PHD2 Guiding

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3/16/2018

updated Oct 3, 2018 by P Gabor & C Johnson

All of the required software is currently installed on the `vattcontrol` server; login as vattobs.

The legacy *VATT Guider App* only controls the stepper motors in the guide box.* Guiding is done with *PHD2* !

(*) When using VATT4k and GUFI, these motors move the two filter wheels for the science camera, the guider camera's filter wheel, the guider camera's 3-axis translation stage, and the stage carrying the center mirror and the U mirror.

- **Start indiserver**:
  - click the indiserver icon on the desktop
  - (a terminal window should appear)
- **Start phd2 guiding:**
  - click the PHD2 icon on the desktop
  - (the PHD2 application should appear)
- **Configure phd2:**
  1. in the `Main tool bar`, click icon that looks like a usb male connector
     - (`connect equipment` window should appear)
  2. in `connect equipment` window verify the following settings:
     - equipment profile “vatt imagers” or “vatt spec” depending on your instrument (the imagers are 4k CCD and GUFI),
  3. in `connect equipment` window, in the camera row, click on the icon that looks like a screwdriver and wrench in an “X”
     - (`INDI Configuration` window should appear)
  4. in `INDI Configuration` window click the `INDI` button near the bottom of the window
     - (`INDI options` window should appear)
  5. select the `Apogee CCD` tab
  6. verify the following settings:
     - in the network section:
       - offset guider (used with imagers) ip:port : 10.0.3.14:2571; slit plate guider (used with VATTspec): 10.0.3.12:2571

7. click the `connect` button in the `Connection` field
    - (after a few seconds, a bunch of new fields and tabs should appear)
    - (The message "[ERROR] Model is not supported by the INDI Apogee driver" may mean that the camera is not powered up.)
8. near the bottom of the window, turn on the cooler
9. IF YOU ARE GOING TO BE AUTOGUIDING:
    - click on the "VATT-GUIDE-INDI" TAB
    - click "Connect"
    - (a UT clock should appear and begin incrementing.)
10. exit the `INDI options` window
11. click OK in the `INDI Configuration` window
12. click `Connect` in the `Connect Equipment` window, in the camera section
    - (the button should now say `Disconnect`)
13. IF YOU ARE GOING TO BE AUTOGUIDING:
    - click `Connect` in the `Connect Equipment` window, in the mount section
        - (the button should now say `Disconnect`)
14. click `Close` in the `Connect Equipment` window
15. (OPTIONAL) Set up automatic frame capture:
    - Select the `Global` tab,
    - check `Enable diagnostic image logging`, then
    - in the group `Save Guider Images` check `Until this count is reached`, and
    - set the value (100 is the maximum).
    - the files are stored on the `vattcontrol` server
    - The Dark Library is located in the directory `/home/vattobs/.phd2/`.
    - The directory `/home/vattobs/PHD2/PHD2_CameraFrames…` is automatically created for the session.
    - If you need to capture more than 100 images, make a renamed copy of the session directory; new *fits* files should start populating the original sesson directory.

- **Move U-Mirror**
    1. Use the Secondary App to move the Guide Camera stage so that it is on the U-Mirror.
- **Start Imaging:**
    1. in the bottom left of the PHD2 window there is a button with 2 arrows forming a circle. Click that button.
    2. the button should gray out, the stop sign button should turn red, and images should start appearing
- **Start Guiding:**
    1. change the exposure time setting and contrast slider to find an appropriate guide star.
    2. Click on the guide star
    3. click on the circular icon i the tool bar that looks like a target

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Offset Guider Stage
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Note: All numbers are GUI units. The travel limits are accurate but the diagram is only an approximation.