

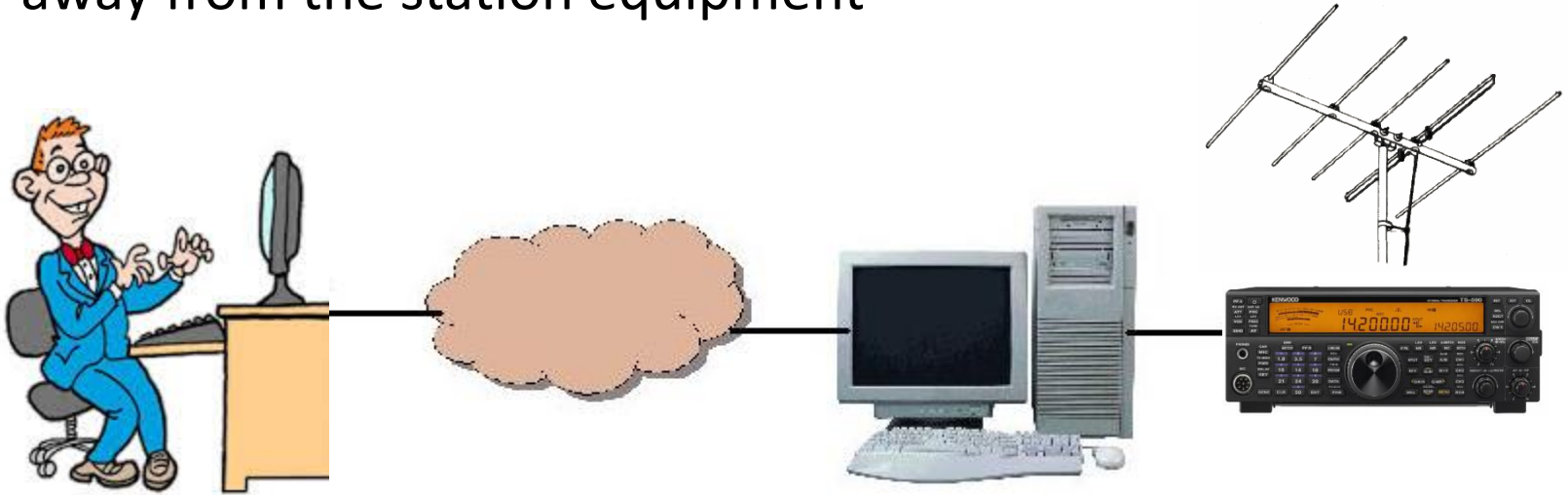
REMOTE HAM RADIO

CARA 2016 Learning Conference

Presented by
Rob VE6CCL
Jack VE6CCM

What is Remote Ham Radio?

- Controlling a transceiver or receiver from a location away from the station equipment



Why Remote?

- Living in an antenna restricted apartment, condo
- Want to hear/ test your own station
- Use tall towers, beams and amps you don't own
- Access low bands that need long antennas
- Travelling, carry a laptop /phone instead of a radio
- High noise at home location
- Avoid causing RFI
- Contesting for AO late at night from home
- SOTA chasing can use other callsigns

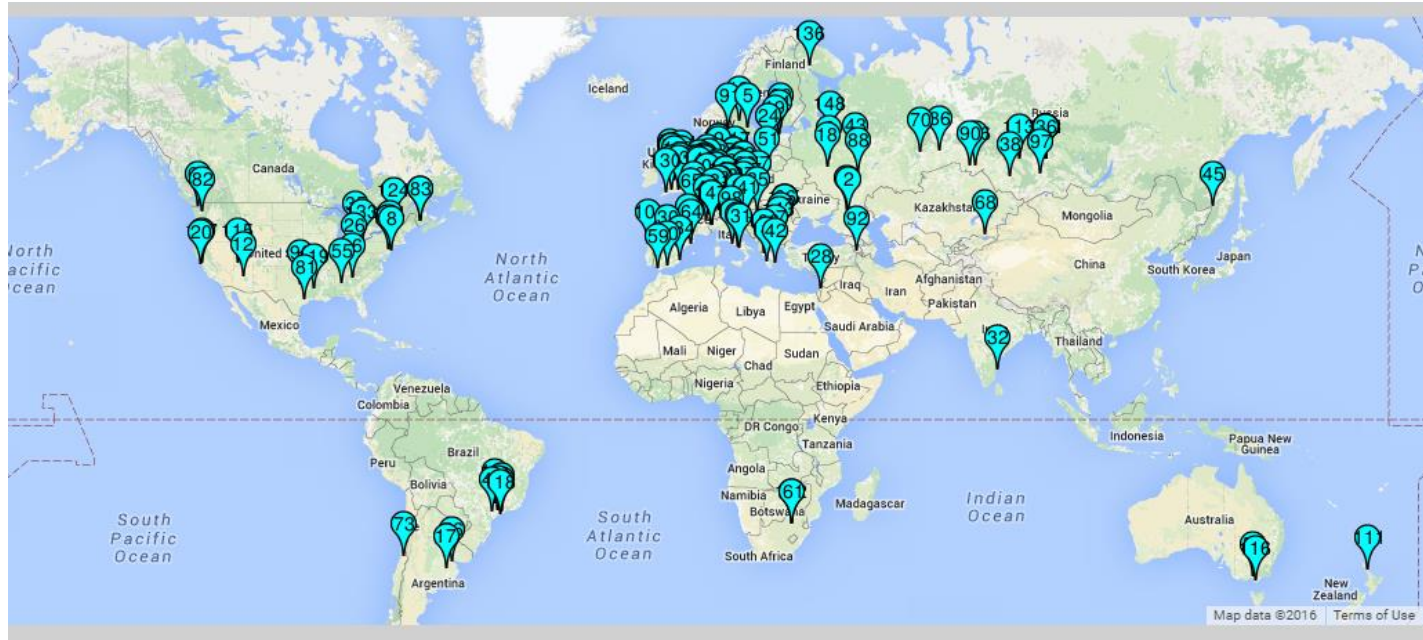


What's Available?

- Receive only online Software Defined Radios (SDR)
- Manufacturer solutions Kenwood , ICOM, Flex and Elecraft*
- 3rd Party Hardware solutions from RemoteRig*
- Paid Remote Subscriptions from RemoteHamRadio.com
- Other software solutions using Teamviewer, Ham Radio Deluxe, Echolink, W4MQ, etc
- Free Remote access and server software from Remotehams*

Receive Only Online SDRs

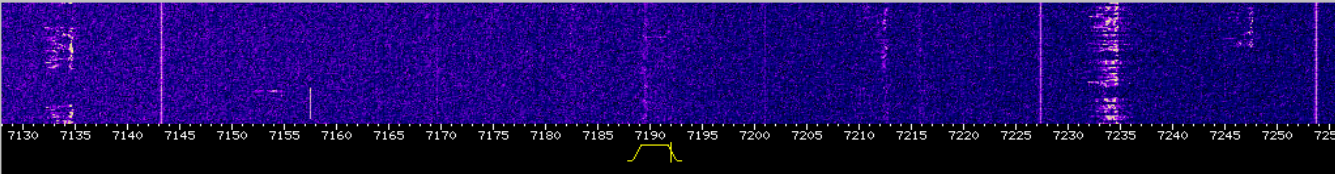
- Receive Only online SDR : websdr.org and jks.com/KiwiSDR



Receive Only SDR – websdr.org

Locations Worldwide – select by region or band

View: all bands others slow one band blind Allow keyboard: Waterfall: Java HTML5 Sound: Java HTML5



Band Presets: 80 60 49 40 20 19 15 13 WWV 5 WWV 15 CHU 3330 PIRATE HIFER UVB-76 Max In Zoom Out

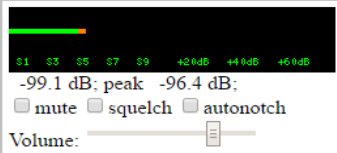
Frequency: kHz
- 5kHz - 1kHz - 100Hz - 10Hz + 10Hz + 100Hz + 1kHz + 5kHz
Band: 80 meters 60/49/40 meters 20/19 meters 15 meters
Or tune by clicking/dragging/scrollwheel on the frequency scale.

Memories:

recall	erase	store	14238.50 kHz USB	12z souther
recall	erase	store	7142.00 kHz LSB	
recall	erase	store	(new)	

Waterfall view:

zoom out zoom in
max out max in
Or use scroll wheel and dragging on waterfall.
Speed:
Size:



Logbook:
Call of station that you hear:
Comments, if any: submit
Note: time, frequency, your name/call, and DXCC information are added automatically.
View the [last 20 lines of the logbook](#), or the [entire logbook](#) (ctrl-click for new tab/window).

'cw', -0.95, -0.55 Bandwidth:
2.49 kHz @ -6dB; 2.95 kHz @ -60dB.
wider CW-wide LSB USB AM FM
narrower CW-narrow LSB-nrw USB-nrw AM-nrw FM-nrw
PassBand Tuning (PBT) Control:
2.49 kHz @ -6dB; 2.95 kHz @ -60dB.
<< wider >> >>narrower<< << IF shift << >> IF shift >>
<< low PBT >> low PBT high PBT << high PBT >>
Or drag the passband edges on the frequency scale. PBT & IF Shift code developed by Weert Websdr.

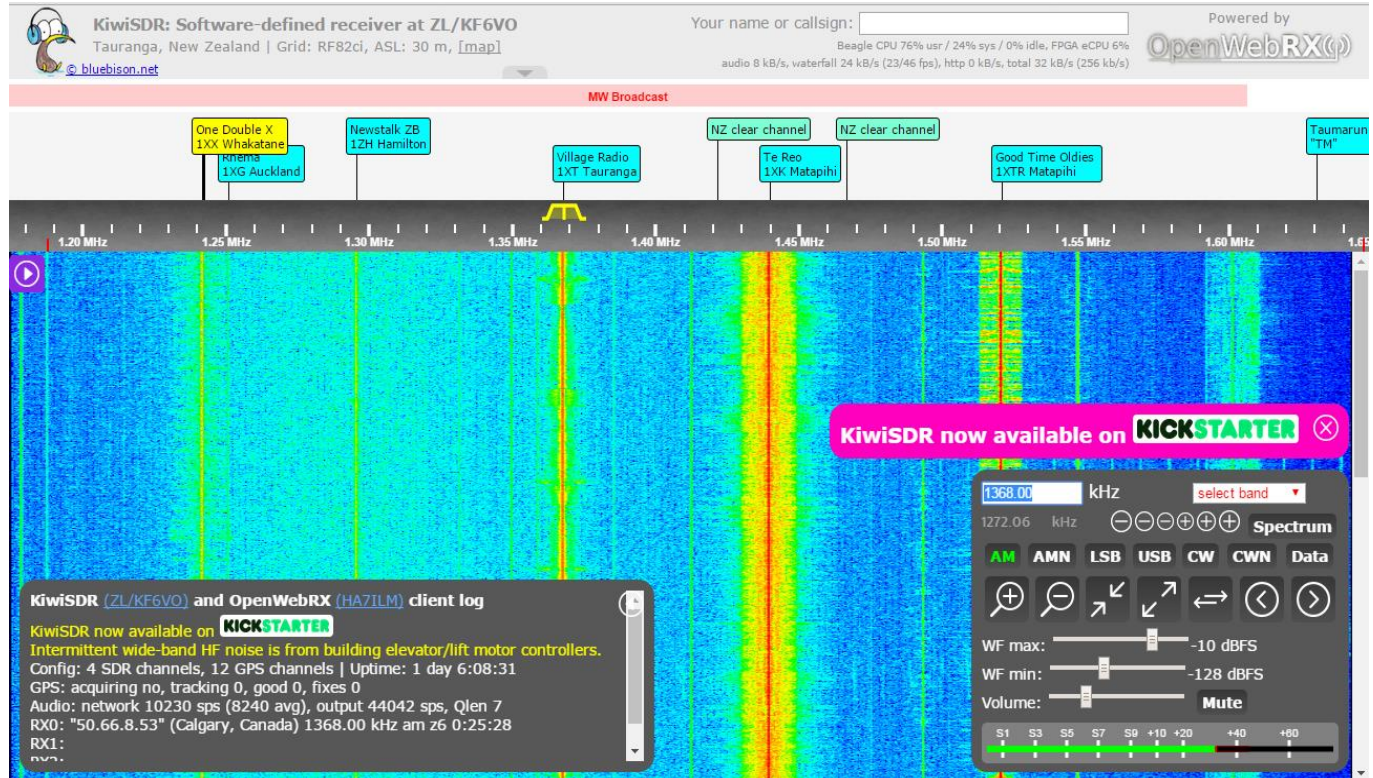
Receive Only SDR - kiwiSDR

Funding via Kickstarter with Remotes in New Zealand, Canada and Sweden

Free
RX online

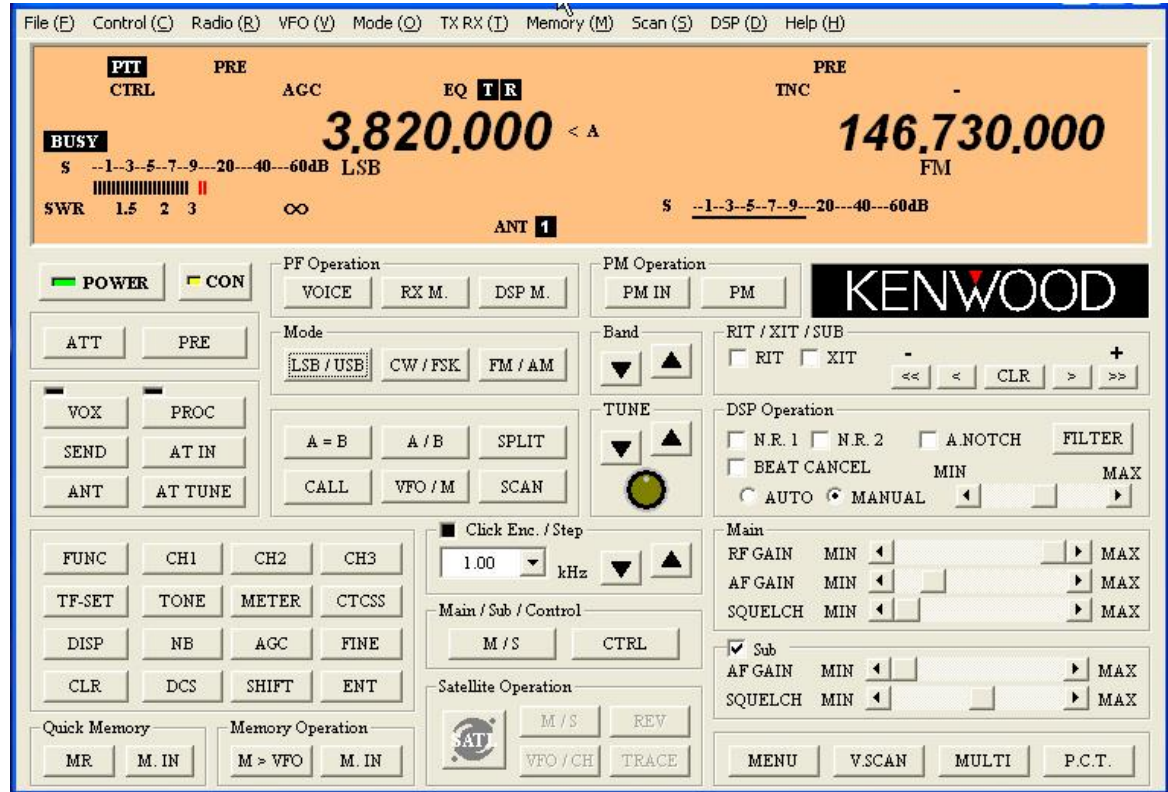
Host:
Hardware
Est. Cost
\$199

+
BeagleBone
Computer
(~Pi) \$55



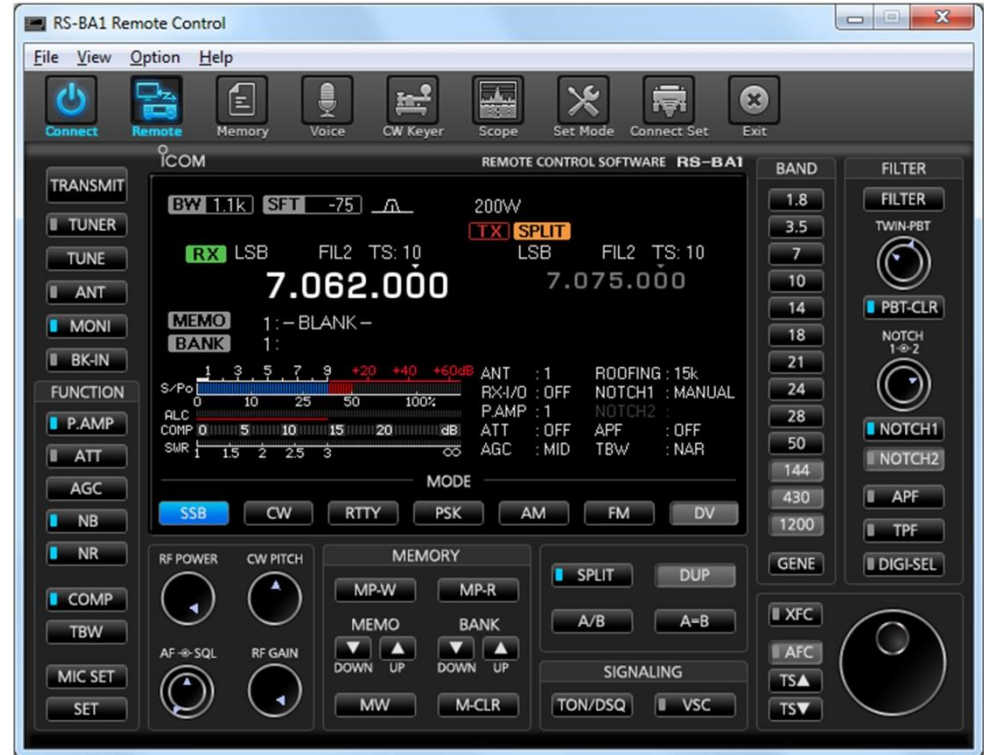
Kenwood RX / TX Remote

- Kenwood offered one of the 1st solutions for remote base ops
- Network Command System on server and ACRP client
- Free with TS590



ICOM RX / TX Remote

- Icom's top radios 7700,7800,7850/1 offer a built in remote server, no PC needed on the radio side
- Windows client is Icom's RS-BA1 software \$99US
- Lower tier Icom radios require a PC to act as server



Flex RX / TX Remote

- Flex 6000 Series and Maestro



\$2500US



\$1300US

Hardware RX / TX Remotes

Remote Rig - \$489US

No PC required



Elecraft K3 Mini - \$699US

Use with Remote Rig HW or
Remotehams SW

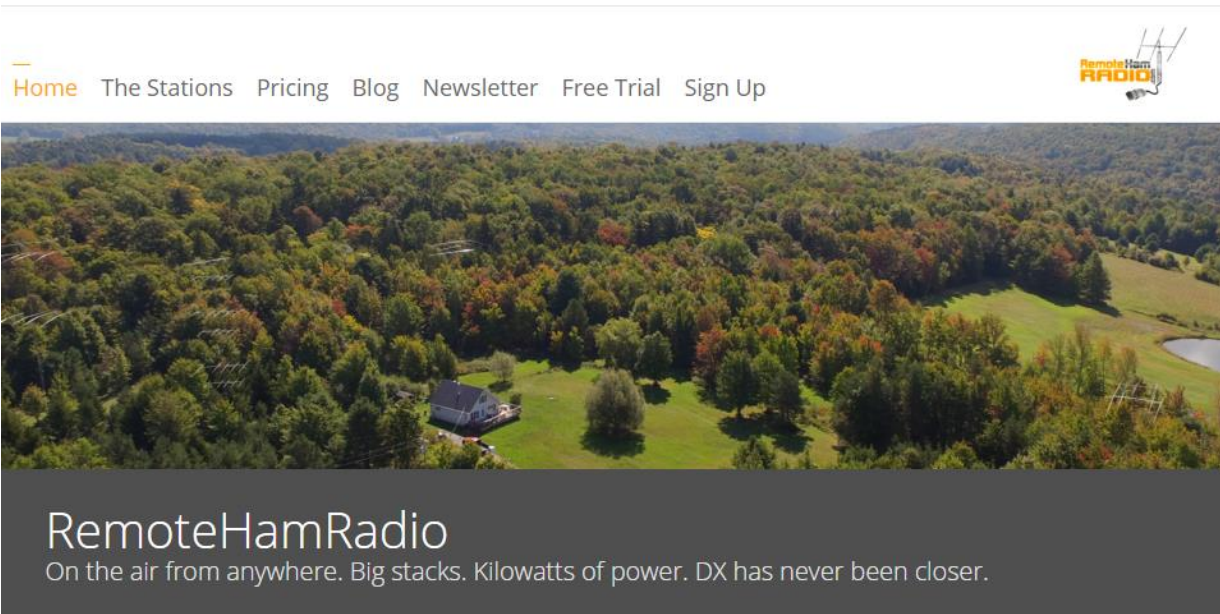


Paid Subscription Remotes

Remotehamradio.com

Web Based or iOS App

\$99/\$999 per year +
\$0.09 to \$0.59 per min
airtime. (\$5-\$35/hr)



Home The Stations Pricing Blog Newsletter Free Trial Sign Up

RemoteHamRadio

On the air from anywhere. Big stacks. Kilowatts of power. DX has never been closer.



World-class stations

Access multiple stations in some of the best QTHs in the world. Instantly jump across the country with the click of the mouse. Operators have access to 30 towers, over



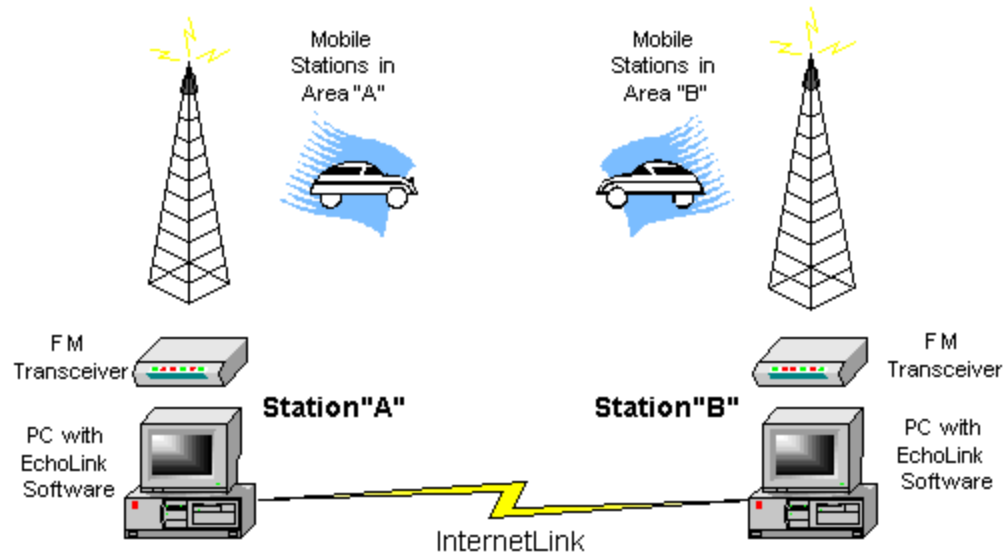
Fully portable high performance

Operate stations with just your web browser – no hardware or software is required. Or, if you prefer a real radio, use an Elecraft K3 or K3/0-Mini. You can even use 4G cell

Other Remotes

- Echolink
VHF/UHF

Linking Example



Other Remotes



VB-AUDIO

Used by CARA's SAIT Flex 5000 remote.

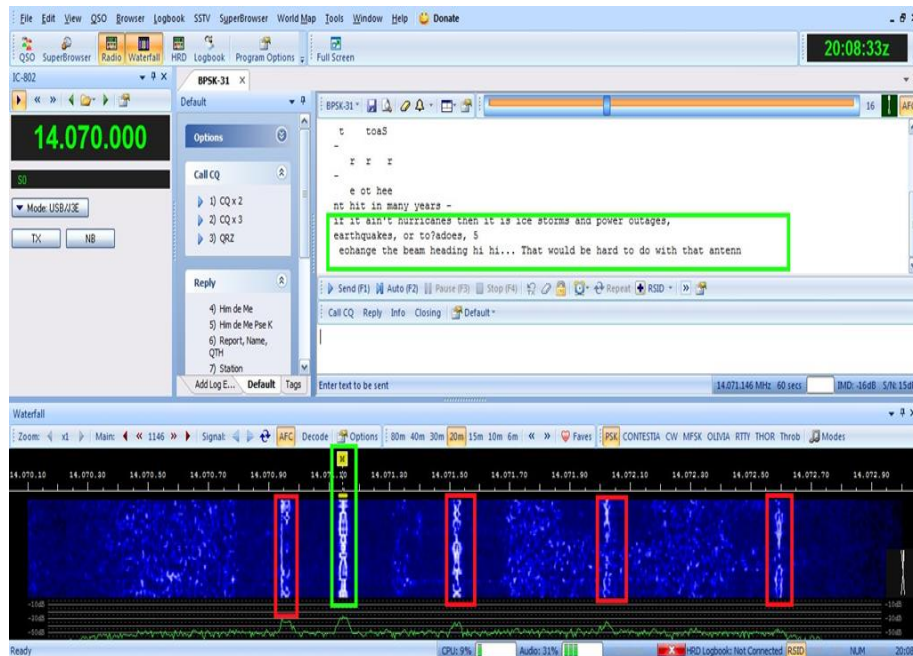
PC to PC can use just Teamviewer and VAC,

PC to iPad needs Skype for audio.

Other Remotes

Ham Radio Deluxe Free/\$99US

- At CARA we have it installed on remote stations to run digital modes via it's DM780 app for PSK31, CW, RTTY, etc.



Other Remotes

- W4MQ IRB software first used at VE6AO

The screenshot shows the 'W7DXX - TS2000 Internet Remote Control' software interface. The title bar indicates the time is 12:32 UTC and the version is 4.407e. The main display area shows the frequency 2,401,323.000 kHz in large green digits, with 'SATELLITE' and 'USB 3.0kHz 50W' indicators. Below the frequency, it shows 'Atten OFF', 'PreAmp ON', and '435702.000 ***SAT TX OFF***'. The interface is divided into several sections: 'Rx' settings (IF Band Pass: 0.05kHz - 3.00kHz, AGC: Med-Slow, Noise Red: Off, Notch: Off, Rx Equ: H-Boost, RIT: Off, RF Gain: 100, AF Gain: 100, Sat Offset: 4.690), a 'Band Satellite' section with a satellite dish image, and 'Telemetry from Radio' (Rx Freq: 145316.459KHz, Rx Mode: USB TX: Off, RIT: 0Hz SPLIT: On, AMP: Off, Sat Name: AO-40 Doppler: -11225, Az: 235.3 Elev: 26.8 MA: 70, Range: 52749 km). At the bottom, there are control buttons for 'LOGOFF', 'ReStart Radio', 'START AUDIO', and 'CLEAR NET MEETING DELAY'. A status bar at the very bottom shows 'In Use by W4MQ (Rx/Tx)', 'Select Remote' set to 'W7DXX', 'Callsign' set to 'W4MQ', and 'Password' set to '**'.

Remotehams.com

- Free! Other operators and clubs share their stations
- Client software for Android and Windows , headset is all that is needed
- Server software for Windows, very easy to configure for newer radios
- Accessory box available for CW key/paddles, Mic, Foot-switch, etc.



Remote Hams

RemoteHams.com available RX/TX remotes

The screenshot displays the RemoteHams.com website interface. At the top left is the logo "REMOTEHAMS.COM". To the right is a search bar with the text "Search" and the ELECRAFT logo. Below the header is a navigation menu with links: Home, Sign Up, Donate, Documentation, Downloads, Online Remotes (highlighted in orange), Products, My Account, and Support Forums. Below the navigation menu is a breadcrumb trail: Home » Online List » Online Map.

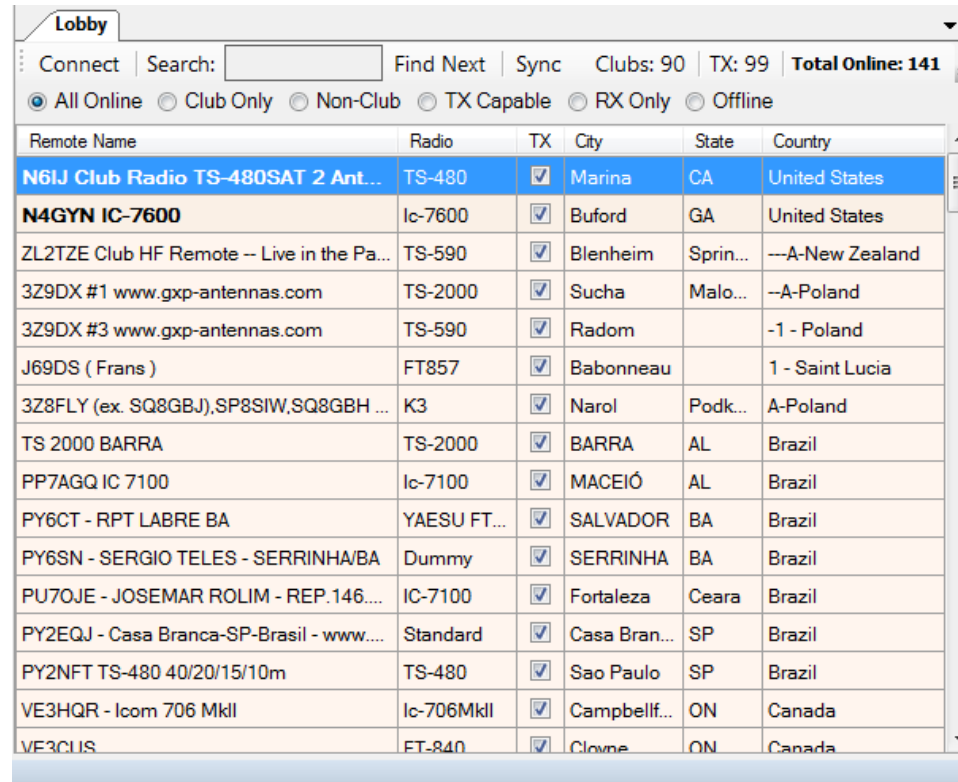
The main content area features a world map with numerous blue ham radio icons indicating the locations of remote hams. The map includes a "Map" / "Satellite" toggle and a "Total Results: 107" indicator. A "Filters" panel on the right side of the map contains the following options:

- Options:**
 - Disable Clustering
- Filters:**
 - Browser Supported
 - Club Based Remote
 - TX Capable
 - RX Only
 - Guests Allowed

The map shows a high concentration of icons in North America (USA and Canada), Europe (UK, Germany, France, Italy, etc.), and South America (Brazil, Chile, Argentina). There are also a few icons in Africa, Asia, and Oceania.

Access other Remotes: RemoteHams Setup

1. Visit <http://www.remotehams.com/>
2. Sign up with your callsign, select a password
3. Download RCForb windows client
4. Login, select a remote from list and enjoy! (Try KJ5Y, N4GYN)
5. Details later on how to access a CARA remote



The screenshot shows the 'Lobby' page of the RemoteHams website. At the top, there is a navigation bar with 'Connect', a search box, 'Find Next', 'Sync', 'Clubs: 90', 'TX: 99', and 'Total Online: 141'. Below this is a filter bar with radio buttons for 'All Online', 'Club Only', 'Non-Club', 'TX Capable', 'RX Only', and 'Offline'. The main content is a table listing various remotes with columns for Remote Name, Radio, TX, City, State, and Country. The first row is highlighted in blue.

Remote Name	Radio	TX	City	State	Country
N6IJ Club Radio TS-480SAT 2 Ant...	TS-480	<input checked="" type="checkbox"/>	Marina	CA	United States
N4GYN IC-7600	Ic-7600	<input checked="" type="checkbox"/>	Buford	GA	United States
ZL2TZE Club HF Remote -- Live in the Pa...	TS-590	<input checked="" type="checkbox"/>	Blenheim	Sprin...	--A-New Zealand
3Z9DX #1 www.gxp-antennas.com	TS-2000	<input checked="" type="checkbox"/>	Sucha	Malo...	--A-Poland
3Z9DX #3 www.gxp-antennas.com	TS-590	<input checked="" type="checkbox"/>	Radom		-1 - Poland
J69DS (Frans)	FT857	<input checked="" type="checkbox"/>	Babonneau		1 - Saint Lucia
3Z8FLY (ex. SQ8GBJ),SP8SIW,SQ8GBH ...	K3	<input checked="" type="checkbox"/>	Narol	Podk...	A-Poland
TS 2000 BARRA	TS-2000	<input checked="" type="checkbox"/>	BARRA	AL	Brazil
PP7AGQ IC 7100	Ic-7100	<input checked="" type="checkbox"/>	MACEIÓ	AL	Brazil
PY6CT - RPT LABRE BA	YAESU FT...	<input checked="" type="checkbox"/>	SALVADOR	BA	Brazil
PY6SN - SERGIO TELES - SERRINHA/BA	Dummy	<input checked="" type="checkbox"/>	SERRINHA	BA	Brazil
PU7OJE - JOSEMAR ROLIM - REP.146....	IC-7100	<input checked="" type="checkbox"/>	Fortaleza	Ceara	Brazil
PY2EQJ - Casa Branca-SP-Brasil - www....	Standard	<input checked="" type="checkbox"/>	Casa Bran...	SP	Brazil
PY2NFT TS-480 40/20/15/10m	TS-480	<input checked="" type="checkbox"/>	Sao Paulo	SP	Brazil
VE3HQR - Icom 706 MkII	Ic-706MkII	<input checked="" type="checkbox"/>	Campbellf...	ON	Canada
VE3CLIS	ET-840	<input checked="" type="checkbox"/>	Clowne	ON	Canada

Remote Hams Client Demo

The screenshot displays the 'Cara East' remote control software interface. The main window is titled 'Cara East' and contains a comprehensive control panel for an FT-2000 radio. The interface is organized into several sections:

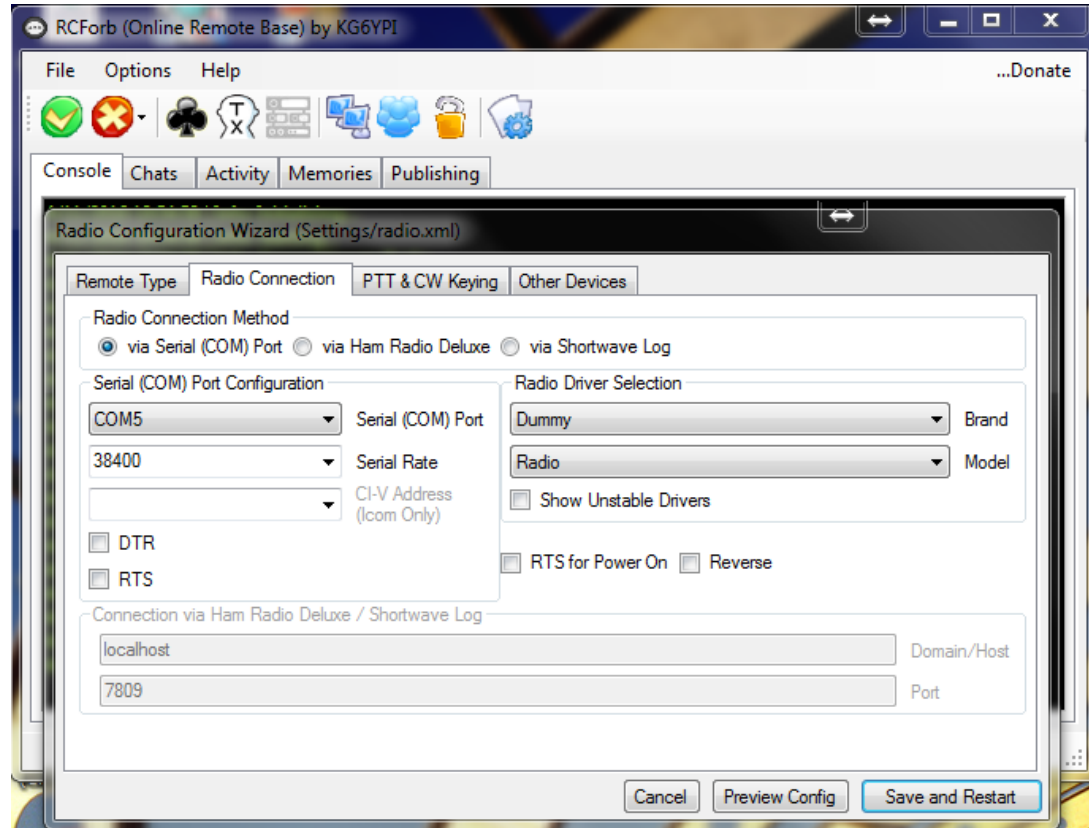
- Top Bar:** Includes menu options (File, Options, Upload Amateur Radio License), a skins dropdown, reserved slots, windows, and help. It also shows a microphone status indicator and a 'Pause' button.
- Left Panel (Num Pad):** A numeric keypad with buttons for '1-9', '0', 'Enter', and 'C'. It also includes a 'kHz' input field and a 'Band Select' dropdown.
- Central Control Area:** Features a large digital display showing '7.055.000' and '14.300.000'. Below the display are various control buttons and sliders, including 'Ant', 'Mode' (LSB), 'AGC' (Slow), 'PreAmp', 'Attn', 'Filter' (Wide), 'Tx Meter' (64%), 'RF Power', 'Roof Ftr' (3 kHz), 'Rx Status' (A On/B C), 'Fault', 'Elements', 'CW', 'WPM' (16), 'CW Speed', 'Mic Gain', and 'Notch' (2.18 kHz). A 'TOT: 180 seconds.' indicator is also present.
- Right Panel (Rotator):** A 'Rotator (YASEU)' section with a compass rose and a 'Bearing' input field. It includes 'GO' and 'STOP' buttons.
- Bottom Panel (Chat Room):** A chat window with a system message: '[System | 2016-04-02 05:56:09 -06:00] Welcome to CARA's 'East' FT2000 remote. RIC-3 states an ADVANCED QUALIFACTION is REQUIRED for remote control of a fixed station. ANT 1 : Yagi on 20/15/10m. Vee on 40/80/160m. FL7000 amp in line. Set RF Power'. It also includes a 'Type a message...' field and a 'Font Size' dropdown.

The interface is designed for remote control of a radio station, providing a detailed view of the radio's status and allowing for precise adjustments to various parameters.

Remote your Home Station with RemoteHams

1. Visit <http://www.remotehams.com/>
2. Download RCForb server
3. Enter your callsign, password
4. Configure radio cat and audio
5. Share public or private

With a newer radio like the Kenwood TS590 with USB CAT and USB audio it's plug and play, takes only a few minutes.



VE6AO Remote History

2008 VE6AO FT847 Station

The opportunity came to use the club's third station located in the basement of the CSCC's Club house as a remote

I (Rob) made it my New Years resolution to make it happen.



W4MQ

W4MQ Internet Remote Base

Recipient of the ARRL Technical Innovation Award
An Internet accessible 160m through 70cm amateur radio station
Expanding amateur radio via the internet

Check out the IRB Forum for the latest information about the remotes

[CLICK HERE FOR A LIST OF CURRENT OPERATIONAL REMOTES](#)

Selected in 2008 for
CARA as it could
accommodate more
than one user

W4MQ (Free) Remoting Software

PRIVATE / LIMITED ACCESS REMOTES

- ANY RADIO WITH A SERIAL CONTROL INTERFACE
- KENWOOD REMOTED FRONT PANELS
- KEY-BASED CW AND SWITCH PTT SUPPORTED
- PASSWORDS ONLY, NO FREQ CHECKING, ETC
- STATION DETAILS VISIBLE TO USERS
- EASY MENU-BASED CONFIGURATION
- COMMON HOST AND CLIENT SOFTWARE

PUBLIC REMOTES

- KENWOOD SPECIFIC
- GUARDED, CLOSED CONCEPT
- LOTS OF SECURITY, FREQ CHECKING, ETC
- STATION DETAILS HIDDEN FROM USERS
- FLEXIBLE HOST CONFIGURATION FILE
- DIFFERENT HOST AND CLIENT SOFTWARE

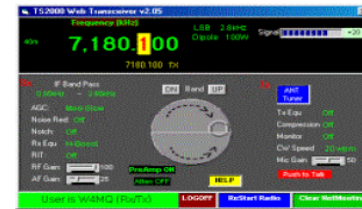
TOOLKIT FOR REMOTING ANY STATION VIA THE INTERNET



[DOWNLOAD](#) Beta v0.012

DOWNLOAD "WEBXCVR" CLIENT FOR "PUBLIC" STATIONS

(Version 6.002.6)



REVIEW [TECHNICAL DOCUMENTATION](#)

HOST/SERVER SOFTWARE FOR PUBLIC STATIONS

(Version 6.002.006)

2008 VE6AO Remote Setup

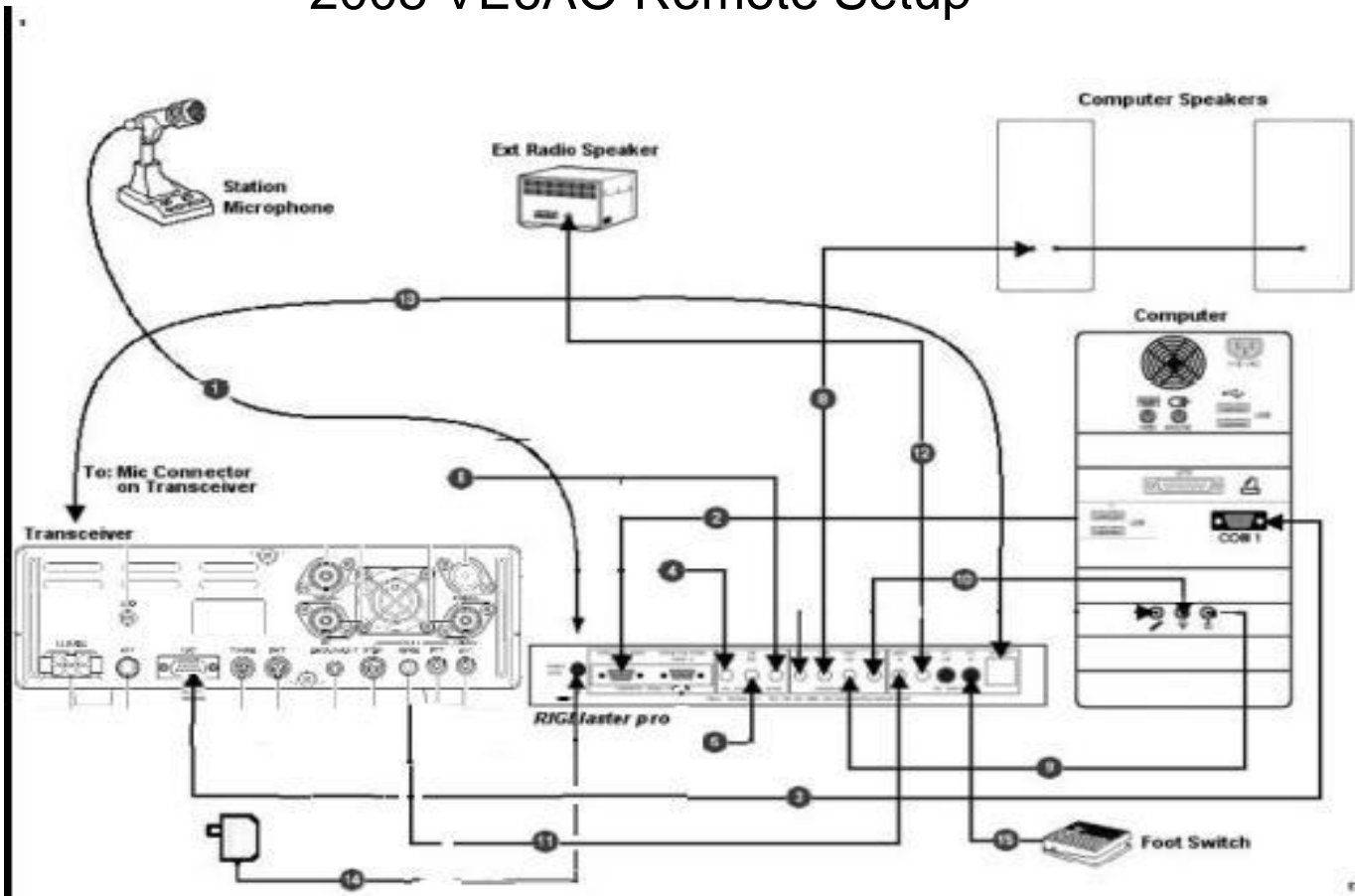
FT847

Rigblaster Pro

XP PC

Dunstar Filters

40m Sloper



Issues with W4MQ

- Designed for TS2000, interfacing with FT847 was challenging
- VE6AO needed Dunstar bandpass filter protection
- Interface dated compared to newer offerings
- Audio quality and RX/TX delay could be improved

2016 CARA Remotes

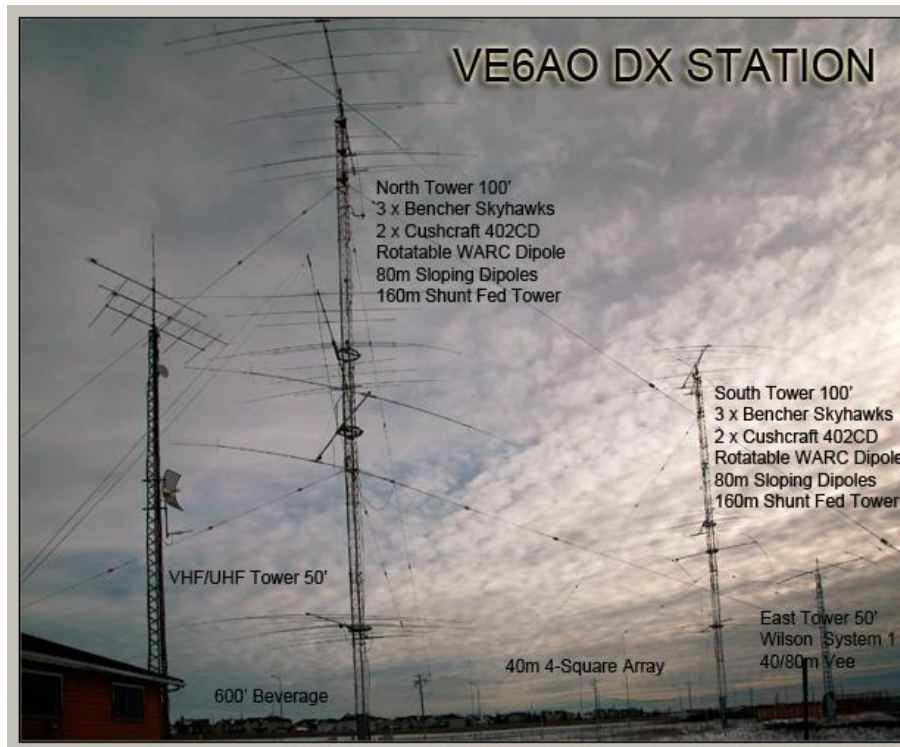
Remote Hams Based at VE6AO

North & South Stations

FT2000, Alpha 9500 1.5KW
Stacked Yagis 10,15,20 &40m
WARC Dipole on 100ft Tower

East Station

FT2000, FL7000 amp 500W
Triband beam at 50'
40/80m Vee, 43' Vertical
6m / VHF / UHF Station
FT2000 for simplex & repeaters
50ft Tower



2016 CARA Remotes

SAIT Teamviewer Based

John Ware Building
Flex 5000, G5RV

Future plans:
New internet link
New Antenna(s)
Remotehams server



Current VE6AO East Remote

Remote Hams Software

Controlling:

Yaesu FT2000

Wilson System 1 Triband Yagi

EA4TX USB rotor controller

FL7000 amp with switcher Yagi,

80/40m Interved Vee,

43' Vertical

Microhams microkeyer

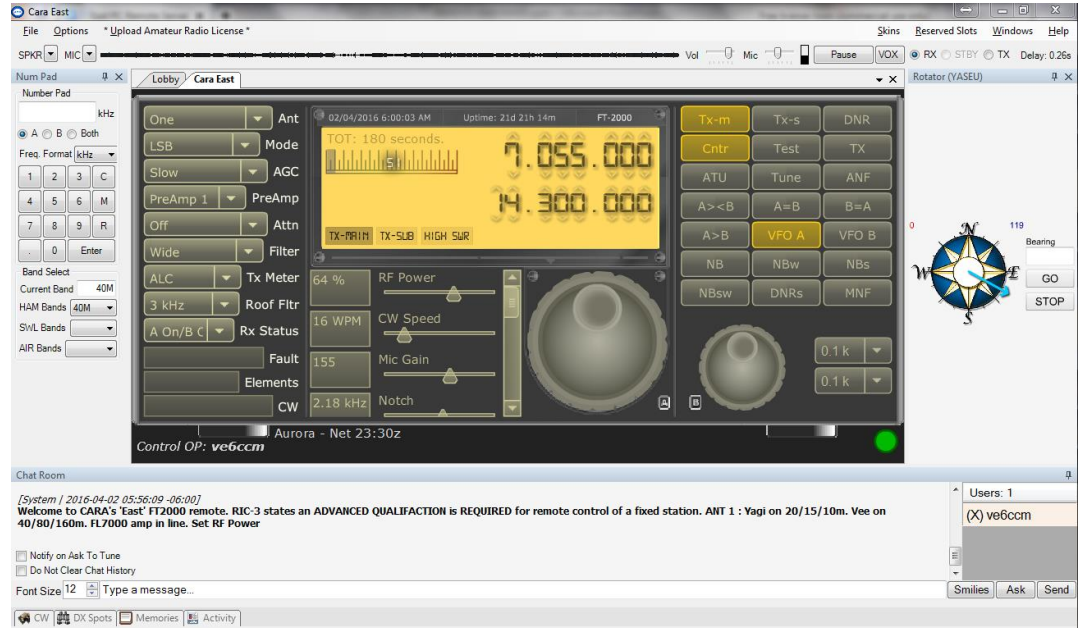
N1MM logging, DM780 digital

Offers: SSB, CW and digital modes



Remote Hams For VE6AO

- Easy to install , use and administer
- Supports our FT2000, TS 2000 radios
- Rotator control
- Security at user level
- Multi-user, VOIP chat, type chat
- CW support
- Free client and server for Windows
- Android client available
- Orb box available for PTT mic, footswitch, CW paddles
- Low latency Adobe Flash + Direct Sound
- Customizable layout, skins
- Stats – over 3000 remote sessions



VE6AO - Remote N1MM Logging via Teamviewer

Use AO call

Multi radio station

Track other radio usage by freq and user

Protect RX frontends

The screenshot displays the N1MM logging software interface. The main window is titled "02/04/2016 11:58:17Z General Logging - ham.mdb". It features a log table with columns for TS, Call, Freq, Mode, SNT/Rcv, Prefix, Name, Comment, Netw, and Operator. The log table shows several entries, including calls like KF4DX, VE6ABA, W9CVC, K6JNR, W4IMD, N2TSQ, KJ4KFJ, WA5PL, W8JUNZ, WA3EWJ, AL4I, W5YFN, NSMZC, AC50, and KP5LUD. The interface also includes a frequency plot on the left side, showing various radio stations and their frequencies. A station information window is open on the right, displaying details for VE6AO-ER, including station name, pass, run, last, and current frequency. The interface is running on a remote server, as indicated by the "East PC Remote Server" window title.

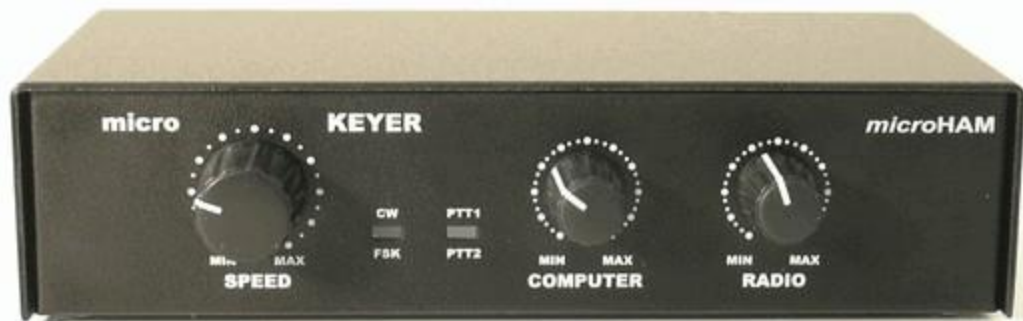
TS	Call	Freq	Mode	SNT/Rcv	Prefix	Name	Comment	Netw	Operator
02/04/2016 01:03:31	KF4DX	14253.00	USB	54 59+10	K	EGON	FL NAPLES WARM 80F DK8FZ	0	VE6TC
02/04/2016 01:13:14	VE6ABA	14253.00	USB	59 59	VE	ARTURO	AB CHESTERMERE	0	VE6TC
02/04/2016 01:19:37	W9CVC	14253.00	USB	55 59	K	CARMAN	IL	0	VE6TC
02/04/2016 01:21:16	K6JNR	14253.00	USB	59 59+40	K	BART	NV ROTOR PROBLEM TAILTWISTER 2	0	VE6TC
02/04/2016 01:39:02	W4IMD	14253.00	USB	59 59	K	PETER	GA ATALANTA	0	VE6TC
02/04/2016 01:40:48	N2TSQ	14253.00	USB	59 59	K	BOB	WI	0	VE6TC
02/04/2016 01:51:37	KJ4KFJ	14253.00	USB	57 59	K	DAVE	MI MOVED FROM FL JOB ENDED IT DIRECT	0	VE6TC
02/04/2016 02:09:47	WA5PL	14253.00	USB	59 59	K	PAUL	NM COLD CLOUDS SEEN STAMPEDE	0	VE6TC
02/04/2016 02:17:27	W8JUNZ	14253.00	USB	59 59+20	K	ERIC	IL CHICAGO NEW HEX BEAM AND SB220	0	VE6TC
02/04/2016 02:36:26	WA3EWJ	14253.00	USB	53 59	K	GRAHAM	OH LANCASTER	0	VE6TC
02/04/2016 03:38:04	AL4I	14253.00	USB	59 59	KL	ALDEN	WASILLA FLE	0	VE6TC
02/04/2016 04:02:37	W5YFN	14253.00	USB	55 59	K	KEN	NM ROSWELL	0	VE6TC
02/04/2016 04:04:35	NSMZC	14253.00	USB	42 59	K	EVERT	MS	0	VE6TC
02/04/2016 04:06:23	AC50	14253.00	USB	59 59+30	K	JEFF	LA	0	VE6TC
02/04/2016 04:11:22	KP5LUD	14253.00	USB	55 57	K	DAVID	MS NEW FT4	0	VE6TC

Remote Hams VE6AO Server Setup Complexity

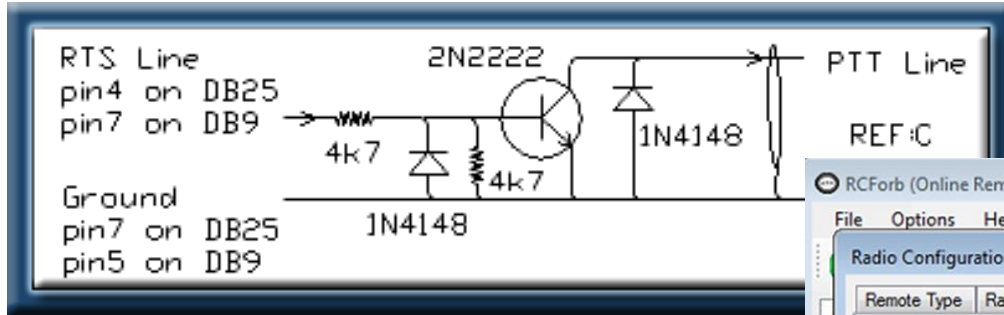
- Somewhat involved with a club station like VE6AO to accommodate the older FT2000 radio with serial CAT, analog audio. Needed an CAT/Audio interface box, CW interface. Allow for Dunstar filters and antenna switching, interface EA4TX rotor control box.

CAT and Audio Implementation

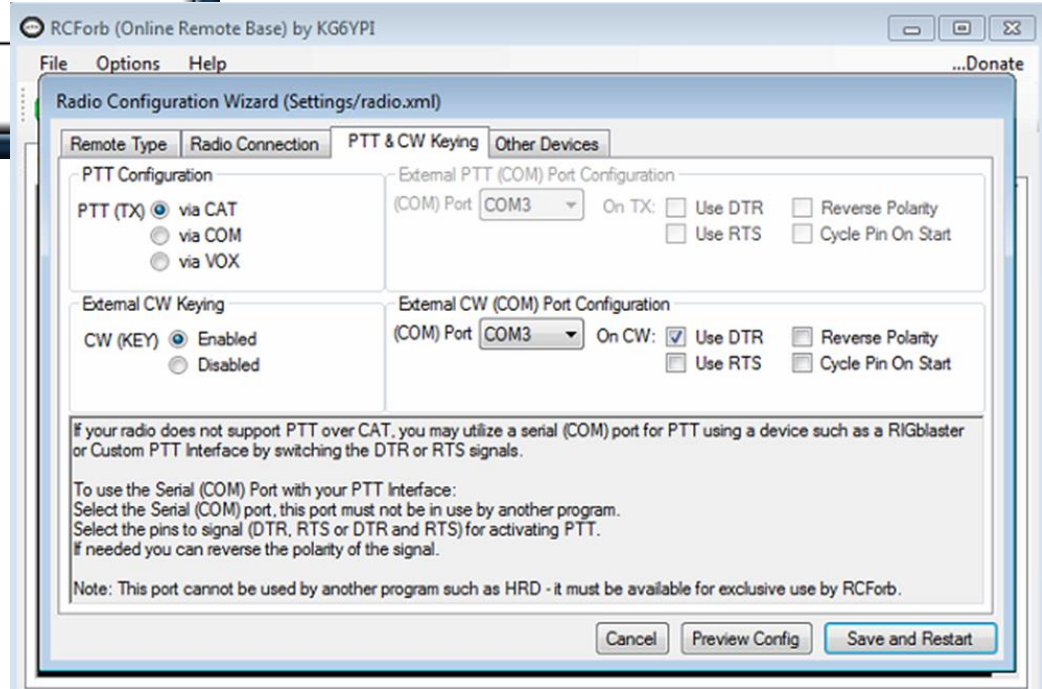
- microHam micro Keyer > Audio Interface , USB CAT, Virtual serial ports
- Other possibilities would be Signalink USB for audio, RIGblaster, etc



CW Implementation



- CW Interface
- use serial port DTR to key
- Thanks to Rob, VE6CCL



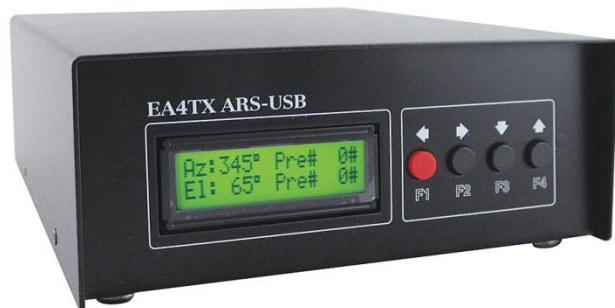
Antenna Switching

- Use amp with multiple antennas
- Tribander, 40/80 Vee, 43' Vertical
- FT2000 band data out into FL7000 amp into switchbox
- Thanks to Rob, VE6CCL



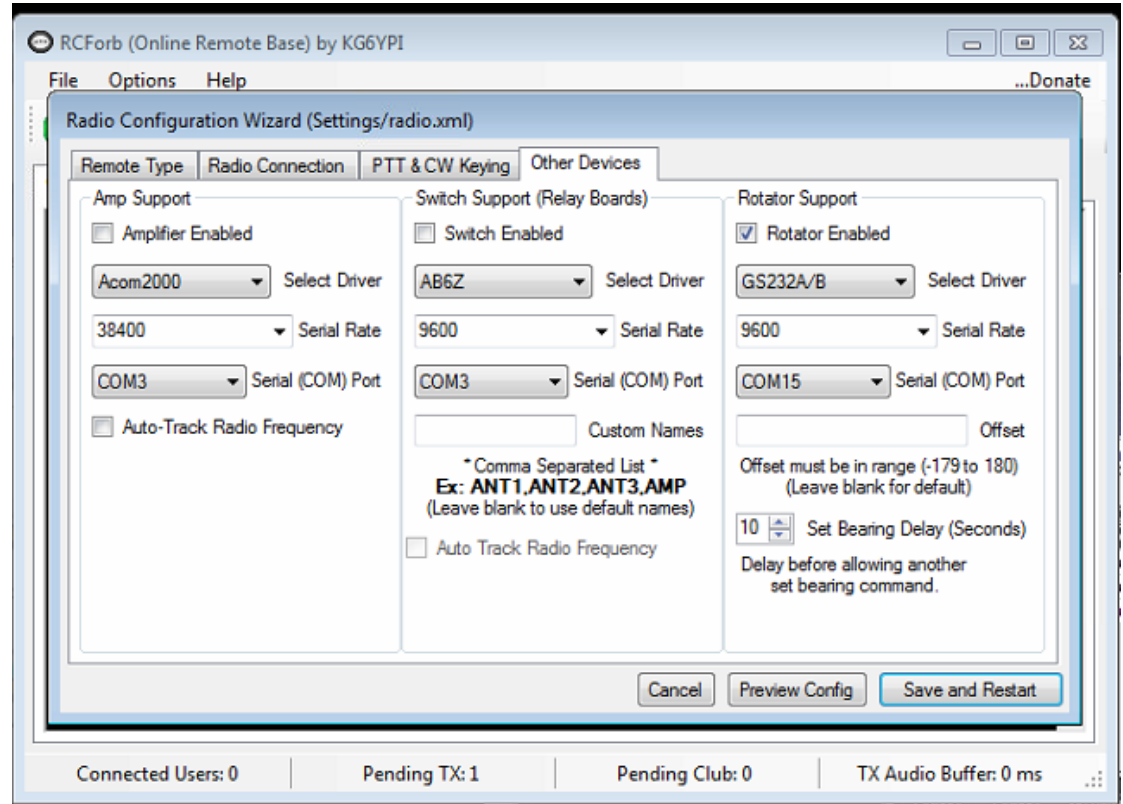
Rotor Implementation

- Rotor Control EA4TX ARS-USB digital box into a Ham IV analog controller



Rotor Implementation

- RemoteHams Rotor Setup
- EA4TX box offers a USB serial port
- Thanks to Dana VA6DJH



Industry Canada Remote Regulations

RIC – 3 1.4 Advanced Qualification Privileges:

- access all amateur bands below 30 MHz
- use maximum transmitter power of 1000 watts DC input
- build and operate transmitting equipment
- establish repeaters and club stations
- remotely control fixed stations, including the use of radio links

Getting Remote Access at AO

Requirements:

- Member of CARA holding an Advanced License
- Hands on at club orientation of the station your interested in
- Working the radios at the club is the best way to become familiar with the equipment before using it remotely
- Join us on Saturdays mornings/afternoons or signup to operate in a HF contest.

Just contact Rob, VE6CCL to get started.

Demo, Hands On Time

Rob – Remotehams live setup with orb box

THANKS FOR ATTENDING !!!