Telescope Checklists
For Astrophotography

- Software Setup (Once per Computer, asuming Fedora Linux)
  - ☐ Add user to dialout group: *sudo usermod -a -G dialout user*
  - ☐ Download QHY drivers: https://www.qhyccd.com/html/prepub/log_en.html#!log_en.md
  - ☐ Extract and install QHY Drivers:
    tar -zxvf sdk_linux64_20.08.26.tgz
    cd sdk_linux64_20.08.26
    chmod +x install.sh
    sudo ./install.sh
  - ☐ Enable INDI COPR:
    sudo dnf copr enable xsnrg/indi-3rdparty-bleeding
  - ☐ Install indi-qhy sudo dnf install indi-qhy
  - ☐ Update Packages sudo dnf update -y
  - ☐ Connect Equipment
    - ☐ Guide Camera
    - ☐ Imaging Camera
    - ☐ Mount
  - ☐ Verify all items connected lsusb
  - ☐ Open Kstars
  - ☐ Set Home Location
  - ☐ Download Extra Data
  - ☐ Launch Ekos
  - ☐ New Profile
    - ☐ Unique Name
    - ☐ Select PHD2 Guiding
    - ☐ EQMOD Mount
    - ☐ QHY Camera
    - ☐ ASI2600mm pro camera
    - ☐ Aux Astrometry
    - ☐ 10” f/8 Truss Tube Ritchey-Chretien Astrograph 2000mm
    - ☐ 60mm Guidescope 240 mm
  - ☐ Start INDI
  - ☐ Set EQMOD Mount Baud Rate to 115200
  - ☐ Set Port to ttyUSB0 (ls /dev || grep USB)
  - ☐ Set Camera Pixel Info

- Columnation
  - ☐ Remove all Extension Rings
  - ☐ Attach Focuser to optical tube
  - ☐ Remove Dust covers
  - ☐ Point telescope at a light-colored surface, oriented horizontally.
  - ☐ Insert Cheshire eyepiece.
  - ☐ aim bright light into 45 degree surface.
  - ☐ Adjust Secondary Mirror to align central dot.
  - ☐ Adjust Primary to create uniform white ring around edge.
    - ☐ Release Small Lock Screw
    - ☐ Use Large Screw to collumate.
    - ☐ Tighten Lock Screw
- Physical Setup
  - ☐ Tripod
  - ☐ Mount
    - ☐ Roughly pointed North.
    - ☐ Leveled
  - ☐ Counterweights and endcap
  - ☐ Optical Tube on Dovetail
  - ☐ Powerbox
  - ☐ Connect power to Optical Tube Fan
  - ☐ Finderscope
  - ☐ Guide Scope
    - ☐ Guidescope Camera
  - ☐ Optical Train
    - ☐ Extender Rings (optional)
    - ☐ Filter Wheel (optional)
    - ☐ ZWO ASI Imaging Camera
  - ☐ Chairs
  - ☐ Computer
  - ☐ Cables
    - ☐ USB Cable from Guidescope Camera to Imaging Camera
    - ☐ USB Cable from Imaging Camera to Computer
    - ☐ USB Cable from Mount to Computer
    - ☐ Power to Mount

- ☐ Disconnect Power to Fans
- ☐ Power to Imaging Camera

☐ Balance

- ☐ Balance Declination Axis (Slide tube on Dovetail)
- ☐ Balance Right Ascention Axis (Slide Counterweights)

☐ Aim Telescope toward Polaris

☐ Engage Clutch (light)

- Rough Polar Alignment
  - ☐ Mount Power on.
  - ☐ Disengage clutches and turn 90 degrees in DEC.
  - ☐ Turn RA so that polar scope is oriented vertically.
  - ☐ Rough Polar Align through Polar Scope
  - ☐ Return RA and DEC to Home position (toward Polaris).
- Precise Polar Align
  - ☐ Launch Kstars
  - ☐ launch Ekos
  - ☐ Mount Tracking: RA
  - ☐ Launch PHD2
  - ☐ Loop - Adjust Focus of Guidescope
  - ☐ PHD2 Polar Drift Align
- First Plate Solve
  - ☐ Batinov Mask on
  - ☐ Test Exposure and Focus
  - ☐ Batinov mask off
  - ☐ Slew to Bright Star
  - ☐ Plate Solve
- Kstars order to target
- Second Plate Solve
- Frame
- Focus Check
- Test Exposure
- Full Sequence (cooled)
- Flats
- Darks
- Bias