PHD2 Guiding

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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.

- At startup
    1. start indiserver and correct drivers
        - click the indiserver icon on the desktop
        - (a terminal window should appear)
    2. start phd2 guiding
        - click the PHD2 icon on the desktop
        - (the PHD2 application should appear)
    3. configure phd2
        1. in the `Main tool bar`, click icon that looks like usb male connector
            - (`connect equipment` window should appear)
        2. in `connect equipment` window:
            - select camera type "INDI Camera",
            - select mount type "INDI Mount",
            - select 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 check 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. check following settings:
   - in the port section click the network button
   - in the network section:
   - subnet: 10.0.255.255
   - ip:port : 10.0.3.14:2571
8. click the connect button in the Connection field
   - (after a few seconds, a bunch of new fields and tabs should appear.)
9. near the bottom of the window, turn on the cooler
10. IF YOU ARE GOING TO BE AUTOGUIDING:
    - click on the "INDI-VATT-GUIDE" TAB
    - click "Connect"
    - (a UT clock should appear and begin incrementing.)
11. exit the INDI options window
12. click OK in the INDI Configuration window
13. click Connect in the Connect Equipment window, in the camera section
14. the button should now say Disconnect
15. click Close in the Connect Equipment window
16. 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.
17. 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 the "brain" button.]
18. 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.
19. 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 *vattdev* server!**
    - The Dark Library is located in the directory /home/vattobs/.phd2/.
    - The directory /home/vattobs/PHD2/PHD2_CameraFrames… is automatically created for the whole 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 session directory.

4. 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

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