Quick Reference Guide:

- Download sfit4 zip file from website
  - Unzip and make - we us gfortran on linux - if you have this it should make right away
  - Note raytracing is included (no more fastcode - at least called indepentently)

- makes: sfit4*, hbin*, convert_binput_394*

- 3.991.linelist
  - cfgl's are gone
  - This is a directory tree with all the line list files now before a run you run hbin* to build the binary hitran file

- pltfits.pro idl to make a plot of the fits

- x.* are test cases

- Files needed to run sfit4:
  - **sfit4.ctl**
    - More or less familiar binput - looks different and getting more different all the time but does the same things
  - **station.layers**
    - Output with the waccm model output - defines the layering for the raytracing
  - **nnnnn.mmmmm-xxxxx.yyyyy.hbin**
    - Binary HITRAN with lines specific to this run
  - **t15asc.4**
    - ASCII spectrum but with more info in the header
    - Does not have to be this particular name; however, control file must point to proper ascii file
  - **reference.prf**
    - Reference profiles (basically refmod but goes to 120km) zpt are in hydrostatic equlibrium as they always were, otherwise is mostly waccm output for a site. Now to 99 molecules. Lowest level is approx. your station height.
  - **isotope.input**
    - If needed - note its different than before (eg sfit2 v3.94) and deceptively so...
  - **prepspec.input**
    - For a new spectrum (t15asc.4) creation program
  - **temp.bnr.00**
    - Binary spectrum (maybe its there) not read directly by sfit4 but read by prepspec
  - **hbin.input**
    - Points to the linelist directory/files

General Steps for running SFIT4 test cases

1. Save the test case (x.*)

2. Remove all files from a test case except those above

3. Edit hbin.input to point to the linelist directory (see entry in file)

4. Run hbin in dir with hbin.input
   4.1. Creates *.hbin & *.hasc files

5. hbin is read by sfit4

6. hasc is identical data but human readable - for sanity checks - very handy! Will be discontinued someday

7. Edit sfit4.ctl
   7.1. Make sure ctl file properly points to solar line data file (a copy is in linelist directory)
8. Also should point to hbin file in local dir, name should be same

9. Run sfit4

10. Plot output