You should only have to go through all these steps once -- after that, you only have to do step 3 with each new version of FORWARD and steps 9-11 if the fortran codes in $FORWARD/FORCOMP change (rare) .

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1. make sure you have SolarSoft IDL (SSWIDL) installed (www.lmsal.com/solarsoft/ssw\_install\_howto.html)
2. make sure you have all the necessary packages

*IDL > ssw\_upgrade,/spawn,/binaries,/chianti,/eis,/xrt,/eit,/trace,/secchi,/aia,/mdi,/pfss,/nrl,/cds,/swap,/lasco,/loud,/passive\_ftp*

N.B. If this doesn’t work check to see if you have Perl installed

1. get latest version of FORWARD [*people.hao.ucar.edu/sgibson/FORWARD/TARS*], delete (or make sure not in your path) old versions, and expand new tars (for FORWARD, FORWARD\_DOCS, and FORWARD\_DB). (N.B.: this step must be redone if any of the tar files have a date stamp later than the last one your downloaded)
2. create a working directory FORWARD\_WORKING\_DIR
3. make sure you have the packages pointed to in your .cshrc

*setemv SSW\_INSTR “binaries chianti eis xrt eit trace secchi aia mdi pfss nrl cds swap lasco”*

1. make sure you have $FORWARD, $FORWARD\_DB, $FORWARD\_DOCS, and $FORWARD\_WORKING\_DIR and IDL\_PATH are all set in your .cshrc

*setenv FORWARD ~myusername/whereveritis/FORWARD/*

***(editing to make the correct path pointing to the FORWARD\* directories)***

*setenv FORWARD\_DOCS ~myusername/whereveritis/FORWARD\_DOCS/*

*setenv FORWARD\_DB ~myusername/whereveritis/FORWARD\_DB/*

*setenv FORWARD\_WORKING\_DIR ~myusername/whereveritis/FORWARD\_WORKING\_DIR/*

*setenv IDL\_PATH +${IDL\_DIR}/lib:\+$FORWARD/:\+$FORWARD\_DOCS/:\+$FORWARD\_DB/:\+$FORWARD\_WORKING\_DIR/*

N.B. This assumes you are running e.g. TCSH not BASH – on a Mac this can be changed in Terminal Preferences Settings Shell Run Command and type tcsh.

1. If you don't have <b>IDL\_DIR set</b> (check by typing printenv IDL\_DIR) you can set in your .cshrc by

*setenv IDL\_DIR directory\_where\_idl\_lives*

1. make sure you have Fortran compiler installed. GFORTRAN is recommended (https://gcc.gnu.org/wiki/GFortranBinaries ).
2. if using g77, then edit the makefile in FORWARD/FORCOMP by changing all the "gfortran" into "g77" (there should be two places, after FC and after LINK). (N.B.: this step must be redone if forcomp.f or any other \*.f codes change in $FORWARD/FORCOMP directory)
3. go to directory $FORWARD/FORCOMP and in a terminal window compile the "forcomp" FORTRAN routine with the following command: "make forcomp". (it also might work to just type: “make”). (N.B.: this step must be redone if forcomp.f or any other \*.f codes change in $FORWARD/FORCOMP directory)
4. copy the executable forcomp to your FORWARD\_WORKING\_DIR (N.B.: this step must be redone if forcomp.f or any other \*.f codes change in $FORWARD/FORCOMP directory).
5. run the tests below outside of FORWARD (just in a SSWIDL session)
6. run FORWARD in a SSWIDL session by typing
7. IDL> for\_widget,

;\*\*\*\*\*\*\*

**TESTS** (can be run in SSWIDL session, even when FORWARD not started):

If any of these fail, be sure you have all the packages set up as described above.

IDL> aia\_lct,wave=193

(this should set AIA color table, you should not get an error.)

IDL> test=get\_stereo\_lonlat('2010-01-01','A') (this should return spacecraft position)

IDL> use\_network

(this should not give an error - if it does, try ssw\_upgrade,/spawn,/loud,/passive\_ftp

IDL> test=vso\_search('2012-01-01T00:00:00','2012-01-01T00:10:00',instr='aia')

(this should not give an error but acts to query the VSO for data and return information)

IDL> filelocatenew=vso\_get(test[0],filenames=filenames,/rice)

this should download a file with the name of the file now in filenames)

IDL> read\_sdo,filenames,header,image

IDL> help,header,image

-you should get something like:

|  |  |  |
| --- | --- | --- |
| HEADER | STRUCT | = -> Array[1] |
| IMAGE | INT | = Array[4096, 4096] |