TCSng Rough Operating Notes 10/26/15

Cold Start Power Up Seqence

1. UPS Room
    1. Start UPS by following instructions on cork board
    2. In UPS room plug in:
        1. GPS (gray AC cord).
        2. Emergency Stop Power 110 VAC (yellow plug)
        3. Rack power 110 VAC, (white and black twist lock)
        4. Rack ground, (black plug)
    3. Turn on rack power (black breaker).
2. In Dome
    1. Check to see if any electronics are plugged into the east or west orange outlets on the base of the telescope. If so, make sure they are turned off.
    2. Turn on Main Power.
    3. Turn on Telescope Power.
    4. Plug in associated power cables for instrumentation into orange outlets under scope if not plugged in already.
        1. M4K
            1. East Orange Outlet:
                1. Camera power supply
                2. Shutter power supply
            2. West orange outlet
                1. Guider chiller
                2. Powerstrip
        2. Turn on instrument
            1. M4K
                1. Camera power dupply
                2. Shutter power supply
                3. Powerstrip
                4. Guider chiller
                5. Guider/Filter wheel bok
                6. Guider power supply
3. Control Room
    1. Plug in the following in the warm room:
        1. Plug in Gerard
        2. Plug in the power strip on the west wall (includes new Dome TV Camer)
        3. Plug in BIGAUX
        4. Plug in all the monitors in the control room (BIGAUX, BIGCCD, Gerard, bigguider, and telescope camera monitor)
        5. Plug in printer relay
    2. Turn on the following in control room
        1. Dome TV Camera (white and black toggle switch attached to monitor) and monitor
        2. If using M$K
            1. Turn on bigccd 1 or 2 depending on which computer is in use
            2. Turn on bigguider computer
        3. BIGAUX
        4. Gerard (under bigccd monitor)
        5. Turn on laser printer

Starting TCSng

1. Log into Gerard using the kuiper password on the white board.
2. Double Click “Safe Telescope Button” icon.
3. Double Click “Paddle” icon.
4. Double click “INDI Server” icon.
5. Double Click “Xephem” icon.
6. Click “RT” button under looping if Xephem is not updating the time.
7. Click “View” and Select “Sky View”.
8. In the “INDI Panel” window that opens connect to each of the following modules:
    1. Expand “TCS-NG-INDI”
        1. Telemetry
            1. Connection
                1. ON
    2. Expand “Dome-NG-INDI”
        1. Dome Control
            1. Connection
                1. ON
    3. Expand “FOCUS-NG-INDI”
        1. Focus Control
            1. Connection
                1. ON
    4. You should now have information in each module updating regularly.

Stopping the Telescope (From the Control Room)

Five wasy to stop the telescope when moving

1. Use the Large “Cancel” button from the “Safe Telescope Program”
2. Use F9 key to cancel motion and ramp down speed (note: this does not stop the telescope from tracking)
3. Use the F10 Key to disable the telescope, this is a hard stop, only use in emergency!
4. In the “Indi Panel” window
    1. TCS Module
        1. Telemetry
            1. Actions
                1. Cancel
5. Emergency Stop button on old blue TCS rack (last resort!)

Moving the Telescope

- **YOU MUST FIRST GO INTO THE DOME AND MAKE SURE IT IS CLEAR TO MOVE THE SCOPE (ladders out of the way, elevator down etc).**
- **For any move turn on the Dome Camera and watch the telescope until it gets to its target!**

- To Enable Telescope:

1. In Indi Control Panel:
2. Enter TCS-NG-INDI module
3. Telemetry
4. Actions
5. Click “Enable”
   - Note red light next to the Actions tab turns green.

- Ways to move:

1. With the Sky View window
   1. Right click on the desired object.
   2. Click Telescope GOTO
      - The Coordinates should populate in the NEXT section of TCS telemetry
   3. Under “Actions” Click “Go Next”
      - Watch the telescope move in the Dome Camera!
2. Equatorial Coordinates
   1. In Indi control Panel:
      1. Under TCS-NG-INDI
      2. GOTO Functions
      3. Enter Desired RA, Dec and Epoch
      4. Click click “set” or hit the enter key
      5. Then under “Actions” “hit Go Next”
      6. Watch the telescope move in the Dome Camera!

- When moving with the Sky View Window or Entering Equatorial coordinates, the telescope will start tracking automatically.

1. Alt/Az coordinates:
   1. In Indi Control Panel:
      1. Under TCS-NG-INDI
      2. GOTO Functions
      3. Alt Az Goto
      4. Enter the desired Altitude and Azimuth.
      5. Click “Set” or hit the enter key.
      6. Watch the telescope move in the dome camera
         - Note: the telescope will start moving after you clicking Set or hitting enter. There is no Go Next Button for Alt/Az postions

Observing

- **Turn off the TV camera while oberving. The camera uses IR Leds which will interfere with the guider and science camera CCD's.**

1. Initializing
   1. Send the scope to a bright star close to the zenith
   2. Using the software paddle, Center the star in the finder scope
   3. Center the star in the science camera or guider.
   4. In the “Actions” menu under TCS-NG-INDI Click “Init Next”.
   5. **Don't Click “Init Commanded” unless you are a very experienced user!**
2. Focus
   1. When starting up for the night it is usually a good idea to “Home” the focus
   2. Under FOCUS-NG-INDI Homing and Focus Positions click home. The Focus pos should

decrease and you should see HOMING in the text box at the top of the panel. Eventually it will reach the home switch, stop moving and zero the focus position.
3. Use the other Focus Instrument buttons to move to a nominal focus position.
4. Use the Focus Pos box to move the focus to a more precise position.

1. Limits:
   - Display The Limit Map:
   1. In SkyView Window
      1. Click “Control”
      2. Click “Horizon”
         1. A window w will pop up. Under file name you cab choose your horizon limit map. The correct map is “bigelow.hzn”
            1. Click “save”
            2. click “close”

1. Currently there is no indication (flashing etc) on the TCS screen that you have hit a limit
   1. Software Limits
      1. North
         1. 60 Degrees Declination
         2. 32 Degrees Elevation
      2. South
         1. 5 Degrees Elevation

1. Hardware Limits
   1. North Limit ~62 degrees declination
   2. South Slew Limit 10 degrees elevation
   3. South Hard Limit 5 degrees elevation