The of

Internet ~~Connected~~ Radios Shared

Scotty Cowling, WA2DFI
Dan Babcock, N4XWE

Thunderbird ARC April 2016

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Frame of Reference for Easterners (i.e., anyone living east of I-15)

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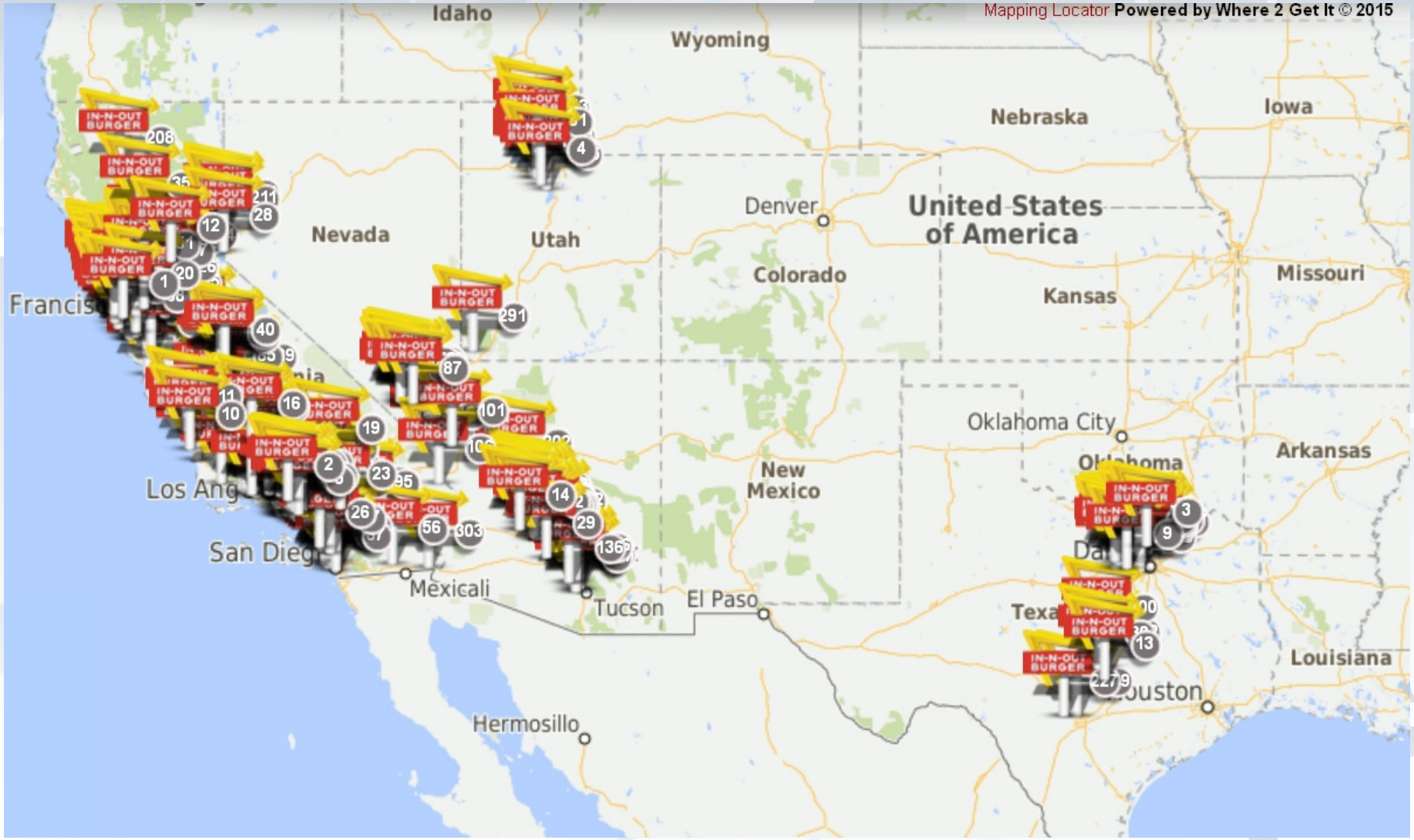
Real Cause of California Earthquakes



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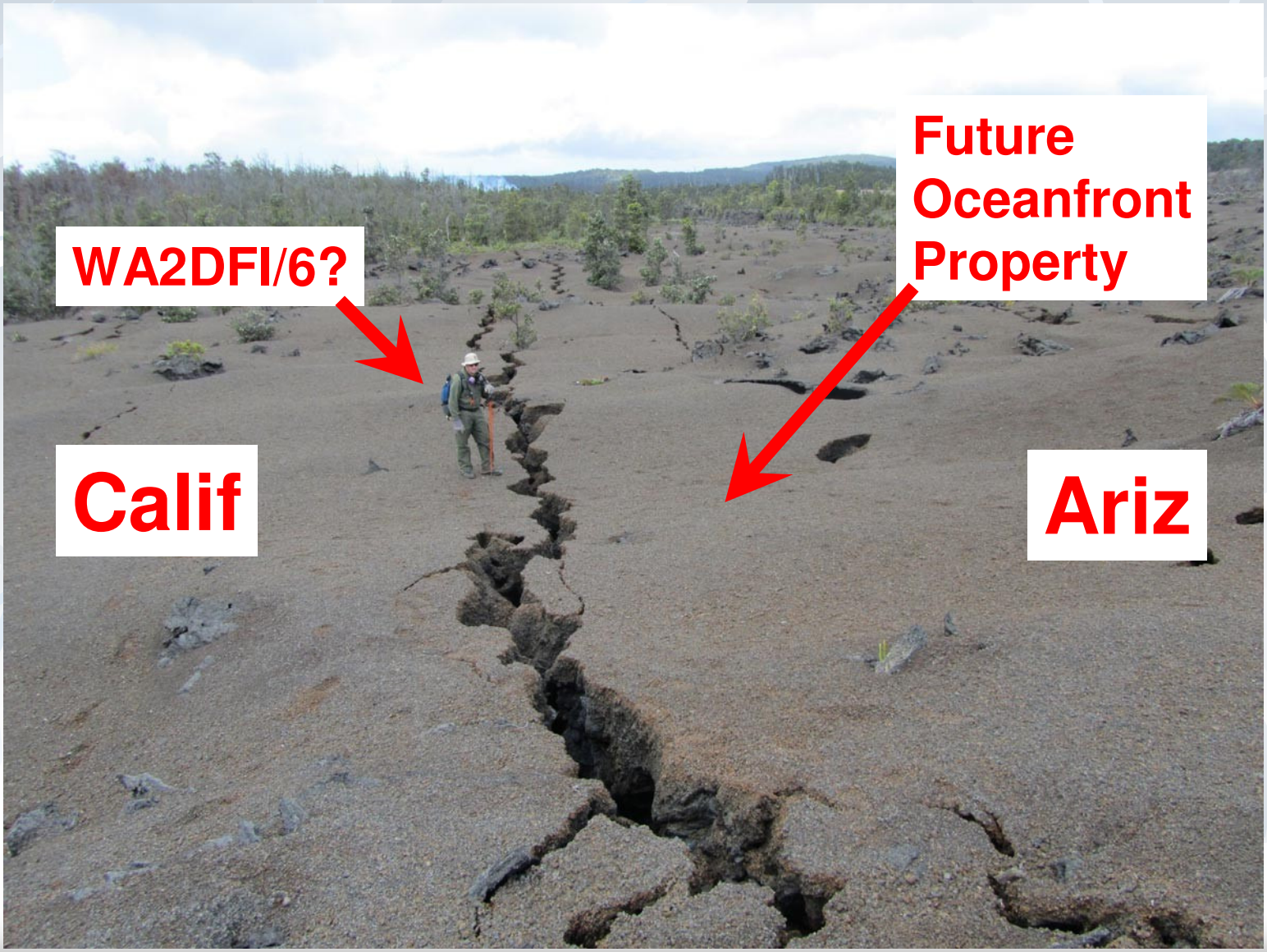
Ground Fault (non electrical)



Questions?

- Do you have access to a Windows PC?
  - SDR grade
  - 4GB RAM – Multi-core CPU @ >2 GHz – 1080p display
- Do you have access to a Mac?
- Do you have Access to a Linux/Unix PC?
  - SDR grade
- Do you have access to an Android device?
  - Smartphone
  - Tablet
  - HTPC

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Questions?

- Do you *NOT* have access to any PC running
  - Windows
  - OS-X
  - Linux/Unix
  - Android

Why are you here?

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Internet Shared Radios

- Listen to someone else's radio

With browser

- Easy to do from anywhere
- Nothing to load onto your computer

With client software

- Wider selection of remote rigs
- More rig control
- One step on the way to sharing your rig

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Internet Shared Radios

- Listen to your *own* radio

Why would you do this?

- Client is a radio control GUI on its own
  - Software split into two or more pieces
- Test your Server/Client system
- Operate your radio on your local network
  - “network” ≠ “Internet”
  - There are reasons why you might *not* want to share

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Internet Shared Radios

- Letting others listen to your radio

Really, ***why would you do this?!?***

- You have the connection bandwidth to spare
- You don't use your radio 24/7/365
- You're an early adopter and proud of it (admit it!)
- Because you can
- It is in the true spirit of amateur radio

Consider it SDR Elmering

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Internet Shared Radios

Transmitting

- Possible
- Not quite ready for prime time
- We will leave this for next time

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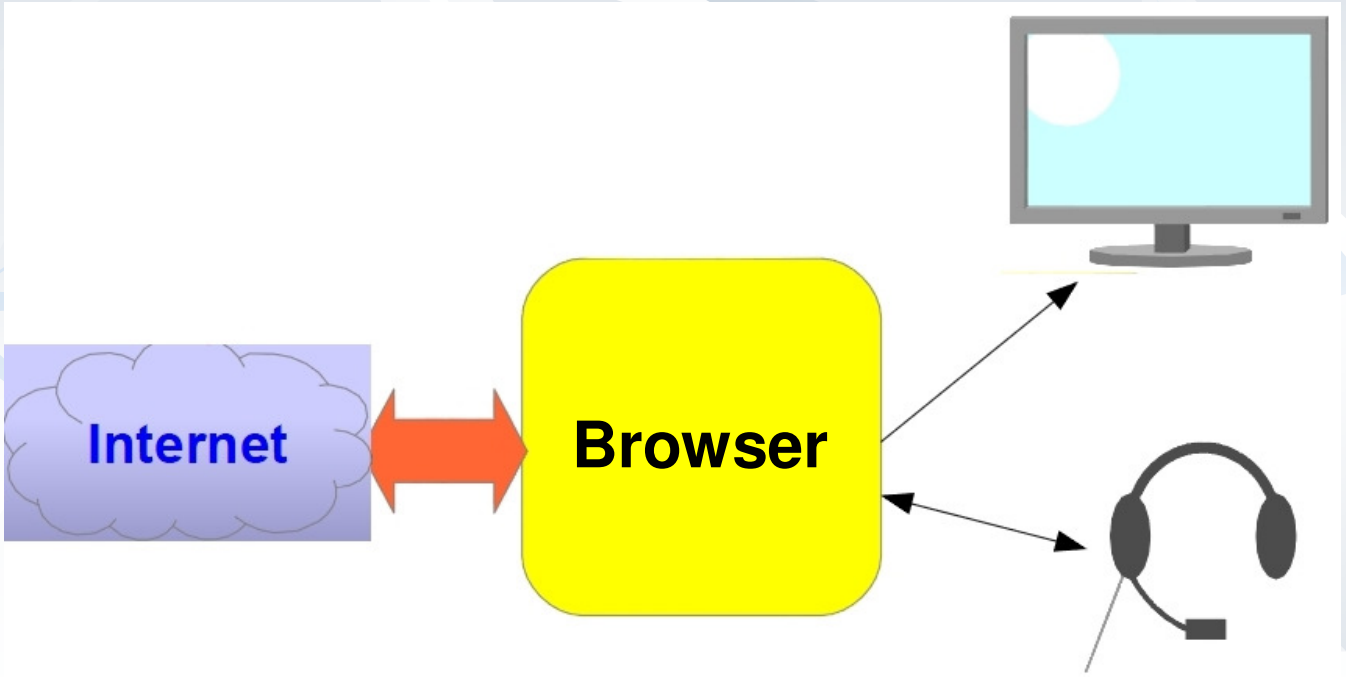
Listen To Someone Else's Radio

With browser

- Easy to do from anywhere
- Nothing to load onto your computer



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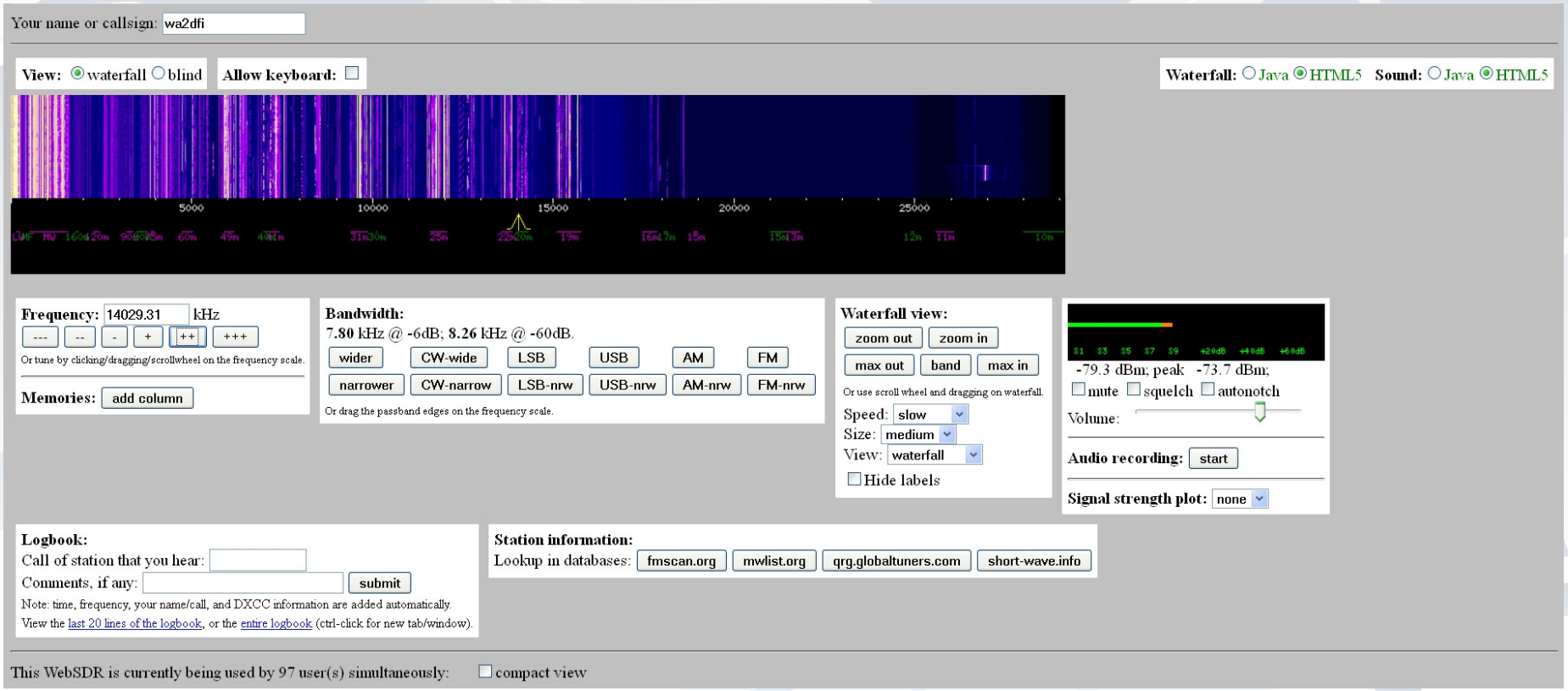
Listen To Someone Else's Radio

Firefox v30.0 under Windows XP

URL: http://websdr.ewi.utwente.nl:8901/



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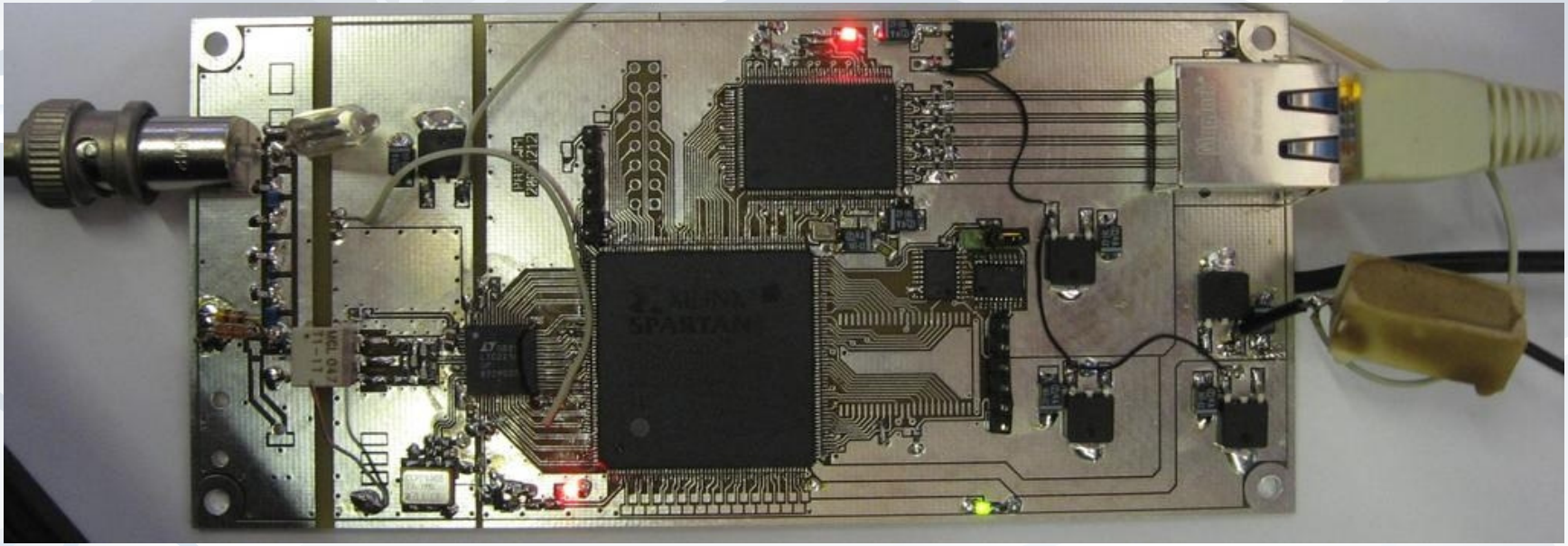
Listen To Someone Else's Radio

URL: http://websdr.ewi.utwente.nl:8901/



FPGA: Spartan 3 XC3S500E (~10K F-F)

ADC: LTC2216 16b@77.76MHz

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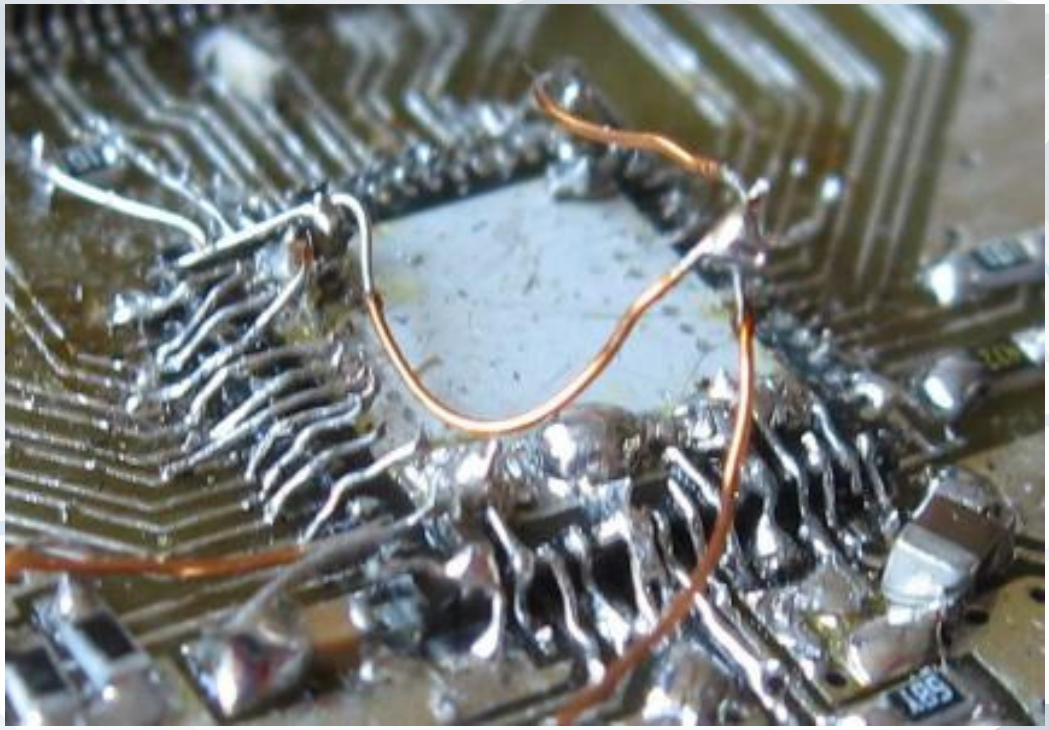
Listen To Someone Else's Radio

URL: http://websdr.ewi.utwente.nl:8901/



This took some excellent soldering skill!

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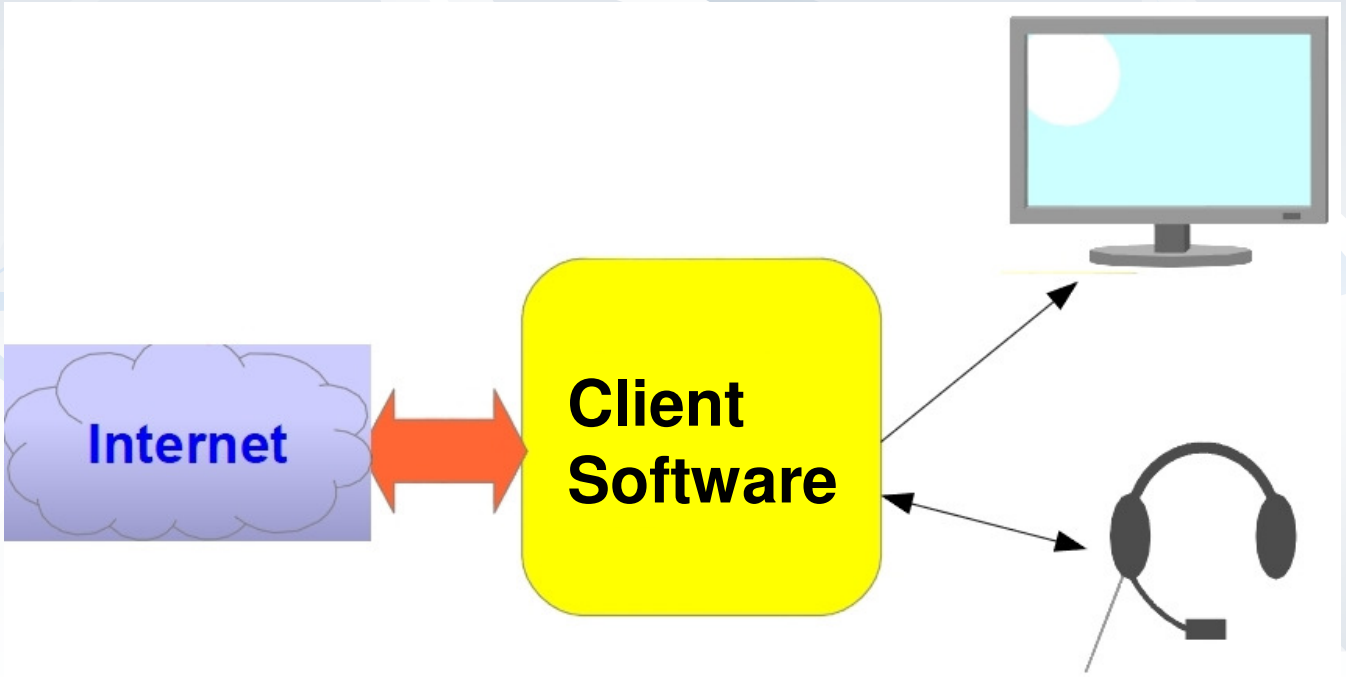
Listen To Someone Else's Radio

With client software

- Wider selection of remote rigs
- More rig control
- One step on the way to sharing your rig



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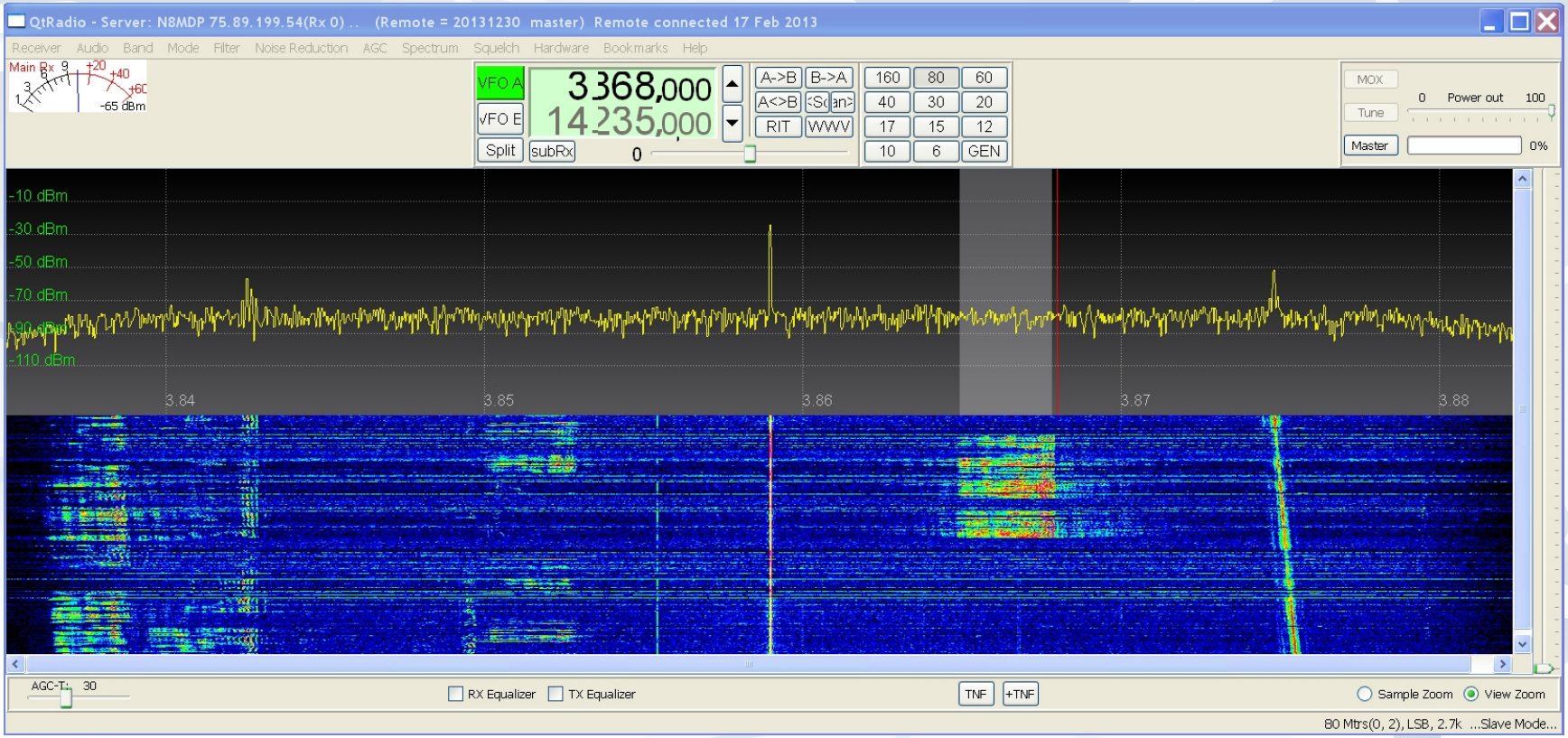
Listen To Someone Else's Radio

QtRadio client under Windows XP

http://napan.ca/ghpsdr3/index.php/QtRadio_on_Windows



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Browsers and Servers and Clients, oh my!

Remember…

- A Browser is just a web *client*
  - View HTML, run client side scripts (e.g., Java), etc
- MS IIS and Apache are *servers*
  - They *serve* up http data to *clients* (e.g., your browser)
  - Typically, web site hosts worry about these, not you!

Now let's look at some SDR server/client software

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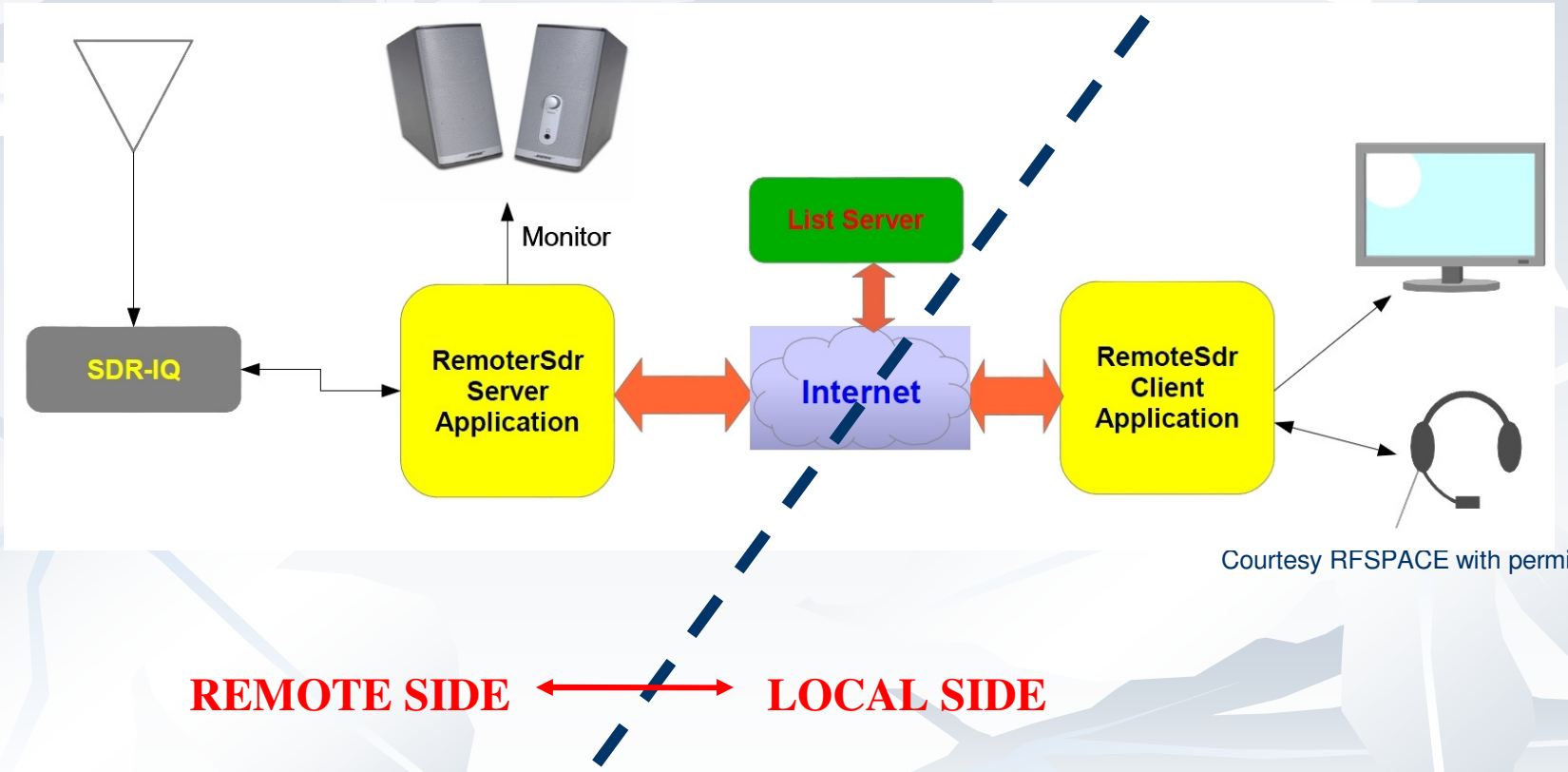
RemoteSDR System Setup



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RemoteSDR Software

http://www.rfspace.com/RFSPACE/CloudIQ.html

At this URL, you can get:

- QuickStartGuide108.pdf
  - The instruction manual
- Remote Client Application for Windows 1.2
  - Windows server and client installer
- Remote Client Application for Mac 1.2
  - Mac client

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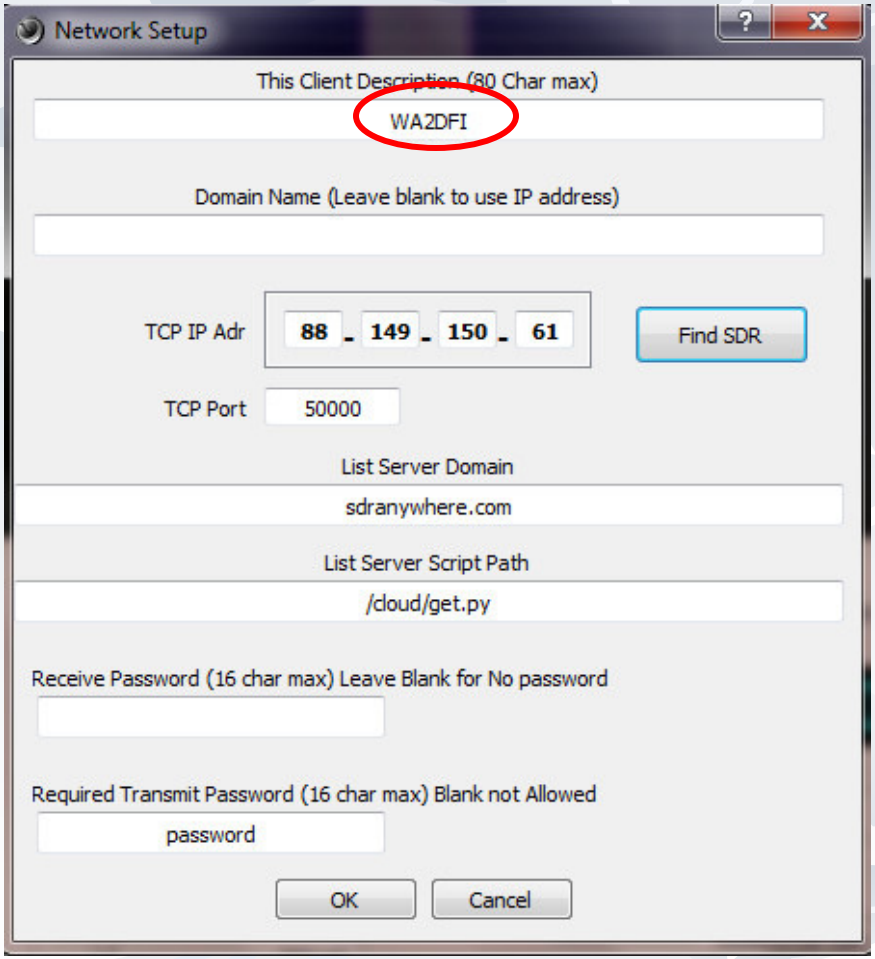
Listen To Someone Else's Radio

RemoteSDR Client

Network Setup

Menu



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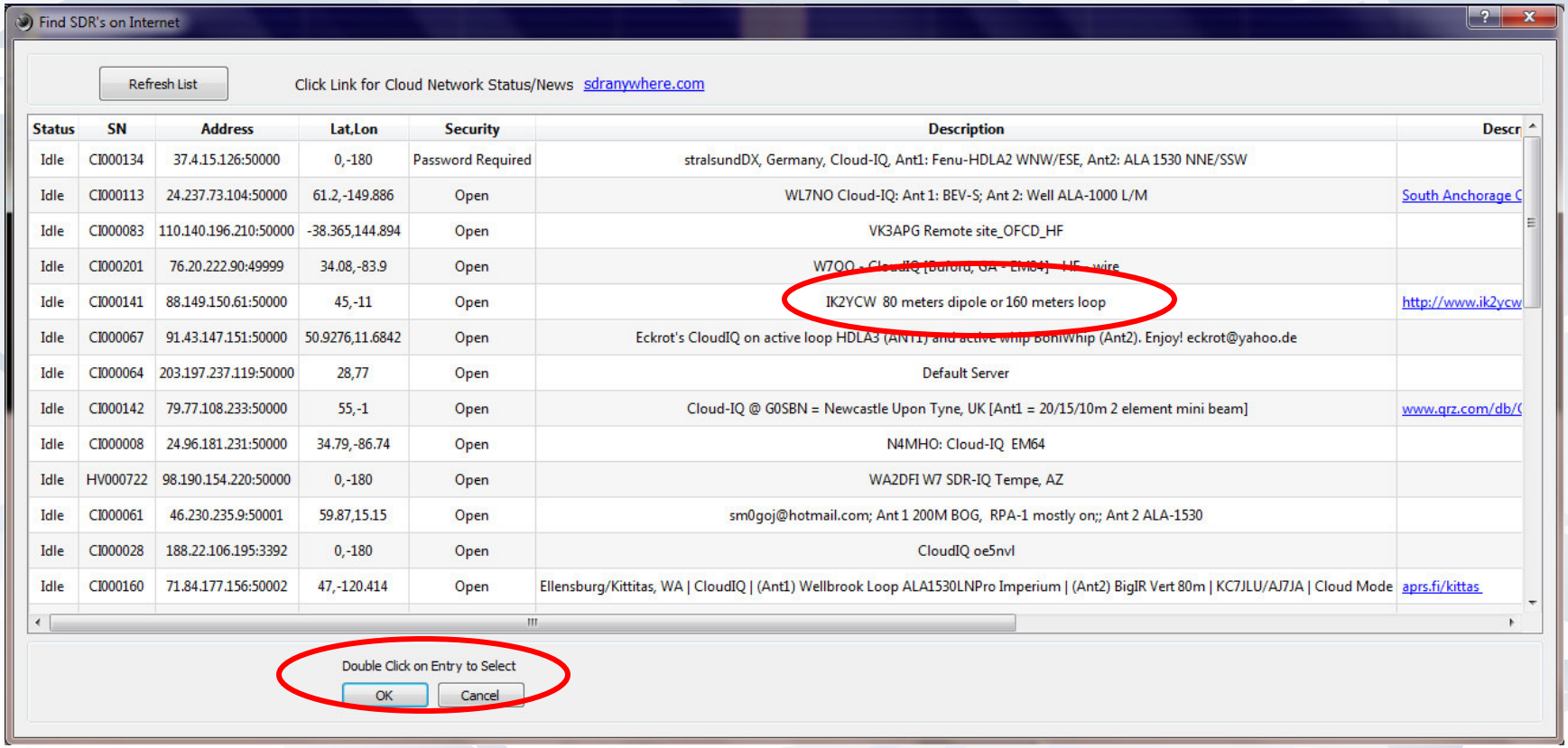
Listen To Someone Else's Radio

RemoteSDR Client ***Find SDRs*** Menu



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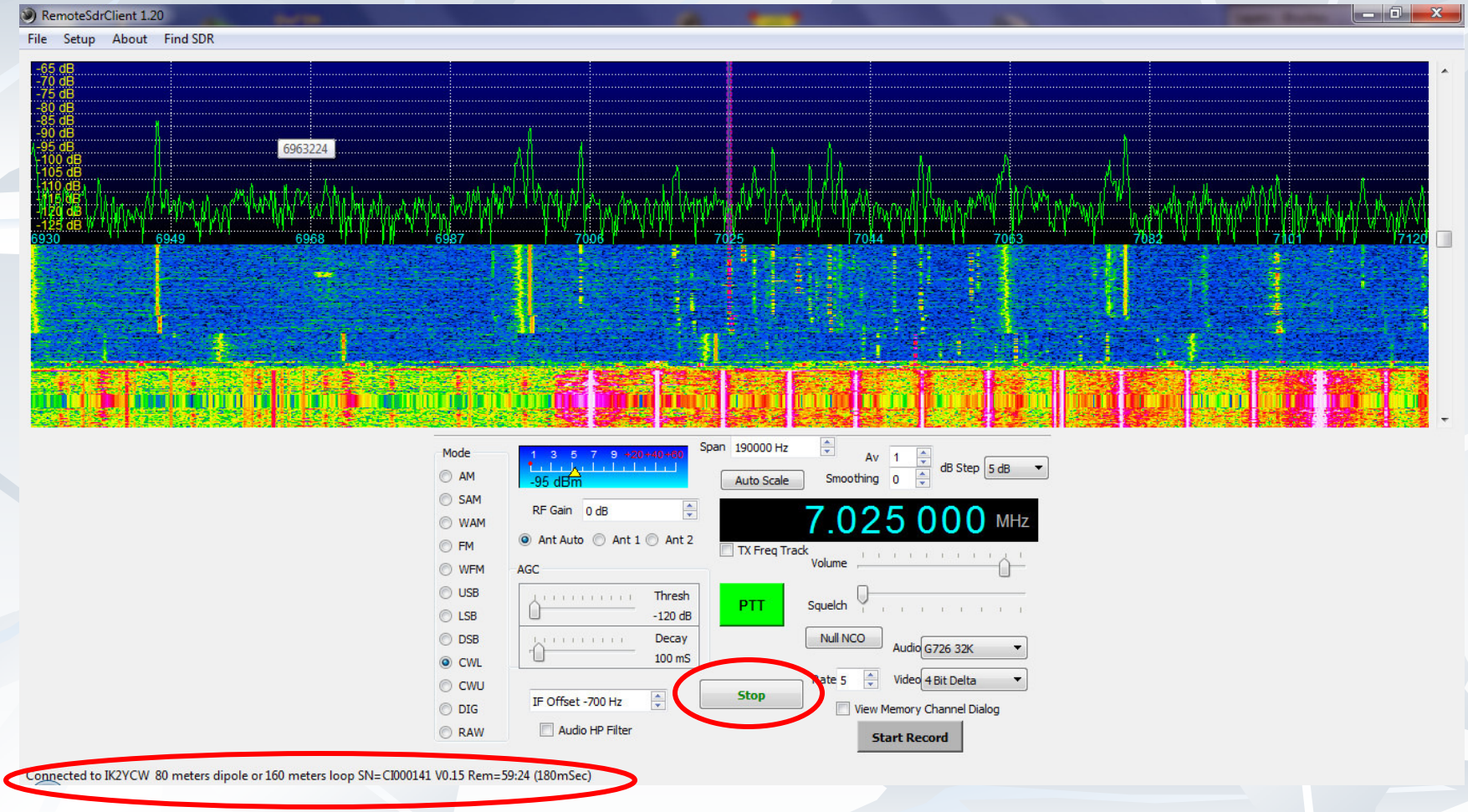

RemoteSDR Client in operation

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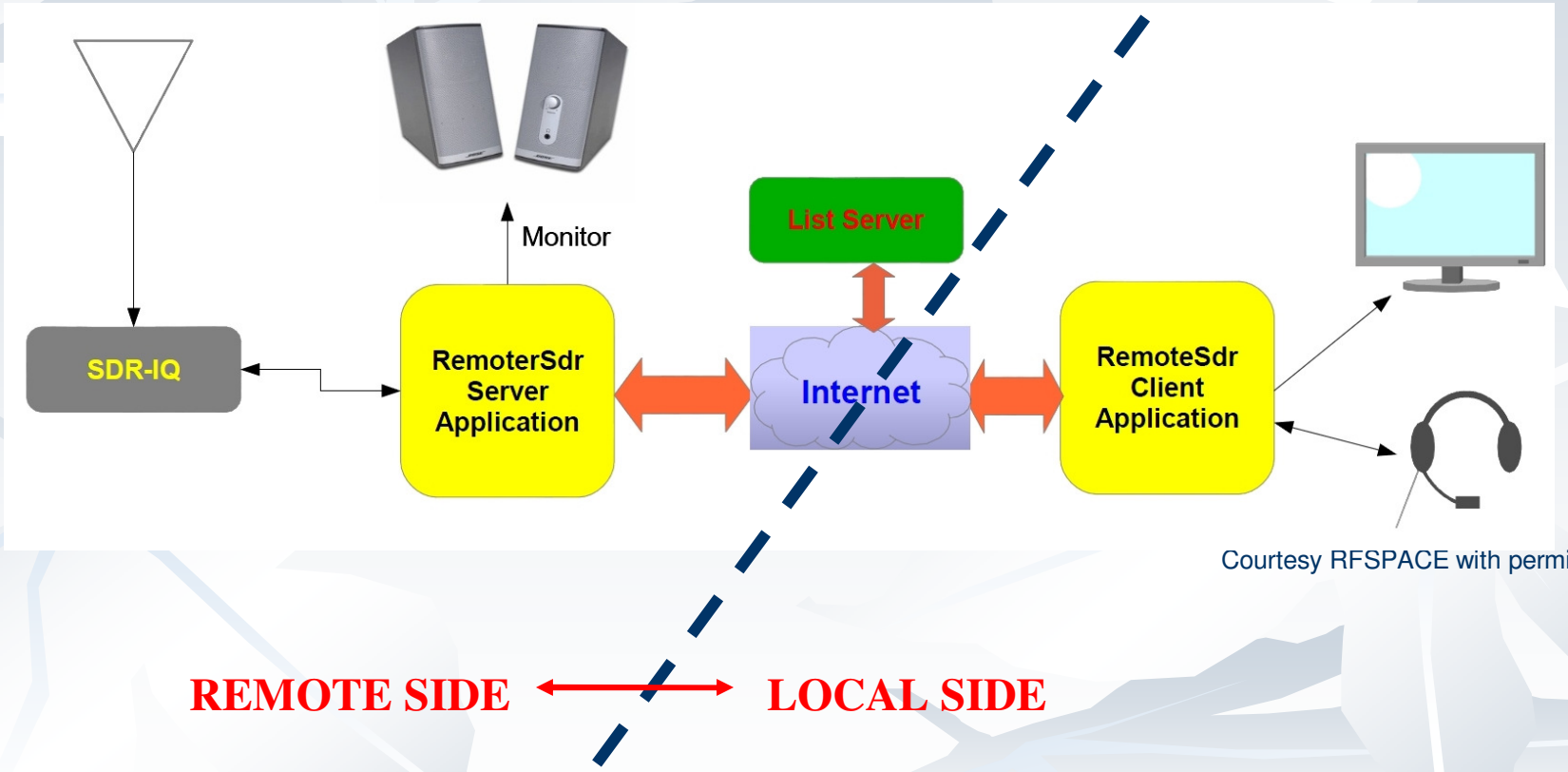
RemoteSDR System Setup



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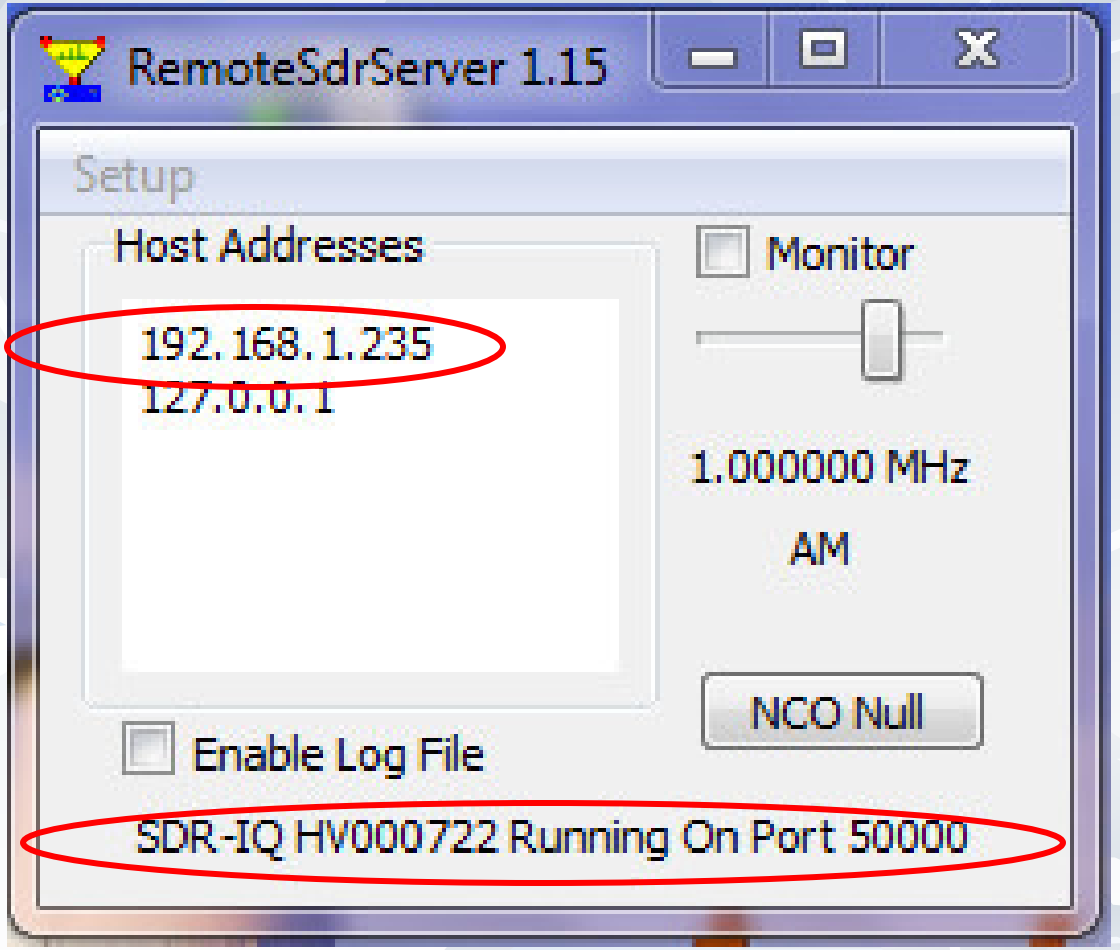
Listen To Your Own Radio

RemoteSDR Server



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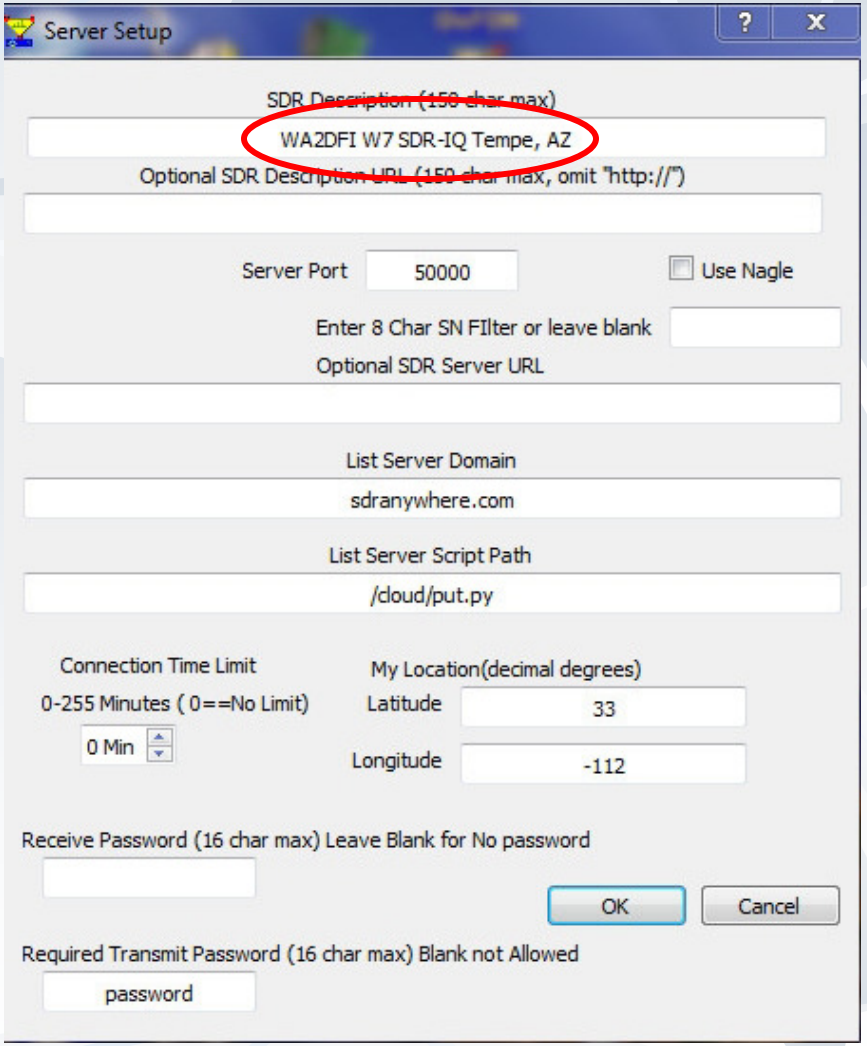
RemoteSDR

Server Setup



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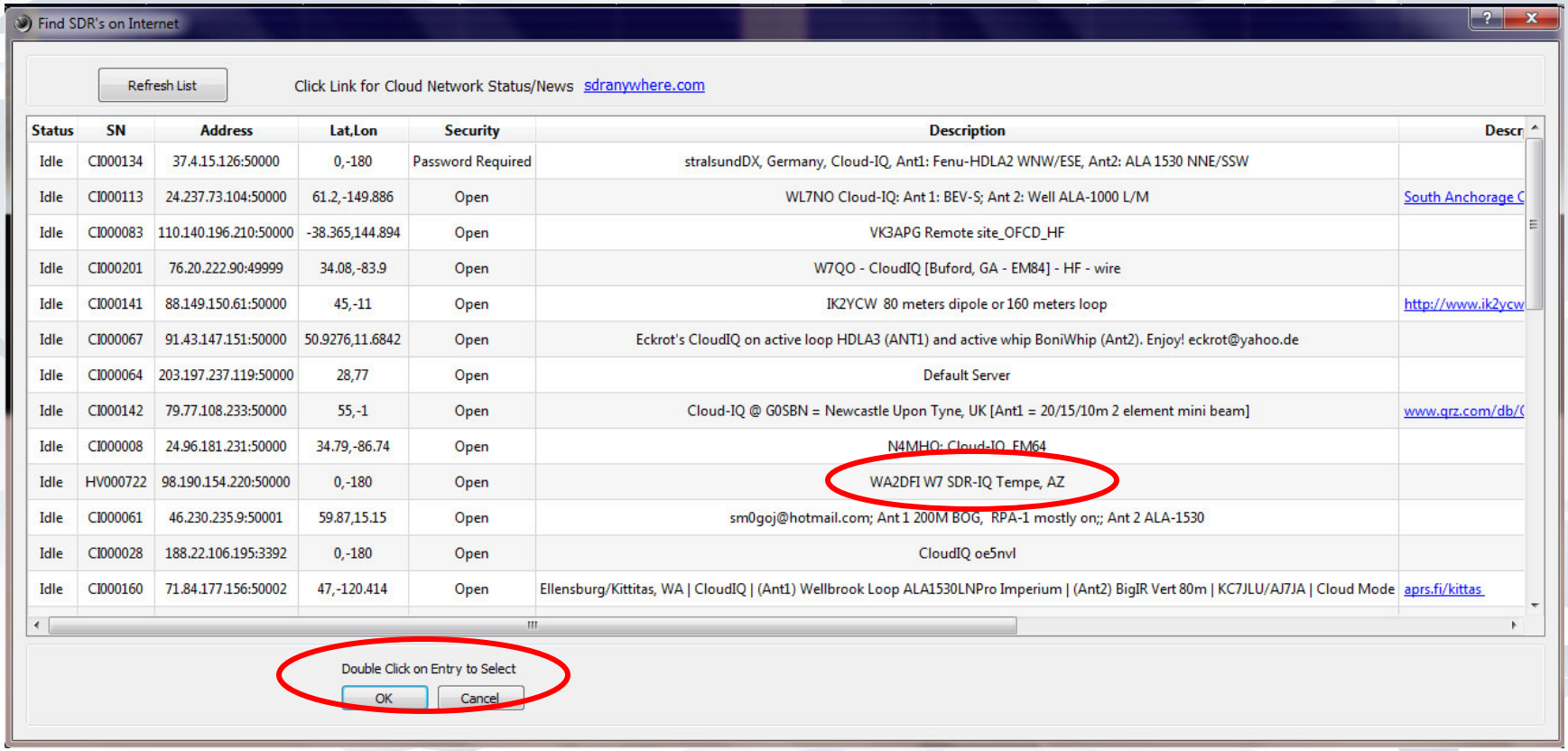
RemoteSDR Client ***Find SDRs*** Menu



Status	SN	Address	Lat,Lon	Security	Description	Descr
Idle	CI000134	37.4.15.126:50000	0,-180	Password Required	stralsundDX, Germany, Cloud-IQ, Ant1: Fenu-HDLA2 WNW/ESE, Ant2: ALA 1530 NNE/SSW	
Idle	CI000113	24.237.73.104:50000	61.2,-149.886	Open	WL7NO Cloud-IQ: Ant 1: BEV-S; Ant 2: Well ALA-1000 L/M	South Anchorage C
Idle	CI000083	110.140.196.210:50000	-38.365,144.894	Open	VK3APG Remote site_OFCD_HF	
Idle	CI000201	76.20.222.90:49999	34.08,-83.9	Open	W7QO - CloudIQ [Buford, GA - EM84] - HF - wire	
Idle	CI000141	88.149.150.61:50000	45,-11	Open	IK2YCW 80 meters dipole or 160 meters loop	http://www.ik2ycw
Idle	CI000067	91.43.147.151:50000	50.9276,11.6842	Open	Eckrot's CloudIQ on active loop HDLA3 (ANT1) and active whip BoniWhip (Ant2). Enjoy! eckrot@yahoo.de	
Idle	CI000064	203.197.237.119:50000	28,77	Open	Default Server	
Idle	CI000142	79.77.108.233:50000	55,-1	Open	Cloud-IQ @ G0SBN = Newcastle Upon Tyne, UK [Ant1 = 20/15/10m 2 element mini beam]	www.qrz.com/db/(
Idle	CI000008	24.96.181.231:50000	34.79,-86.74	Open	N4MHO: Cloud-IQ, EM64	
Idle	HV000722	98.190.154.220:50000	0,-180	Open	WA2DFI W7 SDR-IQ Tempe, AZ	
Idle	CI000061	46.230.235.9:50001	59.87,15.15	Open	sm0goj@hotmail.com; Ant 1 200M BOG, RPA-1 mostly on;; Ant 2 ALA-1530	
Idle	CI000028	188.22.106.195:3392	0,-180	Open	CloudIQ oe5nvl	
Idle	CI000160	71.84.177.156:50002	47,-120.414	Open	Ellensburg/Kittitas, WA | CloudIQ | (Ant1) Wellbrook Loop ALA1530LNPro Imperium | (Ant2) BigIR Vert 80m | KC7JLU/AJ7JA | Cloud Mode	aprs.fi/kittas

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Listen To Someone Else's Radio

RemoteSDR Client

Network Setup

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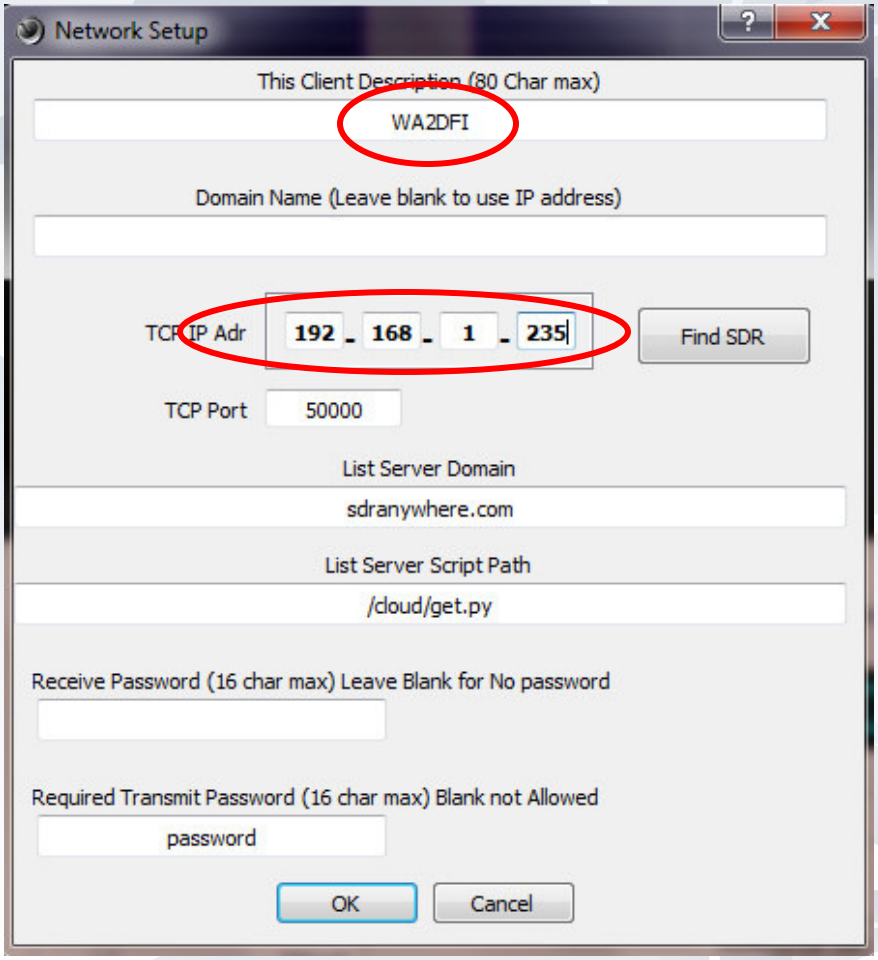

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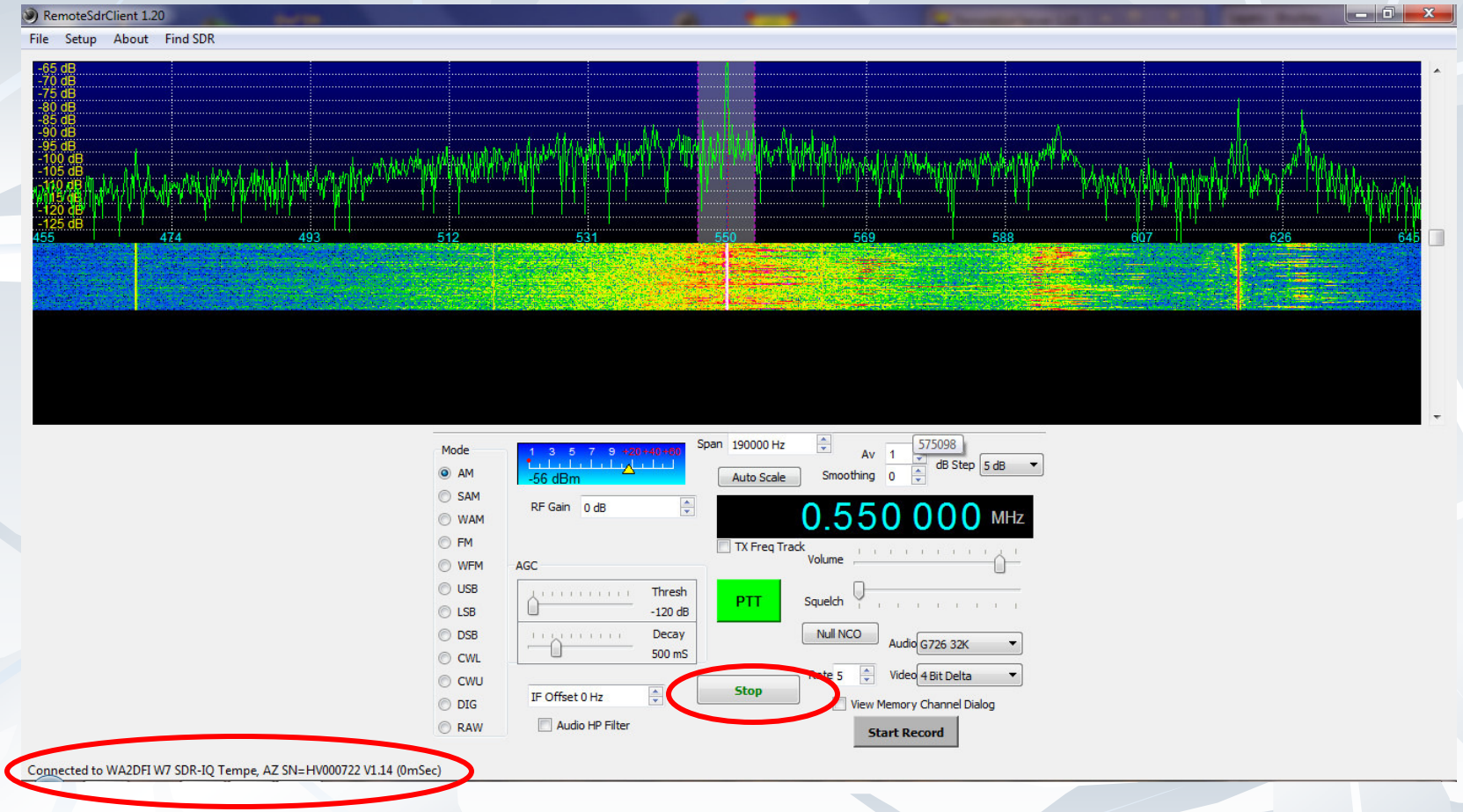
Listen To Your Own Radio



RemoteSDR Client in operation

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Visibility on the Internet

Go to: ***http://sdranywhere.com/cloud/sdrweb.py***

RFSPACE SDR's On The WEB

Your IP is: 24.248.2.60

Date/Time: 2016 Apr 21 16:36:34

Latest RemoteSdrClient is Version 1.19

Link to RemoteSdrClient Download Page

#	Serial Num	Description	Status	IP	Port	Domain	Lat,Lon	Security	User url	Options	Last Client
1	CI000134	stralsundDX, Germany, Cloud-IQ, Ant1: Fenu-HDLA2 WNW/ESE, Ant2: ALA 1530 NNE/SSW	idle	37.4.15.126	50000		0.0, -180.0	private		None	Unknown Client
1	CI000113	WL7NO Cloud-IQ: Ant 1: BEV-S; Ant 2: Well ALA-1000 L/M	idle	24.237.73.104	50000		61.2, -149.886	open	South Anchorage Cloud IQ Server	None	Unknown Client
1	CI000083	VK3APG Remote site_OFCD_HF	idle	110.140.196.210	50000		-38.365, 144.894	open		None	Unknown Client
1	CI000201	W7QO - CloudIQ [Buford, GA - EM84] - HF - wire	idle	76.20.222.90	49999		34.08, -83.9	open		None	WA2DFI
1	CI000141	IK2YCW 80 meters dipole or 160 meters loop	idle	88.149.150.61	50000		45.0, -11.0	open	http://www.ik2ycw.it /RFSPACE.html	None	Unknown Client
1	CI000067	Eckrot's CloudIQ on active loop HDLA3 (ANT1) and active whip BoniWhip (Ant2). Enjoy! eckrot@yahoo.de	idle	91.43.147.151	50000		50.927609882910474, 11.68417839333415	open		None	Unknown Client
1	CI000064	Default Server	idle	203.197.237.119	50000		28, 77	open		None	Unknown Client
1	CI000142	Cloud-IQ @ G0SBN = Newcastle Upon Tyne, UK [Ant1 = 20/15/10m 2 element mini beam]	idle	79.77.108.233	50000		55.0, -1.0	open	www.qrz.com/db/G0SBN	None	Unknown Client
1	CI000008	N4MHO: Cloud-IQ EM64	idle	24.96.181.231	50000		34.79, -86.74	open		None	Unknown Client
1	HV000722	WA2DFI W7 SDR-IQ Tempe, AZ	idle	98.190.154.220	50000		33, -112	open		None	
1	CI000061	sm0goj@hotmail.com; Ant 1 200M BOG, RPA-1 mostly on;; Ant 2 ALA-1530	idle	46.230.235.9	50001		59.87, 15.15	open		None	Unknown Client
1	CI000028	CloudIQ oe5nvl	idle	188.22.106.195	3392		0.0, -180.0	open		None	Unknown Client

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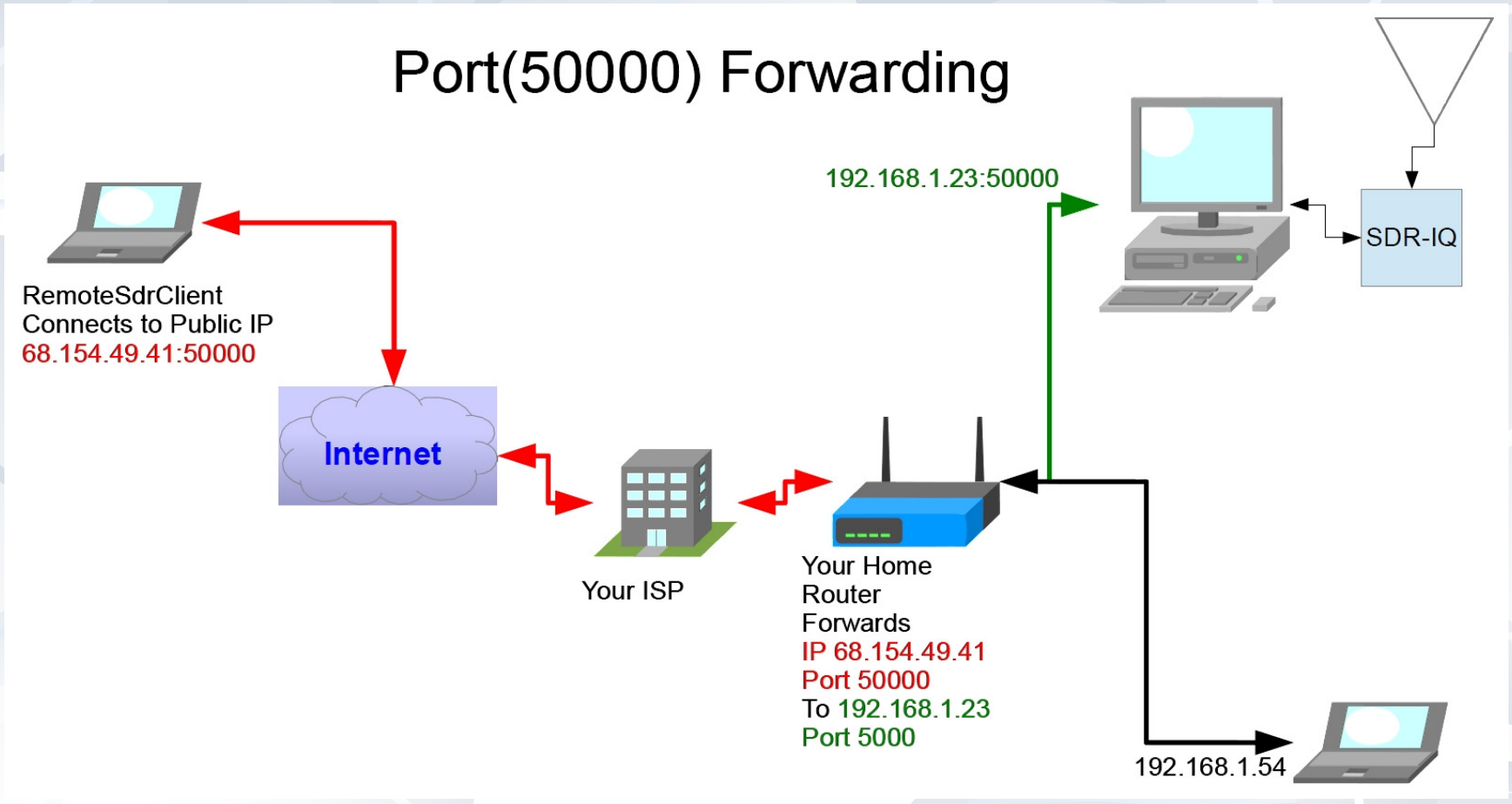
Visibility on the Internet



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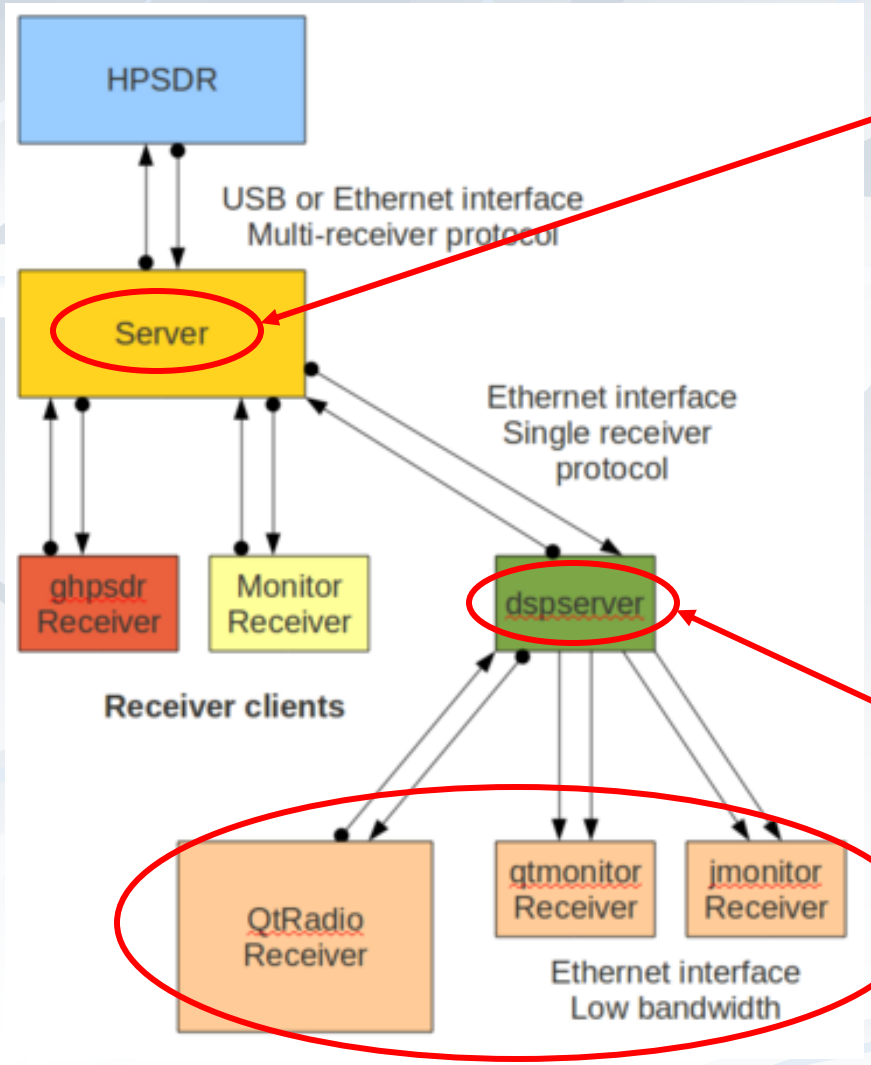
GHPSDR-Alex Software Components



Hardware Server

- HPSDR
- SDRstick™
- Softrock
- UHFSDR
- Microtelecom Perseus
- SDR-IQ
- HiQSDR
- USRP
- RTL-SDR dongle

DSP Server

Clients

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WA2DFI[1] GHPSDR-Alex 8-step[2] Rehab[3] Program[4] for Windows Users[5]

[1]Actually written by N4XWE

[2]More like 10 steps

[3]To turn Windows users away from the dark side

[4]Not a program, more like a script

[5]Also for Mac users

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Simple Steps to Install GHPSDR-Alex under Ubuntu 14.04 LTS Linux

1. Install the gcc compiler and the compiling tools
2. Check that the universe repository is enabled and install the prerequisite packages for ghpsdr3-alex
3. Install qt5 to complete the build
4. Verify the version of qmake
5. Install CODEC2 low bit rate for audio encoding and decoding
6. Install ghpsdr3-alex from Git
7. Start the compile
8. Set network settings for the firewall
9. Start the servers
10. Start QtRadio

Since I am out of time, see details in the Hands-On SDR column in Jul/Aug 2015 issue of QEX.

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Summary

RFSPACE RemoteSDR

- Easy to setup and use
- Server: Windows only
- Clients: Windows, Mac, Linux, Android
- Server requires RFSPACE radio

GHPSDR-Alex (QtRadio)

- More complex to setup, easy to use
- Server: Linux only
- Clients: Windows, Mac, Linux, Android
- Useable with many types of SDR hardware

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Android Clients

You know that if I had given this to you earlier, you would have wasted 20 minutes playing with your phone instead of wasting 20 minutes listening to me…

Android client for RemoteSDR:
http://sdranywhere.com/SDRanywhere/SDRanywhere_files/SDRanywhere.apk

Android client for GHPSDR-Alex:
Install glSDR from the Google Play Store

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Thank You!

University of Twente Web SDR:

http://websdr.ewi.utwente.nl:8901/

RemoteSDR:

http://www.rfspace.com/RFSPACE/CloudIQ.html

GHPSDR-Alex:

http://napan.ca/ghpsdr3/index.php/Main_Page

QtRadio on Windows:

http://napan.ca/ghpsdr3/index.php/QtRadio_on_Windows

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GHPSDR3_ALEX at Zephyr

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