Pacificon 2018

Remote Access to Your Amateur Radio Station – Latest Developments

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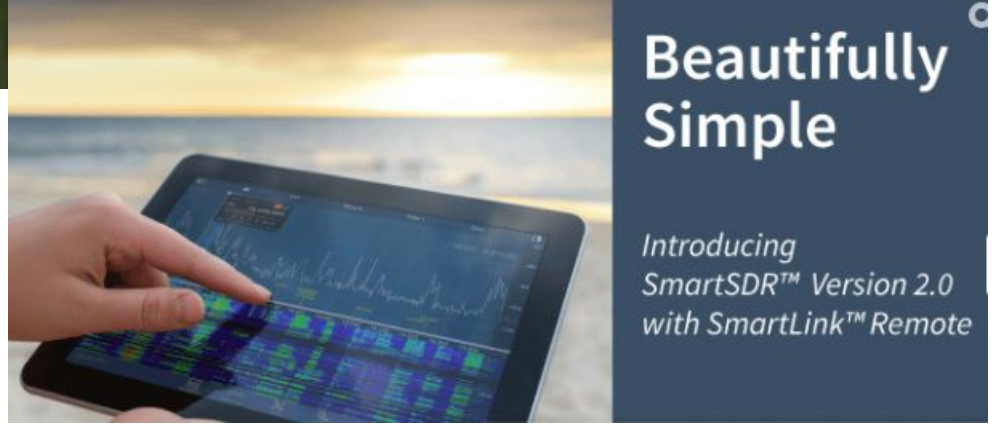
These slides (and more) are at my website k6ufo.com



Agenda:

9:00 – 9:40 Rules, Other stations, Your needs, Basics, 4 ways, ...
9:40 – 9:50 Questions and Answers

Rule Number 1: Follow the Rules!

There are Operator Rules, Station Rules, Award Rules, Contest Rules, …

- Transmitters must be controlled by a licensed operator (licensed in same country or reciprocal permit) and meet transmitter requirements in location country (power limits, time-out timers, posted license and contact info).

DXCC Award - No, you can't work the DX from a station in a different country closer to them and claim it on your USA DXCC Award.

- Remote receivers are widely available, but not allowed for most awards or contests. Only receivers at your transmitter site – not an extra remote receiver!

- You can't use remotes in Country1 AND Country2 to apply for most awards or contests. You can operate from two countries and apply for two different awards...

- You can't use an East Coast Remote AND a West Coast Remote for a single entry in a contest. (You can use East and West both in ONE DXCC country for DXCC.)

Using OTHER people's stations is useful when traveling or when no station allowed in your HOA-controlled condo.

Many Receive-only sites on the web: websdr.org globaltuners.com sdr.hu and many RemoteHams.com sites.

Transmitting stations: (you may need to upload your license, join a club, pay dues or dollar$)

- A friend or club station already setup for remote access, espec. owners of a FlexRadio.

- RemoteHams.com has many shared stations and club stations globally.

- RemoteHamRadio.com Commercial operation, free trial - then pay, very high quality stations available in USA, Puerto Rico, and Haiti.

Setting up Your Station for remote access:

There is no one perfect solution. It depends on what you want to do.

Check-in to a local Net? Ragchew? DX? Contest? Moonbounce?

Your needs will determine what methods might work best for you.

Bands: VHF, UHF, HF bands?

Modes: Voice, CW, Digital? CW by straight key, paddle or computer?

Distance/Ability: Just make a weekly schedule in-state, Worked-All-States? or chase DX or contesting needing big antennas and power?

How mobile do you want to be, and how much equipment are you willing to haul about? Smartphone App, Tablet, Laptop, Control Head, external sound cards, digital mode controllers, special headphones, microphones, ...

Will station be used at home AND remotely, or dedicated to remote operation? How much re-configuration to go from local to remote?

Is the station easily accessible (in the garage) or a 4 hour trip to the hills?

Four Basic Needs for Remote Operation

1. Audio In & Out to radio: Access to MIC/SPKR, Line In/Out, or **audio over USB**. Just like for digital modes (PSK, FT8, AFSK)

2. Radio Control: To read and set radio Freq., Mode, PTT ... Need a radio with serial port, CAT, CI-V, or **USB control**.

3. Station Control: AC power outlets, antenna switching, rotators, tuners, amplifiers, ... Equipment must be "Computer-controlled" or highly "Automatic."

4. "Good" Internet service: Up and Down speeds over 0.5 Mbps, Low delay under 200ms, low packet loss, low jitter or variation, a "publicly routable IP address" for the radio (dynamic or static IP.) (ADSL or cable modem = good, Satellite or cellphone internet = bad.)

…and your patience and willingness to deal with problems.

Four *Proven* Ways to Implement Remote Access

1. Web Browser
2. Software Programs
3. Remote Desktop Software
4. Remote Front Panels

    -RemoteRig

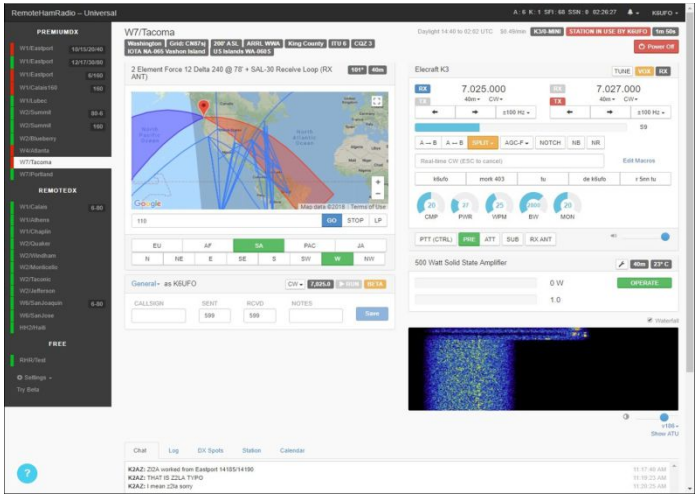
    -FlexRadio Maestro

Remote Access has been successfully implemented in four ways:

#1. Web Browser

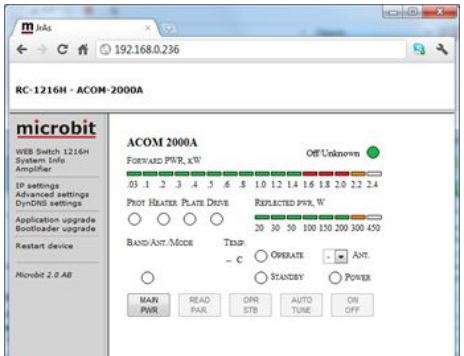
Either RemoteHamRadio.com which runs entirely in Chrome browser, or with your devices with their own web server for remote access:

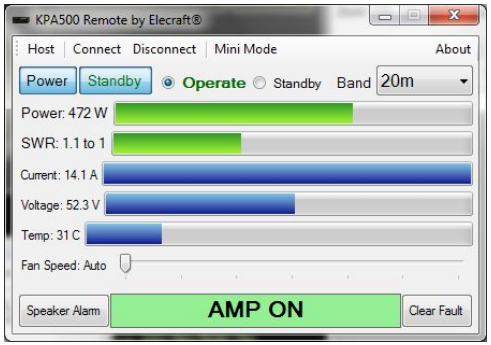
- RemoteQTH.com remote server,
- Elecraft KPA500 Remote Program,
- Remoterig.com Webswitch or rotator or amp control,
- ControlbyWeb.com WebRelay,
- Hamation Control Center,
- Green Heron Everywhere software, …



+ Lots of specific control, many devices.

- Lots of diverse interface, hard to bring together.

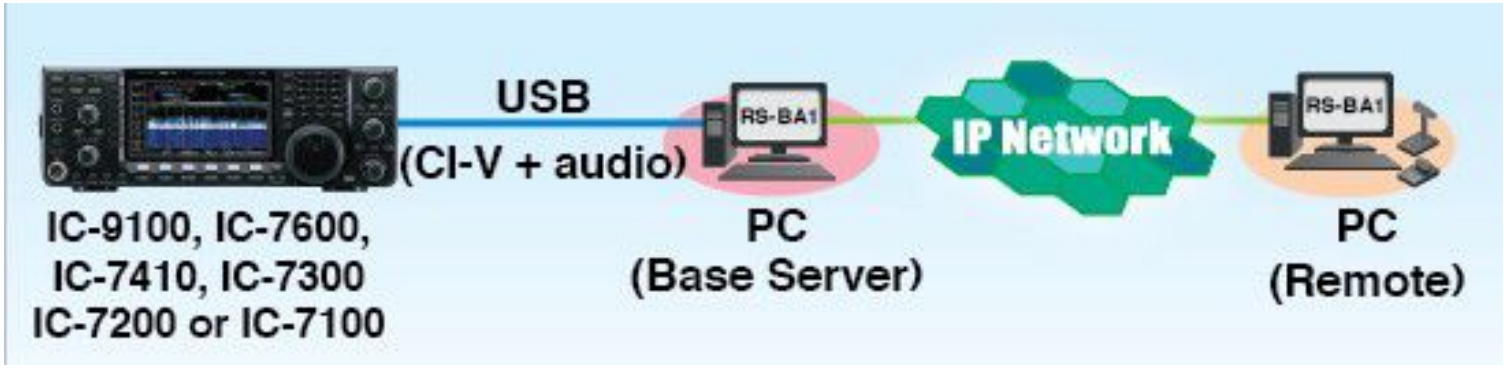




#2. Software Programs

RemoteHams.com is both a software Program (RCForb) and a community of users & stations. Many stations free to use, some are "membership". Wide range of capability and reliability. You can use the server software to offer up your own station. See, QST Magazine, April 2017, p30: "DIY Remote Radio Now"

ICOM's RS-BA-1 IP Remote Control software. $99.



See also: Kenwood Radio Control Program ARCP-480, Ham Radio Deluxe, TRX-Manager, DF3CB software FT2000RC, N4PY Software, …

#3. Remote Desktop software

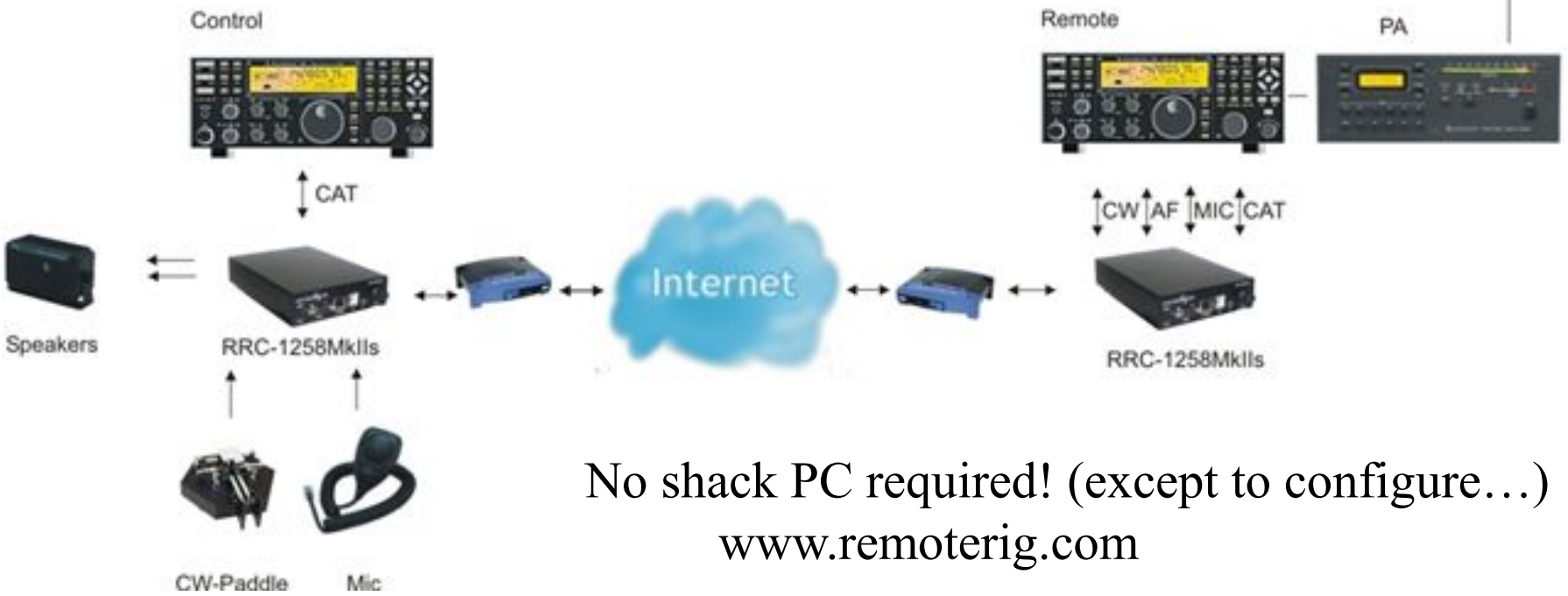
Set up your shack PC to control your station. Use any software - even if it doesn't have any "remote" ability: N1MM+, Logger32, DXLab, WSJT-X, ...

Then, use the "remote desktop" software to "connect-in" to your shack PC. You "see" the shack desktop, and control the station, just like being there.

There are many good free "Remote desktop" programs (also called VNC):
TeamViewer,
Splashtop,
Chrome Remote Desktop,
Windows Remote Desktop,
...others that don't include audio...

+ Use any software in the station.
- Needs the most internet speed.

#4. Remote Front Panel - Microbit RemoteRig



No shack PC required! (except to configure…)
www.remoterig.com

Use a pair of RemoteRig "modems" to send audio and control signals to station. Can use with: Radio with a detached front panel, "control heads" (Elecraft K3/0-Mini), "twin" radios, PC program or Android App.

+ No shack or remote PC to operate.
- Expensive? ($500 a pair, plus a control head or 2nd radio)
- Hard to configure the 1st time.

#4. Remote Front Panel - FlexRadio Maestro

A FlexRadio Maestro (wireless or wired) connects across a local network or the internet to control a FlexRadio station. Can also control from a PC program or App on smartphone or tablet. Remote access has been “built-in” to the SmartSDR software.

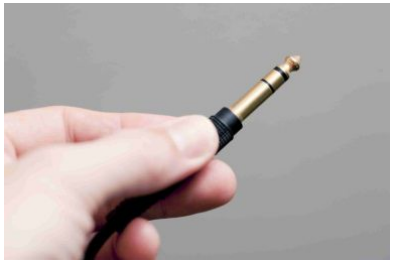
What are the REAL problems?

Station Control: The control of “everything else”: AC power outlets, antenna switching, rotators, tuners, amplifiers, RX-only antennas, watt meters, …

Start by looking for “automatic” or “computer-controlled.” (Trust, but verify)

Eliminate things that require you to manually switch, plug or adjust them.

A "killer" problem when remote is when something needs to be reset or unplugged. There are more of these than you think.



There are solutions to the REAL problems:

AC Power switching: Belkin WeMo Switch $40 or DLI Web Power Switch $170

Antenna switching: The radio's ANT 1/2 button, or band decoders & coax switches.

Rotators: Control box with a serial port, logging software or PstRotatorAz.

Tuners and amplifiers: If manual tune, use on one band switched-in by antenna switch. If auto-tune: use anywhere. Use in Automatic-mode or with control sw.

Other devices can be controlled across the internet with serial port extenders, “internet” relays and switches, computer controlled switches, ...

Latest Developments in Remote Access:


3830scores.com
Contest Score Rumors

Home | Call | Search | Preferences

Submittal Forms | Current Contests

ARRL DX Contest, CW 2018 Feb 17 Claimed Scores

SOAB HP

Call	SO2R	Remote	QSOs	Mults	Op Time	Score	Club
TI7W(N4YDU)	x		7041	334	48	7,054,080	PVRC
V47T(N2NT`)	x		6113	322	43.3	5,899,362	FRC
P49Y(AE6Y)	x		5717	334	44	5,728,434	MLDXCC
6Y2T(VE3DZ)	x		6055	307	42	5,557,314	CCO
KM7W(KL9A)	x	x	4400	425	47	5,553,900	
N5DX(@N2QV)	x	x	4147	412	48	5,124,456	
VY2ZM(K1ZM)	x		3745	412	45	4,628,820	YCCC
K1ZZ	x		3635	405	43:20	4,416,525	YCCC
KH7B(K4XS)			4733	296	44	4,292,904	FCG
FM5BH	x		4501	296	40	3,996,888	
AA1K	x		3314	366	44:36	3,621,204	FRC
CB6K(CT1IUT)	x		4080	270	abt 40	3,303,180	

Remote stations used to win (and place highly) in all major contests: ARRL DX CW and SSB, CQ WW CW and SSB, Stew Perry TBDC, CQ WPX SSB, CQ WW RTTY

Increased numbers. Hundreds of club stations now supporting a remote. Remotes have made HF operation practical for hams living in restricted spaces. Has allowed newly-licensed hams to try HF before investing. Keeps hams on-the-air when repairs needed.

FlexRadio systems software 2.0 now includes integrated and easy to use remote connection "SmartLink." Many new SDR radios, like the SUN SDR2, also are "remote-ready" with an ethernet plug and web interface.

Latest Developments in Remote Access:

Very affordable remote-capable radio: Icom IC-7300 (USB rig control and USB audio in/out) only $1,000 plus Icom RS-BA1 software $99. (You still need additional "station" control: power, antennas, rotors.)
Other "entry-level" equipment now has built-in sound cards and radio control to make remote operation easier.

"Control by WEB" device X-410 has built-in web server, features 4 digital inputs, 4 output relays. $235.

RemoteHamRadio.com adds "waterfall display" to remote stations. 3 kHz wide. FlexRadio remote panadapter adjusts to available internet bandwidth.

FT8 mode has made remote operation possible without needing "quick-response" by operator. Useful where poor internet delay. FT8 users also satisfied with smaller antennas and lower power than would be acceptable to CW and SSB DXers.

Latest Developments in Remote Access:

HF Voyager project KH6JF/MM showed the capabilities of an autonomous ocean-going robot with an HF radio station. Remotely controlled to turn on/off and other basic controls. It demonstrated what an "unmanned" remote radio station could do for remote locations. Over 1,000 contacts in 3 mos.

Newest Microsoft release of Skype no longer supports auto-answer. Skype “Classic” old version 7.40 still available on the web. May stop working someday...

CATSync software by DJ0MY available to control web sdrs with your shack radio and shack PC. Works with websdr.org, SDR.hu and many more. Provides a synchronized remote receiver. (Not valid for DXCC and most contests.)

Q & A

What are your questions and concerns?

Maybe someone here can help!

Thank you!