PHD2 Guiding

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updated Oct 3, 2018 by P Gabor & C Johnson

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

(*) 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),
     - camera type “INDI Camera”,
     - mount type “INDI Mount”,
     - aux type “None”
  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 verify the following settings:
     - Hostname: localhost
     - port: 7600
     - driver: Apogee CCD

        - Dual CCD: Main
    5. click the INDI button near the bottom of the window
        - (INDI options window should appear)
    6. select the Apogee CCD tab
    7. verify the following settings:
        - in the port section network is selected
        - in the network section:
            - subnet: 10.0.255.255
            - **Note the 4K guider is being repaired currently. We are using the VATTspec guider for all guiding. In practice this means the ip:port will be 10.0.3.12:2571**
            - ~~offset guider (used with imagers) ip:port : 10.0.3.14:2571; slit plate guider (used with VATTspec): 10.0.3.12:2571~~

1. 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.)
2. near the bottom of the window, turn on the cooler
3. IF YOU ARE GOING TO BE AUTOGUIDING:
    - click on the "INDI-VATT-GUIDE" TAB
    - click "Connect"
    - (a UT clock should appear and begin incrementing.)
4. exit the INDI options window
5. click OK in the INDI Configuration window
6. click Connect in the Connect Equipment window, in the camera section
    - (the button should now say Disconnect)
7. IF YOU ARE GOING TO BE AUTOGUIDING:
    - in INDI Configuration window verify the following settings:
        - Hostname: localhost
        - port: 7600
        - driver: VATT-GUIDE-INDI
        - Port: [empty]
    - exit the INDI Configuration window
    - click Connect in the Connect Equipment window, in the mount section
    - (the button should now say Disconnect)
8. click Close in the Connect Equipment window
9. In the Main tool bar (it may be positioned anywhere in the window),
    - click the Advanced setup (brain icon) button (second from the right); a new window should appear.
10. Set binning to the allowed maximum of 8×8:
    - Select the Camera tab,
    - in the group Camera-specific properties, set binning to 8 (pull down selector).
    - [Note. Ostensibly, binning can be set via INDI options as NxM where N and M may take any value you wish. This feature does not work. Binning can really be set only via "brain" button.]
11. IF YOU WILL NOT BE AUTOGUIDING: Disable mount guide output:
    - Select the Guiding tab,
    - in the group Shared parameters disable *mount guide output* (uncheck the box); Guide output DISABLED should appear in the lower left of the main window. This should prevent PHD2 accidentally interfering, e.g., with the PEPSI guider.

12. 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.

- 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.