Triplespec Software/Electronics Troubleshooting Guide

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1) **Hub or Triplespec?**

If the error(s) are coming from *instexpose* or *tcam* (hub guider) they are likely not being generated in the instrument or caused by instrument trouble. Seek help from APO hub specialists before moving to the instrument.

2) **Specific error guidance**:

<u>Image files are all zero's</u> -- Exposures are running fine (progress bars during various parts of the exposure sequence are working is a good sign that everything is talking), but the results are files filled with 0's. Array power needs to be powered in software using:

   tcamera arrayPower state="on" or tspec arrayPower state="on"

3) **General error guidance**:

If the errors are coming from *tspec* or *tcamera* (not *tcam*) then there may be troubles in the instrument:

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>   Guider (*tcamera*)
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>
>   A) First, on the guider side, do a
>
>   *hub startNubs tcamera*
>   *hub startNubs tcam*
>
>   This sets up a new handler in the ICC in case for some reason things have failed there, and also potentially unclogs a conflicting state in the hub processes. Guide exposures should work now.
>
>   It is possible that during all this fiddling at some point *tcamera* will lose track of which slit is in position. If that is the case (*tspec* config window displays "Slit ??") examine the now live image and use the reference images in Section 4.4 of the User's Guide to determine which slit is in position. At that point determine the exact name of the slit from the pulldown menu in the *tspec* config window and execute the following to set the current slit position.

tcamera setSlit position="name"

B) If that fails execute a reboot of the Leach controller using a power cycle. Once the power is cycled issue the following set of commands to get the controller running and array powered up:

tcamera initialize

Getting errors sending the initialize command? Go to (C). If you've been to (C) and are getting errors go to (D). Otherwise:

tcamera arrayPower state="on"
tcamera startApp

Now go back to step (A)

C) Still not working? Rarely the DSP running the arrays will fail during the delivery of pixels to the ICC computer. If that happens the PCI card which communicates via fiber to the controller needs a reset. There is a small momentary contact reset button on the back of the card (on the back of the ICC computer) near the fibers that needs to be pressed. For some odd reason this will not work with the Leach controller powered up. So:

- power off the leach controller
- reset the PCI card
- go to step (B) above

D) Things are pretty messed up. A restart of the ICC process may be needed possibly combined with a reboot of the computer. At this point with about 9 months of experience with the instrument neither ICC has actually gotten to this point. Simply reboot of the ICC will NOT DO ANYTHING USEFUL. Please resist the temptation to do this. A system admin needs to get into the box to determine the level and mode of failure, record diagnostics and take appropriate action. Some of this information will be lost if the machine is rebooted first. At some point a logging and simple command may be implemented for the the obs-specs to use to restart the ICC. If or when that is implemented recovery will start at step (B)

Spectrograph (*tspec*)

The basic trouble shooting scheme follows the same set of logic provided above for *tcamera* with the following differences:

A) the hub reset is done with the following command:

hub startNubs tspec

B) the *tspec* commands for power off recovery are:

tspec initialize
tspec arrayPower state="on"

there are no slit recovery options here

C) same

D) same

4) **Call Tree**:

Call for assistance in the following order:

1. Fritz Stauffer

2. If Fritz feels it is necessary to contact the UVA team, or Fritz is not available, then call Matt Nelson

3. If Matt is unavailable, then call John Wilson.