WebSDR for HF

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What is an SDR anyways?

- Software Defined Radio - radio on a chip(s)
    - ADC - Analog to Digital Converter
    - Replaces analog components closer to the antenna
    - Mixes powerful audio and CPU resources

- Panoradio SDR block diagram

- If money isn't an object - OR you have an ARDC grant
    - Elecraft K4 - 16 Bit ADC, exceptional noise filtering and DSP
    - Flex 6400 - 16 Bit ADC, brick wall filters, dual receivers

Half Moon Bay, Utah, and Beyond!

- Fun tuning into other far away (DX) stations WebSDR

- Important to remember what bands are active there/then
    - KFS - http://websdr1.kfsdr.com:8901/
        - Directional antennas - http://69.27.184.58:81/
        - http://kiwisdr.com/public/
    - Utah - http://kiwisdr3.sdrutah.org:8075/
    - Other geographically dispersed KiwiSDR

How do we use WebSDR ?

- Enable browser based audio (HTML 5 or java/script)

- Below Waterfall, select a single band of interest

- Set VFO to a frequency of interest or click, hold and drag the tuning karat _/-_

- Select bandwidth, LSB-med for 40/80m, USB-med on 60m channels

- Use wide or narrow to suit your preference or interference

- AF (volume) and RF Gain (received signal) control, try manual

- Adjust RF gain for 1 S unit deflection on the S meter

- Try DSP and audio buffering options to fine tune

If money is an object RTL-SDR ~ $30

- https://www.rtl-sdr.com/rtl-sdr-quick-start-guide/

- 8 Bit inexpensive hardware

- Free, open source software
  - v3 and v4 cover lower HF bands by enabling direct sampling

- Filtering makes a huge difference
  - AM and FM Broadcast filters prevent front end overload

- Beware of fakes!

- Need help spending your money? Get an AirSpy or SDRPlay product!

Experiment: RTL-SDR and SDR++

- SDR++ & GQRX free software runs on most platforms

- Software install help in [RTL-SDR site](#)
  - We used a v4 on 80m band
  - Listened to two members simulate the 80m HF net

- Filtering makes a huge difference
  - AM and FM Broadcast filters prevent front end overload
  - Choose notch filters to remove a very narrow band of signals

- Any ~60' wire will work, outdoors is best but not required
  - We used a single strand of an unplugged LED strip indoors

HF propagation types

- 40/60/80m are mostly night time bands
  - Not always, depends on the Sun

- Ground wave
  - Follows the earth ~ 100 miles

- Skywave
  - Single/multi hop ~ 1500 - 3500 - 7000 miles
  - NVIS - near vertical incidence skywave ~ 300 miles

- Antenna polarization - try to match if you can
  - Works OK if you can't

Wrap up and questions

☆ Most importantly:

- Explore the HF bands, maybe you'll get hooked

- Experiment with the receiver, there is no high SWR danger

- Try listening to the Contra Costa County and local HF Nets
    - 40m - LSB 7.213 kHzor close given interference,Thursdays 1800
    - 60m - USB channelized, typically Ch2 5.346.5 kHz, Thursdays 1815
    - 80m - LSB 3.893 kHz County net, Thursdays 1830
    - 80m - LSB 3.890 kHzBay Area NVIS, Saturdays 0800

☆ Questions? w6cus@ebarc.org or aa6at@arrl.net