

# Software Defined Radio

Sterling Coffey, NØSSC

# What is SDR?

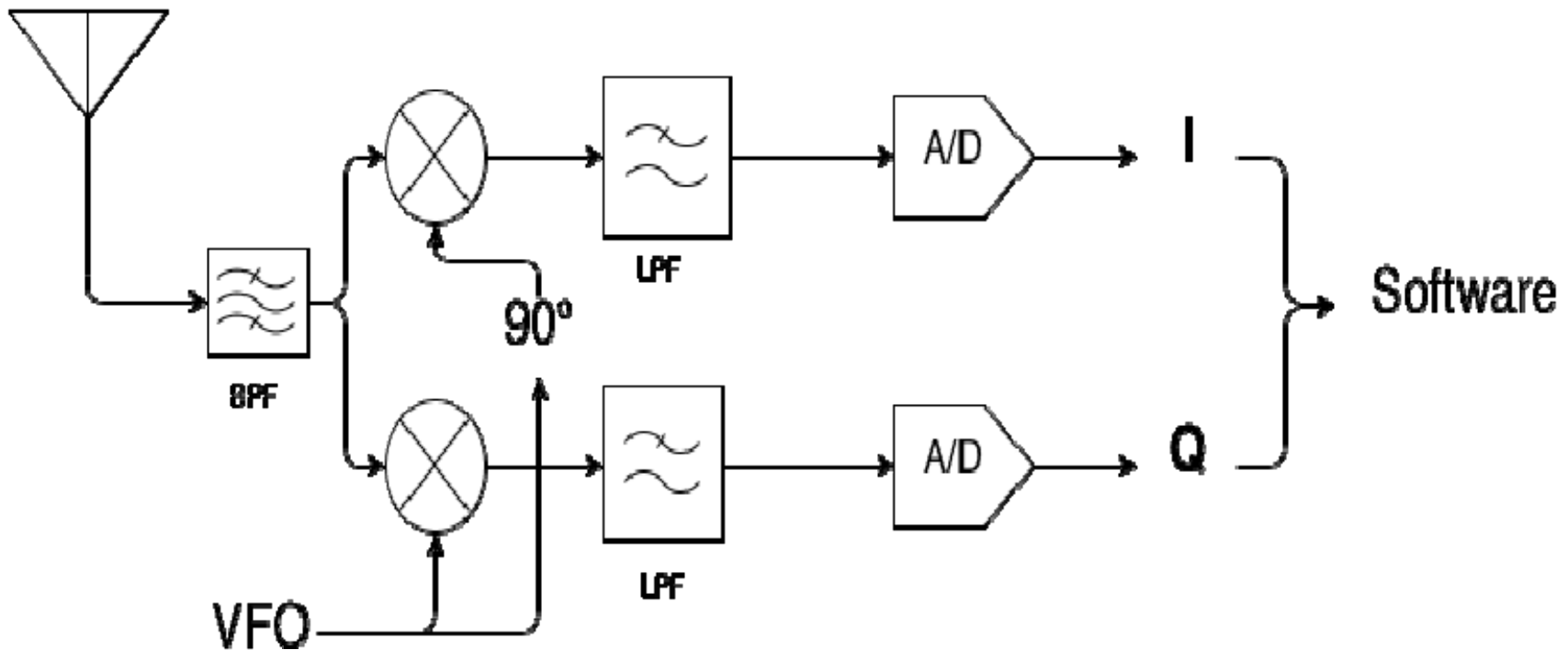
- Any radio design that uses software to “define” the radio’s operation
- Most of today’s rigs incorporate SDR
- Fully Expected to dominate radio technology



# Why SDR?

- Allows Flexibility in an ever changing RF environment
- Opens opportunity for futuristic means of communication
  - Cognitive Radio
- Allows use of real-time advanced signal processing
- Small Size, Ease of Design and Manufacture
  - Fewer Components, less current consumption, low computational requirements

# Mind Your I's and Q's: How it Works

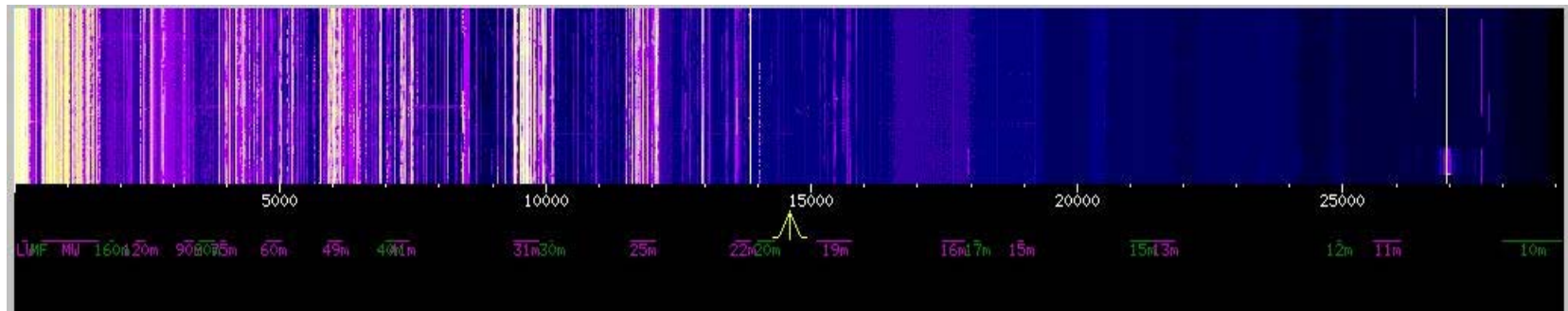


# RTLSDR: Plug and Play \$20 USB Receivers

- “Realtek Logic SDR”
  - Runs using the RT2832U Chip
- Originally DVB-T TV Broadcast dongles
- Hardware can be “coaxed” into sending IQ Data to host application
- Common Tuners cover 64 – 1700 MHz
  - Some with gaps, some with extended SHF
  - 100MHz Upconverters makes HF possible
- Software
  - [SDR#](#)
  - [HDSDR](#)
  - [SDR-Radio](#)
  - [GQRX](#) ([OSX Port](#))
  - [Gnu Radio](#) (Linux)

# WebSDR

- Java-enabled SDR connected to the internet
- Allows several users to tune AM/FM/SSB/CW signals independently



# Other SDRs

- FlexRadio
  - Fully Featured HF Transceivers
- USRP
- WiNRADiO Excalibur
- Perseus
- SoftRock
  - Small, inexpensive, kit type single band receivers and transmitters

# Links

- <http://www.websdr.org/>
- [http://en.wikipedia.org/wiki/Software-defined\\_radio](http://en.wikipedia.org/wiki/Software-defined_radio)
- <http://www.reddit.com/r/rtlsdr>
- <http://www.fourier-series.com/IQMod/flashprograms/IQMod.html>
- Best Source of RTLSDRs: [eBay](#)



**Demonstration!**