

Hydra Configuration files

The basic steps are:

1. create a formatted astrometry file- a list of possible targets, guide stars and skies, with coordinates in the same coordinate system as each other, and in priority order (.ast files). The format is described in detail in the *whydra* manual.
2. run *whydra* which will make the fiber assignments and output a hydra config file .hydra
3. run *hydrasim* to view and check and improve your target assignments- basically, did you get all your targets you need on a fiber? do you have enough FOPS , skies etc? You can rerun *whydra* as needed, varying input parameters like rotation and centering of the field to improve your assignments.
4. take any edited final .hydra file and submit for use at the telescope.

The link to download *the hydrasim* and *whydra* software is here:

http://www.wiyn.org/Instruments/wiynhydrasim_virtualmachine.html

(Make sure to update the concentricities file to the most current version).

Details on creating the astrometry file and a description of the whydra program are in:

<ftp://ftp.tuc.noao.edu/kpno/hydra/hydraassign.ps>

or

<http://www.wiyn.org/Instruments/hydraassign.pdf>

The hydra manual itself is at:

<ftp://ftp.noao.edu/kpno/hydra/hydrawiynmanual.pdf>

The above documents have most of the details of the process.

Some points to remember about the .ast files:

- 1) Make sure that your FOPS and target coordinate systems are close enough to enable successful acquisition/alignment of your field, and that the FOPS stars do not have high proper motions.
- 2) Be careful that you have enough FOPS stars within a few mags of each other.

3) Do not use the "E" (lower priority) designation in your .ast files- list your targets in priority order using weighting "STRONG" - a bug has been reported indicating that fibers are assigned to the incorrect coordinates for "E" targets.

Using Hydrasim to edit Hydra config files

Before setting up your field in *hydrasim*, "exec parkall" in the Hydra Simulator CLI. You can then "setup field" using your candidate .hydra file. The possible skies from your .ast file will be shown as blue circles, the possible targets will be shown as green plusses, and the candidate FOPS stars as green Xs. You can edit the placement of fibers manually in the *hydrasim* program by using the command "move (fiber number) x y", where you can measure the destination x,y with the cursor. The software will tell you if a move is allowable or not. To add random skies for example, you could try positions radially outwards of a fiber position. You can also query and edit target or FOPS fiber assignments, and can use the "assign" command or button. You can save the new hydra config file using the "save" command.