1. Overview
    a. Using CHIRP is a two-step process. The first step is in gathering a list of frequencies you want to use for your radio.
    b. Next, you need to get an image for your radio. An image contains the set of frequencies on the radio, plus the radio's settings.
    c. With the image created you can now copy in the frequencies you want.
    d. NOTE: You could create the image and copy the frequencies directly into it. But that means reimporting, modifying, and arranging the same frequencies over and over. Creating a common pool of frequencies in a CSV makes it easy to copy them into new radios.
2. Getting CHIRP.
    a. Go to the download site https://chirp.danplanet.com/projects/chirp/wiki/Home.
    b. Go to the downloads page.
    c. Download the Windows Installer.
    d. Just follow the installer steps, very simple.
3. Create a new CSV file. File, New
4. Import frequencies.
    a. Repeater Book is best source, so in the menu pick *Radio*, then *Import from Data Source*, then *Repeater Book*.
        i. Political Query is a town, Proximity is a distance around a focal point such as a town.
        ii. Use *Proximity*, enter location, distance and pick a band, in this example the 2 meter band. Click OK
        iii. Show the list, how you can check which things you want and don't.
        iv. Click OK to import.
        v. Next, we'll add more frequencies.
        vi. As before on the menu pick *Radio, Repeater Book, Proximity*.
        vii. Change to 440.
        viii. At the bottom, use Adjust New Location and adjust to the first open slot so it won't overwrite your existing memories.
        ix. Unfortunately, you have to filter (remove entries your radio doesn't support) after the import. Even worse CHRIP has a bug that makes removing these harder than it should be. The next few steps are the work around.
            1. Start with the mode by clicking on the Mode column header to sort by Mode.
            2. Click on the first line with DV or DIG, hold the shift and go down to get all the lines with DV.
            3. Right click, in the menu go down to delete. When it pops out, pick *…delete these memories*.
            4. Now sort by Loc (location).
            5. Make sure to click on "Show Empty" at the top.

6. Go to the bottom and start highlighting rows. Then use the control key plus arrow to shift them up into the empty slots. Then expand the selection until you get to the next empty slot, and shift those up.

x. Once done you can then order your memories.
   1. Click again on Show Empty to hide empty frequencies.
   2. Sort by the Name.
   3. Find W4SHL and click on it, note it's position.
   4. Click on Loc to sort by memory location.
   5. Find W4SHL again.
   6. Hold down the control key and use the arrow keys to move the frequency into the position you want.
   7. Repeat as needed.

b. Importing other frequencies from the Stock area.
   i. Scroll down to the bottom so you can see the last used memory. Note it, as we will want to adjust these imports to start at the next location.
   ii. Import calling frequencies. Uncheck 6m and 220 calling.
   iii. NOAA
   iv. FRS/GMRS

c. Import non-ham frequencies
   i. Radio, Import, RadioReference. Note you must have a paid account!
   ii. Show these are non ham. Add 100 and click OK.
   iii. Remind folks you can't transmit, and some hand helds won't be able to hear. Some will though, and could be used to monitor them.

d. RFinder
   i. Import from RfFinder. Just needs a login, otherwise is the same
   ii. Currently RFinder lacks our Tone designator, have asked that to be fixed.

e. DMR-MARC Repeaters – Doesn't work

5. Now you have a library of frequencies. Next step is to get an image from your radio, then copy your library into it.
6. Installing the right USB Cable Drivers
   a. Most of the Chinese hand helds use the same type of cable using drivers from Prolific. In my testing both Baofeng and Wouxun used the same drivers with their cable. Other manufacturers may vary.
   b. Note you only have to follow these instructions once.
   c. DO NOT PLUG YOUR USB CABLE IN! Windows will install an incompatible driver.
   d. Go to: http://www.miklor.com/COM/UV_Drivers.php
   e. Scroll down to the Prolific Drivers, and download 3.2.0.0 exe. Run the installer.
   f. Note the COM port it installed on, you will need to know it later.
   g. If you are unsure of your com port, or have forgotten:
      i. Open up the Windows Device Manager. (On Win 10, just enter Device Manager in the search bar, in other versions it is in the Control Panel).
      ii. Scroll down and expand the Ports (COM & LPT) branch.
      iii. Beside the *Prolific USB-to-Serial Comm Port* entry will be the port number, such as COM5.

h. NOTE: At some point Windows may decide to "update" your Prolific driver to the latest version. If all of a sudden you have problems connecting to your radio, go through the following steps:
    i. Open Device Manger (per steps above).
    ii. Expand the Ports (COM & LPT) branch.
    iii. Right click on the Prolific USB-to-Serial Comm Port entry, and pick *Properties*.
    iv. Click on the Driver tab.
    v. If the Driver Version is a higher number than 3.2.0.0, you've found the issue. Windows "helpfully" updated your driver. To fix:
        1. On the Driver tab, click on Uninstall Device. Follow the steps in the Wizard.
        2. If you need to, redownload the drivers from the site listed above.
        3. Reinstall the 3.2.0.0 driver.

7. Baofeng UV-5R
    a. Plug in the cable and turn on the radio.
    b. In CHIRP, click on *Radio, Download From Radio* menu.
    c. Select the COM port and the radio type. (In this example Baofeng, UV-5R.
    d. Assuming the download works, this will create a new tab with a file that ends in img.
    e. Copy the rows from your CSV file into the IMG file. Highlight all the rows you want and press CTRL+C to copy, then click on the first row of the IMG file, and press CTRL+V to paste.
    f. To upload to the radio, just go to *Radio, Upload To Radio* on the menu.
    g. Select the Com port, and radio, and away you go.
8. Wouxun KG-UVD1P
    a. Plug in the cable and turn on the radio.
    b. In CHIRP, click on *Radio, Download From Radio* menu.
    c. Select the COM port and the radio type. (In this example Woxun KG-UVD1P.
    d. Assuming the download works, this will create a new tab with a file that ends in img.
    e. Copy the rows from your CSV file into the IMG file. Highlight all the rows you want and press CTRL+C to copy, then click on the first row of the IMG file, and press CTRL+V to paste.
    f. To upload to the radio, just go to *Radio, Upload To Radio* on the menu.
    g. Select the Com port, and radio, and away you go.
9. Advanced CHIRP
    a. Once you have the memories programmed, you can also update features of the radio.
    b. With the IMG file open for your radio, on the very left is a *Settings* tab. Click it.
    c. On this tab you can easily update many settings for your radio. Be careful! You can often screw up your radio if you don't understand what a setting does.
10. Other Resources
    a. Below are some helpful sites and resources that can help you with CHIRP.
    b. CHIRP download site https://chirp.danplanet.com/projects/chirp/wiki/Home.
    c. Prolific Drivers: http://www.miklor.com/COM/UV_Drivers.php

d. Install Baofeng USB programming cable / software: https://www.buytwowayradios.com/blog/2013/11/how_to_install_the_baofeng_usb_programming_cable_and_software_1.aspx
e. CHIRP Programming Guide from I Will Prepare: http://www.iwillprepare.com/files/pdf/baofeng_%20uv5r_chirp_programming_guide.pdf
f. CHIRP programming guide by KG7IGS: http://www.k7csw.org/documents/resources/CHIRP/CHIRP%20Ham%20Radio%20Programming%20Software.pdf?boxtype=pdf&g=false&s=false&s2=false&r=wide