BASICS OF SO2R OPERATION

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DFW Contest Group
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SO2R:
Single Operator 2 Radio

- Listen On Two Frequencies Simultaneously
- Rapidly Select Either Frequency As Transmit Frequency
- Ability To Listen On One Frequency While Transmitting On The Other

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WHAT IS SO2R GOOD FOR?

MORE QSOs = Higher Score!

- Maximize Rate With Simultaneous Run And S&P
- Two-band S&P When Run Is Non-productive
- Check Conditions On Another Band
- Multiplier Spotting
- Moving Mults From Band To Band
- Maximizes Potential For Small Station With Limited Antennas

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WHEN SHOULD I CONSIDER SO2R?

- Run and S&P Rate Capability Has Maxed Out
- Contests With Limited Rate Potential (e.g., SS)
- Additional Equipment Is Available

WHAT EQUIPMENT IS NEEDED?

- Two Radios (doh!)
- At Least Two Antennas
- Antenna Switching
- Switching Control For Key, Mic, PTT
- Headphone Audio Switching

GETTING STARTED

- Start Simple
- Low Power, At Least On Second Radio
- Modest Antenna For Second Radio
- Simple Antenna Switching
- Manual Control Switching
- Manual Headphone Audio Switching

GETTING USED TO SO2R

- You **WILL** Have Trouble At First
- Your Rates **WILL** Be Low
- You **WILL** Want To Quit — ***DON'T!***
- Practice, Practice, Practice!
- Listen To Two Radio Audio Outside Of Contests
- Practice In Low-Intensity Contests (e.g., QSO Parties, etc.)

STATION OPTIMIZATION FOR SO2R

- Multiple Antennas Available
- Flexible Antenna Switching
- Flexible Audio Switching
- More Automation Is Better
- Compatible Logging Software
- Identical Or Similar Radios
- Ergonomic Station Layout
- High Quality Comfortable Headphones

ANTENNAS & SWITCHING

- Multiple Antennas Available To Each Radio
  - Monoband Antennas Best But Not Mandatory
  - Antennas Arranged For Minimum Coupling
- Flexible Antenna Switching *With Good Isolation*
  - Automatic Lockout Antenna Switches (SixPak, etc.)
  - Clear Indication Of Antenna Selections

FLEXIBLE AUDIO SWITCHING

- Stereo Audio
  - One Radio In Each Ear
  - Quick Switching Between Mono & Stereo
- Multiple Audio Modes
  - Left + Right (Default)
  - Mono For Active Radio
  - Mono For Non-Transmitting Radio

MAXIMIZE AUTOMATION

- Automatic Antenna Switching
  - Programmable Antenna Selection
  - Same Band **Hardware** Lockout & Transmitter Inhibit
- SO2R Control & Audio Switching Unit
  - Top Ten Devices DX Doubler
  - microHAM micro2R Or MK2R/MK2R+
  - YCCC SO2R Box
  - Ham Radio Solutions EZMaster
  - Homebrew

COMPATIBLE LOGGING SOFTWARE

- Windows® Software
  - WriteLog
  - N1MM Logger / N1MM Logger Plus
  - Win-Test
  - TR4W (UA4WLI)
  - Others?
- DOS Software
  - CT / CTWin
  - NA (K8CC)
  - TR LOG (N6TR)
- Mac & Linux Software??

POTENTIAL SO2R PROBLEMS

- Mutual Interference
  - Excessive RF From Antenna Coupling
  - Transmitter Phase Noise
  - Harmonics
  - Poorly Shielded Cables / Common Mode RF
  - QRO Is MUCH More Difficult
- Additional Hardware Complexity Reduces Reliability & Increases Maintenance

SO2R STATION ERGONOMICS

- Use Identical Or Similar Radios If Possible
  - Similar Control Layouts & Displays
  - Both Radios Tune In Same Direction
- Left Radio Audio In Left Ear, Right Audio In Right
- Logging Software Windows On Same Side As Radios
- Dedicated Antenna / Rotator Controls Located Near Associated Radio
- Keep Your Hands On the Keyboard
- Use High Quality Comfortable Headphones

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EXAMPLE STATION LAYOUT

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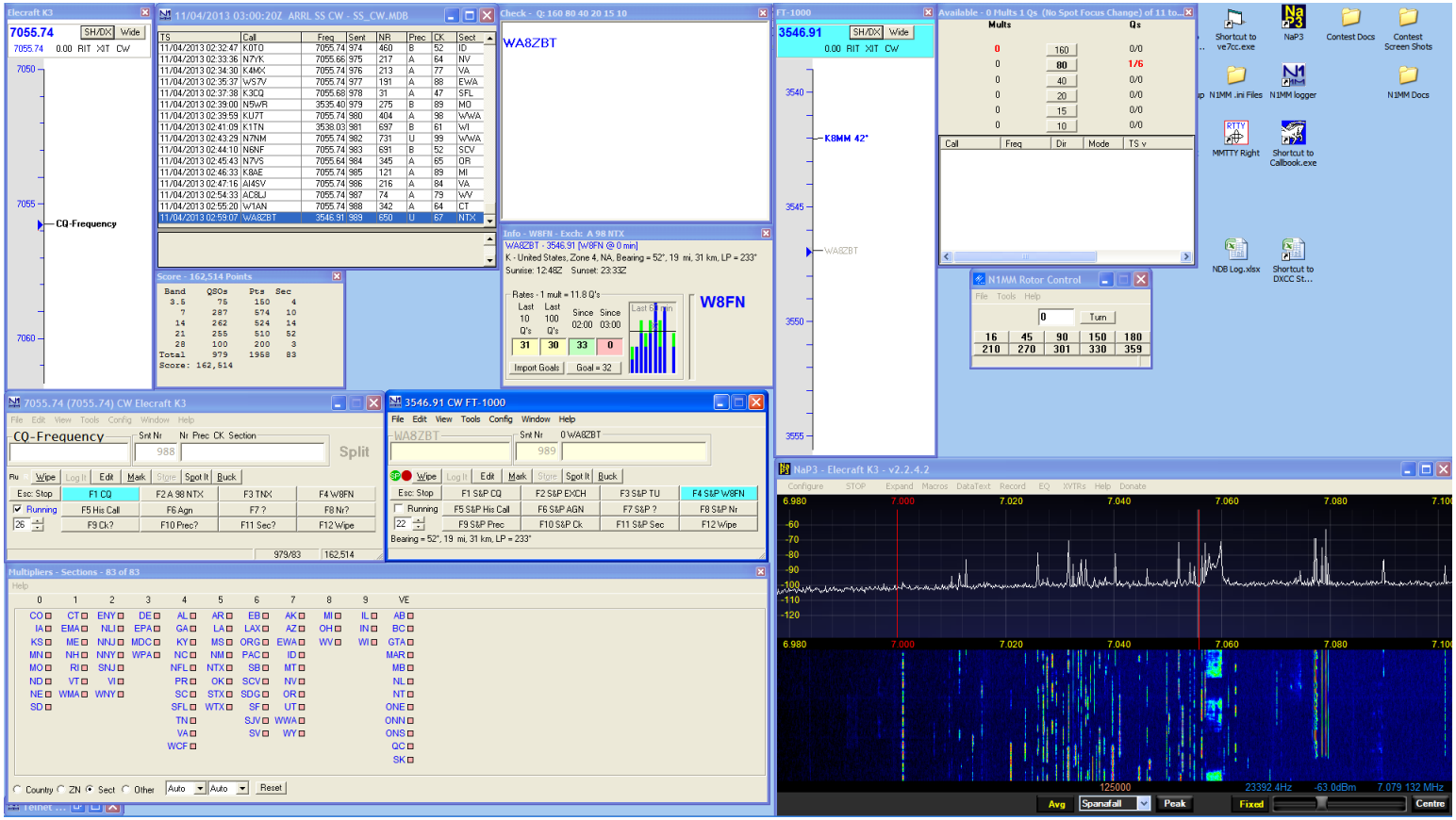
N1MM LOGGER SO2R LAYOUT



PRINCIPLES OF SUCCESSFUL SO2R

- Start With Modest Hardware
- Design The Station Carefully
- Be Prepared For The Learning Curve
- Increase Station Complexity And Capability As Operator Skill Grows
- ***Practice***, ***Practice***, ***Practice***!

RESOURCES

- K5ZD Videos:
  - Part 1: http://www.youtube.com/watch?v=kHCveAeju_A
  - Part 2: http://www.youtube.com/watch?v=eij1bs8Mg0E
  - Part 3: http://www.youtube.com/watch?v=3YJZ4-StwRs
- http://www.k8nd.com/Radio/SO2R/K8ND_SO2R.htm
- http://www.qsl.net/ct1boh/so2r.htm
- www.pvrc.org/Powerpoint/SO2R_v4.ppt
- http://zs6aa.files.wordpress.com/2008/02/a-simple-so2r-contest-station.pdf

MANY MORE: GOOGLE IS YOUR FRIEND!

QUESTIONS?