 kb3nph COM9 COM9, RTS TCP <	Port:     7805     Default = 7805       Username:     KB3NPH       Password:     >       Image: Save settings     Image: UDP       Image: Connect     Image: Save					
Flemove stus slect a previous connection or create a new one.	Connect 🤔 Load 🚍 Save	Status Connected to 127.0.0.1:7805, username/password authenticated. Select a remote Port, then press 'OK'.	COM Ports Radio control: COM9 - Optional PTT (TX) Configuration Enable: COM9 C DTR C DTR + RTS					
Logfile Restart	✓ OK. Cancel @ Help	Logfile Restart	© RTS DK Cancel @ He					

#### Method 1 – Ham Radio Deluxe (cont)

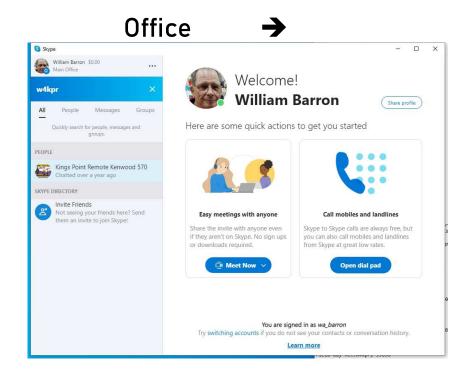
# Connect from Office to remote using static IP address == radio now controlled==

📰 HRD Rig Control -	[FT- <mark>2000: Demo]</mark>													- 0	×
<u>F</u> ile <u>E</u> dit <u>V</u> iew	<u>B</u> ands Favor <u>i</u> tes	<u>Q</u> uick Save	Macros	<u>L</u> ogbook	<u>R</u> adio O	ptions <u>S</u> car	nning Tuning	<u>T</u> ools Voi <u>c</u>	e <u>D</u> Star <u>W</u> i	ndow <u>H</u> elp					_ 8 ×
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FT-2000: Demo	×														÷ X
ALC SWR	A⇔B R-6kHz					USB			ATU tes	t	Dimmer	NR main	Power	, Main Mode: USB	
PWR	A>B R-Auto				0			$\overline{\mathbf{N}}$	Ant 1	Bk-in	Fast	NR sub	Pre 1	Sub Mode: LSB	1-
Busy: main	A>Mem VFO A			4.	2.	35	.00	$\mathbf{M}$	Ant 2	CW Spot	Keyer	Nar main	Pre 2	CW Keying	
	Mem > A VFO B			_					Ant Rx	Band +	Lock	Nar sub	Proc	, Mode Key	1-
Helle SWR Mic Eq	R-15kHz RT ST	s							BC	Band -	MOX	Notch	Q-Split	Receiver: RX / Of	f ]-
Roofing: 15 kHz	R-3kHz RTCW	s								Contour	Moni	PWR	QMR		
<del>\$</del>	Thur	sday, August S	5, 2021			্য	60m - 10m (Regio	n 1)			10:48:0	15			<b>A</b>
	<u></u>		10 Å 1	ar re	1 a a	10 Å - 11							r r 1		
Fine 14.233.8	14.234.0 1	4.234.2	14.234.4	14.	.234.6	14.234.8	14.235.0	14.235.2	14.235.4	14.23	5.8	14.235.8	14.236.0	0 14.236.2	Fine
			ALT	BSP	160m 8	80m 60m	40m 30m	20m 17r	n 15m 12	m 10m					
7m 18.070	18.680	18.090		18.100	<del>; ; ; ;</del>	18:110	18.12		18.130	18.140		18.150		18.160	ា7៣
9m	<u>. En en en en en e</u>						<u></u>			<u>i i i i i i</u>		e e e e		<u>, , , , , , , , , , , , , , , , , , , </u>	20m
14.000	14.025 14.050	14.075	14.	.100	14.125	14.150	14.175	14.200	14.225	14.250	14.275	14	.300	14.325 14.35	0
AF	gain (main): 20			····· RF g	ain (main): 1	00		······	GC (main): Mid						
AF	gain (sub): 10			····· RF g	gain (sub): 1	00		AG	C (sub): Auto-Fast				Noise rec	Juction: 8	
	shift: -200 Hz			Fi	lter width: 16			(	Contour: 20 Hz						

Method 1 – Ham Radio Deluxe (cont)

Need Sounds!

Start the audio – Skype! – in office  $\rightarrow$  connect to the remote  $\rightarrow$  and you're off!



PARC Remote
RRL Field Da
www.arrLor
Kings Point Remote Kenwood 🖉
Remote access to Kenwood 570 at W4KPR
Last seen days ago
Send message
Start call
Start video call
Start private conversation
Schedule a call
Share contact

#### Method 1 – Ham Radio Deluxe (cont)

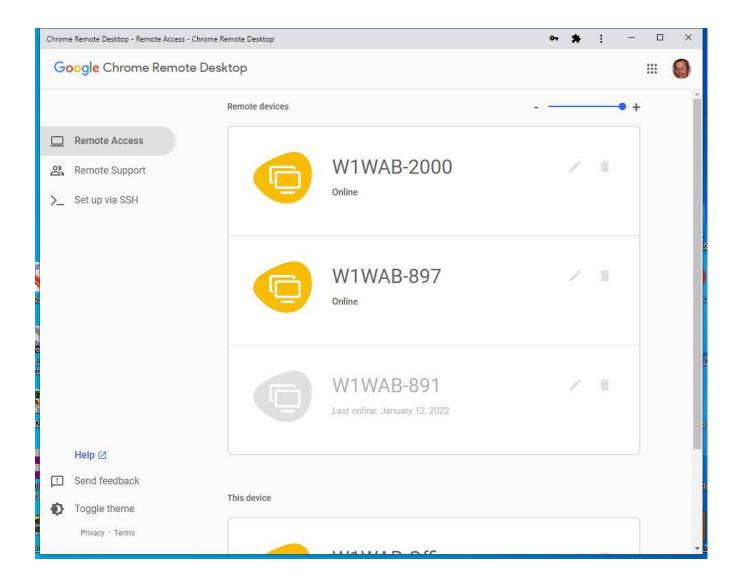
#### Issues:

- Audio must be driven from microphone or it's very poor
- Must open various remote server ports in router
- Remote PC must be "on"
- Remote Skype program must be running
- HRD must be running Remote Server (no local use)
- Using two Skype names/connections drains PC power
- IP address must be static

Summary: Difficult, clumsy

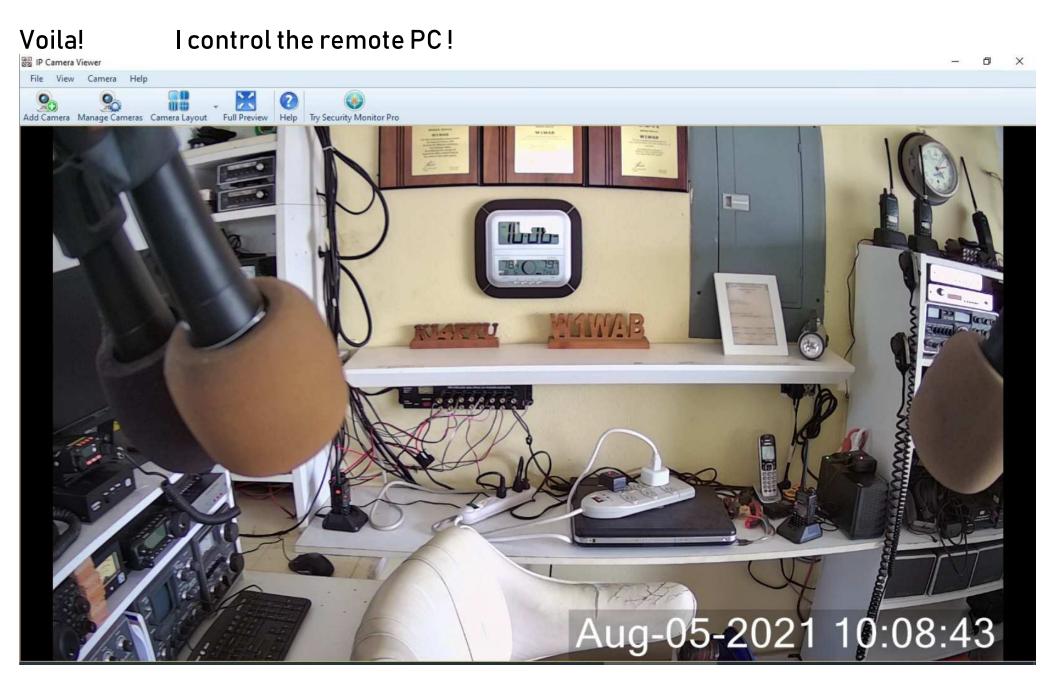
#### Method 2 – Chrome Remote desktop

#### Set up Chrome remote on both Office and remote (radio) PC's

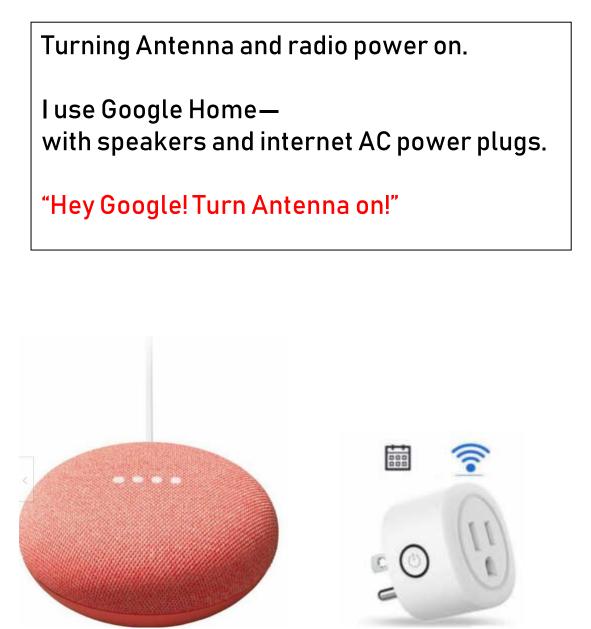


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#### Method 2 – Chrome Remote desktop (cont)



#### Method 2 – Chrome Remote desktop (cont)



6:09 🗭 🐪		<u>چې اال 84% ا</u>	
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Chromecast310	)9		
Watch live TV			
	er Bed 2 devices	room	
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Master Bedroo		Antenna	1)
Play music		Turn on	V
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#### Method 2 – Chrome Remote desktop (cont)

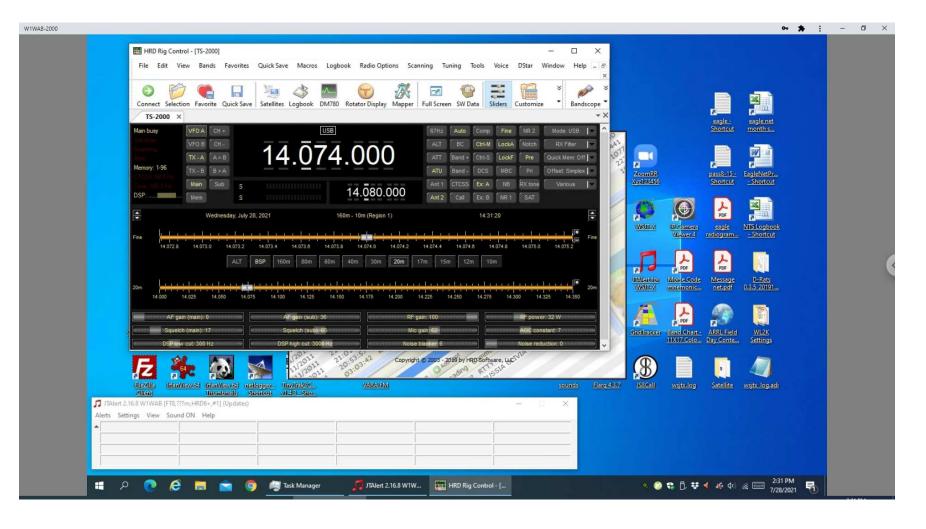
Electric Power on – I can tell as my electric Antenna switch is glowing....



Method 2 – Chrome Remote desktop (cont)

Remote PC on. OK! Power & Antenna on. OK!

Now turn on the radio .. HRD will turn on my TS 2000s or FT 891...



#### Method 2 – Chrome Remote desktop (cont)

#### Start the FT 8 software and JT Alert Logging program and we're off!

#### K5BYN in QSO... and logged

File Configurations View Mode Decode Save Tools Help		☑ Controls 500 1000 1500 2000
Band Activity	Rx Frequency	
UTC dB DT Freq Message	UTC dB DT Freq Message	
135530 -17 -0.0 1342 ~ CQ W5LE EM15 U.S.A.	▲ 135530 -8 0.2 1502 ~ CQ K5BYN EM25 U.	
135530 -16 0.1 1200 ~ <> VE1RY FN74 135530 -19 0.1 504 ~ CQ DX N9GBP EN52 U.S.A.	135548 Tx 1502 ~ K5BYN W1WAB EL87 135600 -8 0.2 1503 ~ W1WAB K5BYN -17	13:54:15 20m
20m	135615 Tx 1502 ~ K5BYN W1WAB R-08	
135600 -8 0.2 1503 ~ W1WAB KSBYN -17 135600 -7 0.1 1443 ~ CQ K5UHF EM10 U.S.A.	135630 -11 0.2 1503 ~ WIWAB K5BYN RR73 135645 Tx 1502 ~ K5BYN WIWAB 73	
135600 -13 0.3 1024 ~ F4CTJ KF3CW FM18		
135600 -15 0.1 1879 ~ CQ NKOV EN14 U.S.A.		
135600 -11 0.2 1201 ~ <> VEIRY FN74 135600 -12 0.6 1342 ~ CQ W5LE EM15 U.S.A.		
20m		
135630 -11 0.2 1503 ~ WIWAB K5BYN RR73		
135630 -4 0.1 1444 ~ CQ K5UHF EM10 U.S.A.		
135630 -10 -0.4 1978 ~ LA8KHA KD2JHH FN21 135630 -10 0.3 1024 ~ F4CTJ KF3CW FM18		SUSJT-X v2.5.2 by K1JT, G4WJS, K9AN, and IV3NWV - Log
135630 -12 0.1 1342 ~ CQ W5LE EM15 U.S.A.		Click OK to confirm the following QSO:
135630 -12 0.1 1201 ~ <> VE1RY FN74		Call Start End
135630 -13 0.1 2499 ~ CQ DX N9GBP EN52 U.S.A. 135630 -16 0.1 1880 ~ CQ NKOV EN14 U.S.A.	v (	K5BYN 1/19/2022 13:55:45 2 1/19/2022 13:56:45 2
	Decode Enable Tx Halt Tx Tune Menus	Mode Band Rpt Sent Rpt Rcvd Grid Name
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20m V S 14.074 000	Generate Std Msgs Next Now Pwr	Tx power 23
Tx 1502 Hz 😜		Comments FT8 Sent: -08 Rcvd: -17
DX Call DX Grid	K5BYN W1WAB EL87 O Tx 1	
-80 K5BYN EM25 Rx 1503 Hz 🜩	K5BYN W1WAB -08 O Tx 2	Operator
► 60 Az: 309 916 mi Report -8 🜩	K5BYN W1WAB R-08 O Tx 3	Exch sent Rcvd
-40 Lookup Add Auto Seg Call 1st	K5BYN W1WAB RR73 O Tx 4	Prop Mode Retain
-20		OK Cancel
- 2022 Jan 19	K5BYN W1WAB 73 ~ O Tx 5	OK Cancel
0 dB 13:57:00	CQ W1WAB EL87	
		Bins/Pixel 5 💠 Start 200 Hz 💠 Palette Adjust 🗹 Flatten 🗌 Ref Spec
Receiving FT8 Last Tx: K5BYN W1WAB 73 8	0/15 WD:1m	split 2500 Hz 🗘 N Avg 5 🔹 Default 🗸 Cumulative 🗸
JTAlert 2.16.8 WTWAB [FT8,20m, HRD6+,#1] (Updates)		
Alerts Settings View Sound ON Help	2200 630 (0	4
K5BYN K5UHF - B4 KD2JHH		EIRY - NS
N9GBP NKOV - B4		
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Method 2 – Chrome Remote desktop (cont)

Issues:

- Remote PC must be "on"
- Remote PC soundcard Audio clear; but no radio audio

Summary:

Very easy and fun for digital modes. No 'overuse' limits like Teamviewer

#### W1WAB

#### Method 3 – RC Forb – solving the Radio Audio issue

#### Separate software for your Office PC/tablet/cell .... and remote radio - must have Windows 10 & Net Framework 4.0



← REMOTE PC

← OFFICE

RCForb\_0.7.7694.exe
 (2,959 downloads) (Sunday, January 24, 2021)

(694 downloads) (Monday, June 07, 2021)

 RCForb\_0.7.7673.exe (1,057 downloads) (Sunday, January 03, 2021)

#### Method 3 – RC Forb (cont)

#### Remote Radio Server PC needs 3 ports opened

RCForb (Online Remote Bas	e) by KG6YPI		- 0	×
File Options Help			New Version!	Donate
😒 🕄 - 🛸 🐼 🗖	1 🗞 🧼 👸 🎯			
Console Chats Activity M	1emories Publishing			
v1.63 by KG6YPI 7/28/2021 3:03:46 PM   Info: Re 7/28/2021 3:03:46 PM   Info: Ra 7/28/2021 3:03:46 PM   Info: Us 7/28/2021 3:03:46 PM   Info: Sp	otaining Orbld from Remotel idio (TS-2000) Connected. irning radio on Connected v eceived Orbld from Remotel idio Server Running on 0.0.0. ing WaveOut. eakers (TX Audio to Radio): S icrophone (RX Audio from R ipServer: SetDesiredMaxDela ipServer started on 0.0.0.0:45 ash policy server started on 0 arching for uPnP Compatibl PnP Requesting Router to For ort Forwarded: 4525 ort Forwarded: 4524 ort Forwarded: 843 -2000 Ready	vithout handshaking Detected ams.com 0:4525 Speakers (2- C-Media USB Head adio): Microphone (2- C-Media y: 400ms :24 .0.0.0:843 e Router ward Ports	ph	ver
June of the second second second				~
Connected Users: 0	Pending TX: 0	Pending Club: 0	TX Audio Buffer: (	<b>)</b>

#### → Software will auto-start my Kenwood TS 2000 ©

#### Method 3 – RC Forb (cont)

#### Office software shows Worldwide available stations (some are restricted clubs)

		e, w1wab VOL MIC MIC Oldate Available	2 ₹	RCForb	Client by Re	moteHams.com		(e) _ X
R	Speakers (	Ioo         Control Devices         Virtual Devices         Layout           (Realt •         VOL         ON         OFF           (USB •         MIC         CONFIG         300ms         CONFIG	800ms 🔻					
	Audio Dev	ices Audio Levels Buffering (Latency) VOX (	Local) "					6
E	Enter text t	to search A			🔂 Add R	emote 🛛 🛞 Synchronize	Relay	<b>D</b> 4
	Orb 🔺	Remote Station	Radio	City	State	▲ Country →		
	194	KZ4RR Radio Club	Ic-7700	St. Augustine	FL	United States	•	
	140	W1WAB TS-2000	TS-2000	Sun City Center	FL	United States		
	160	*** KF4LZA [TS-590] *** 20 - 6 Meters {Open to All}	TS-590	Tamarac	FL	United States	Amp	
	8314	W4DUG - Tampa ARC server - EL88. Available only to local TARC	TS-590	Tampa	FL	United States		
	209	Experimental FTdx3000	FTDX-3000	The Villages	FL	United States		
	5193	N4GYN IC-7610	Ic-7610	Buford	GA	United States United States		
	185	K4MWW PRIVATE CLUB	Ic-7300	Stone Mountain	GA			
	208	КН6АН	Ic-7300	Makawao, Maui	Hawaii	United States		
	154	Кдэн	Ic-7300	West Chicago	IL	United States		
	5672	WB9DQT CLUB STATION near MDW	FTDX-3000	Chicago	Illinois	United States		
	6379	W9VW Group = IC-7100 (Private)	Ic-7100	Greenfield	IN	United States		
	8531	W9VW Group = IC-7610 (Private)	Ic-7610	Greenfield	IN	United States		
	208	K9URT- HF-10-15-20-40	Ic-7300	Madison	IN	United States	Rotator	
x	c 🗹 [Onlin	1						
C	Online: 31	0 RX: 91 TX: 219 Clubs: 210 Non-Clubs: 100 Synchronized @ 7:14		1				
C	hats		<b>□</b> #	CW		0 9	45	
				MACROS		✓ CONFIG		
				CQ TU 5NN	CALL F5	F6 F7 F8		
		s	end ASK Help					

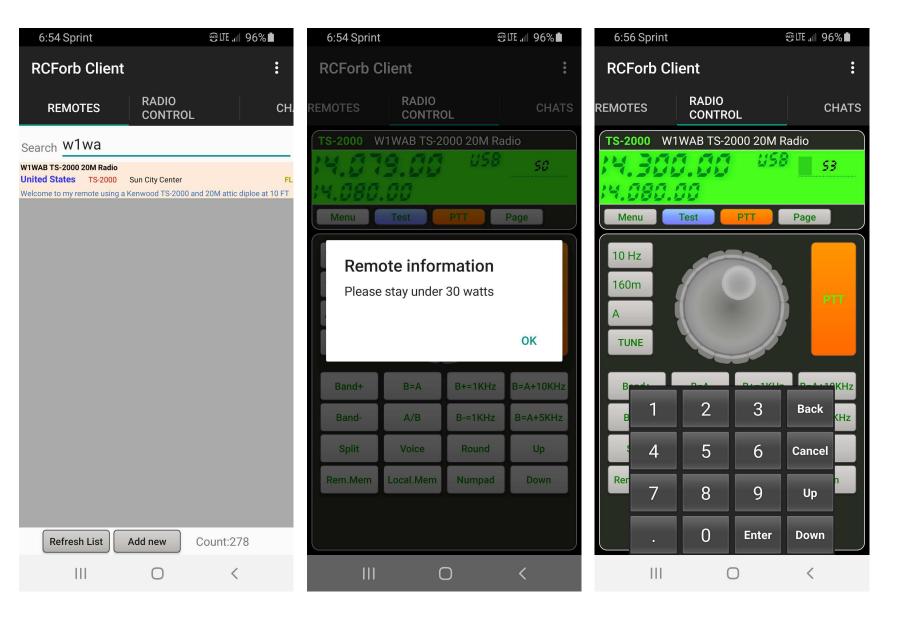
#### Remote radio Method 3 – RC Forb (cont)

### In a QSO !

Addo Devices	Audo Levels , Buffering (Latency) ,	VCX (scal)	TS-2000	Tune	Test	PA	Mute Relay
leak	TX Only Auto Tune	TOT: 180 seconds	000.ESE	A=B	CW-T	TEN	
	Faster (FSK) AGC 67.0 CTCSS	<u> </u>	<u> </u>	TSQL	ATT	Pre	Атр
	SWR Tx Meter	. <u>8</u> 50	396.300	BC	NB	Notch	
	Off Quick Memory	MAIN		NR1	NR2	Split	
	Off   Tx EQ     F Pass   Rx EQ	0.1 KHz DSP Low Cut-Off	•	VOX	Stop	Proc	
	Simple: Repeater Shift Normal CW Method CW Faults Elements	3.4 KHz DSP High Cut-Off 2 KHz CW Filter Width			M-Tune	TX Double-	click to go to fullscreen, ctrl+click to snap to Rotator
Memories Debus	Control OP: w1wab 07.17.17:57:17-04:00) IIZA's Kenwood 15: 2000 X HF radio. This radio is also setup functionality of it). Please use the Tune button before tra functionality of it). Please use the Tune button before tra Multiband End Fed Half Wave Antenna (myantennas.com	for you to use your CW key remotely (Thanks to John KESC for testin nsmitting: If successful the "TX Only" will display in the Auto Tune bo ) facing NE. (BEST TO LEAVE AF GAIN AROUND 25)	g and x. Antenna is Send ASX (Help			F6 F2	CONFIG + F8

#### www.w1wab.com/12-qso.mp4

#### You can even run this software off your cell phone!



#### Method 3 – RC Forb (cont)

#### Issues:

- Audio must be driven from radio microphone or it's very poor
- Must open various remote server ports in router
- Remote PC must be "on" to connect

#### Summary:

Kinda like Echolink for HF—except you can easily set up your own radio as a 'remote' Solves the Radio Audio issue without Skyping

Easy – Maybe we should set up our Club Station again

# Conclusions: Give Remote Radio a try!

## **Questions?**

