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.

- 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.)
8. near the bottom of the window, turn on the cooler
9. IF YOU ARE GOING TO BE AUTOGUIDING:
    - click on the “INDI-VATT-GUIDE” 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. 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.
16. 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.]
17. 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.
18. 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

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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.