VARC Short Technical Session Programming Radios using Software

Why program radios with software?

- Small radios have fewer buttons requiring multi-level uses for each button, making programming slow and tedious. Manual programming may be okay for a few channels.
- Newer radios have over a hundred and some may have thousands of memories
- Easier to organize and reorganize memory contents and copy programming from one radio to another.
- Allows for quick changes between channels for daily local use, and channels wanted when travelling to your favorite or most often visited away location.
- Some commercial radios can only be setup by programming.

Programming a radio requires software and cable appropriate for the radio.

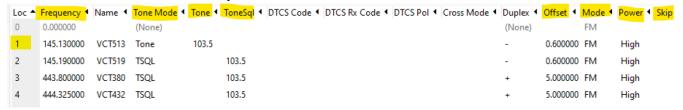
- Sometimes radio manufacturer will sale software and cable. Check with vendor.
 - o Most Digital Radios require software from the manufacturer or vendor
 - o Some Digital Radios software is even firmware dependent! Beware!
- RTS Systems https://www.rtsystemsinc.com/
 - Analog radios only
 - Can run on Windows or Mac
 - Packages usually manufacturer and model specific
 - Offers programming cables too
 - NOTE: Some cables look the same but are not wired the same! Make sure you mark your cables for its specific radio.
 - o Typical Costs: \$25 for software, \$30 for cable or \$50 for both
- CHIRP https://chirp.danplanet.com/projects/chirp/wiki/Home
 - Analog radios onlyCan run on Windows, Mac or Linux
 - One software supports most manufacturers and models
 - This makes it easy to program your handheld and mobile radio with same channel numbers and settings
 - But requires more frequent updates as more radios are added to its compatibility list and fixes are made to support all these radios
 - Does NOT sell programming cables (Try eBay or RTS Systems)
 - Costs: CHIRP software is free! (But donations are accepted!)

Create a organizational strategy for Programming the radio's memories

- Create a List of Frequencies and associated information
- Typical data points that are programmed in each memory channel
 - Channel number
 - Some radios start with memory channel zero while others start with one
 - Consider always starting with memory one even if your radio has memory channel zero. This allows you to program all of your radios same way creating the same touch and feel in operation.

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- Receive frequency
- o Transmit frequency (or may be represented by Offset from Receive frequency)
- Tone Type (None, TONE, T.Sql)
- Decode Tone frequency, if applicable
- o Encode Tone frequency, if applicable
- Transmit Power (Low, Med, Hi, Turbo)
- Skip this channel during Memory Scanning
- Put this information in a spreadsheet



- Determine Listing or Sort criteria that works best for you
 - Use list that has been published by club or regional group
 - Sort by frequencies
 - Sort by channels' abbreviated name
 - Sort by county and frequency
 - Sort by distance from home (somewhat manual)

CHIRP Programming Overview

- Make sure radio has power available or battery is sufficiently charged
- Start CHIRP and connect programming cable to USB port
- Click "Radio" then "Download from radio", and follow the onscreen instructions
- OPTIONALLY: Save the current download to the PC for reference
- Add, Copy, Change and/or delete channel information
- Click "Radio" then "Upload to radio", and follow the onscreen instructions
- Disconnect cable from the radio and test
- Repeat this process until satisfied with configuration

Other tips when programming

- When you first connect and download the radio's memories to the software, save a backup (image) of the original settings before any changes are made. Keep for future reference in case something goes seriously wrong.
- Use a naming convention which includes Radio model, call sign, and date of changes.
- Place non-ham frequencies, such as NOAA weather frequencies at the high end of the memory channels.
- Remember to upload the programmed channels back to your radio
 - o EXCEPTION: "Live Mode" which update continuously as changes are made
 - ALSO: You may optionally want to do a Save As in CSV format.