Focus Sequence

Use *Run Focus* in the AzCam window to make a focus exposure sequence.

A new instrument command has been added to move the focus actuators to specific LVDT values. Type, for example,

instrument.SetActuators(0.874,0.825,0.795)

to move the actuators (A,B,C) to the positions indicated.

Misc Focus Info

- The image header has a line like: FOCUSVAL= '*0.756*0.795*0.815' / Focus
- These are LVDT (encoder) values corresponding to '*LVDT_A*LVDT_B*LVDT_C'
- One focus actuator step is 2.645 microns, which corresponds to -0.0005 LVDT units. So the conversion is (-1322.5 um/LVDT unit).
- Note the zero point for the LVDT scale is arbitrary and only relative motion should be considered.So for example, 0.756 above for LVDT_A is a position of (0.754 * -1322.5) = -997.2 microns.
- Note the direction sign is reversed between actuator movement and the LVDT readout.

How to use find focus for 90Prime from Azcam computer

1. In the AzcamTool window on the Azcam computer make sure "object" is selected as the image type
2. On the Azcam computer, double click the desktop icon "90Prime Console"
3. In the blue window that opens, type "focus.run()"
4. It will then ask you to enter how long you want your exposure to be. Choose an exposure time that works well with whatever filter you want to use, and make sure it's in the beam. The exposure time previously used will be in brackets[]. If you want to use that exposure time, you can just hit enter.
5. It will ask you how many images you want to take. Again the previous number of images is stored in brackets. If that number is acceptable, just hit enter.
6. It will ask you to enter how many focus counts you want to move. Again the previous number of focus count shifts is stored in brackets. If that number is acceptable, just hit enter.
7. It will ask you how many rows to shift the CCD detector. This will determine how big a gap between the stars there will be. If you are far out of focus, you will need a larger number like 100. If you are close 30 or 15 will do. Again the previously used number of CCD row shifts is stored in the brackets. If that is acceptable, just hit enter.
8. You will then have to wait until the script takes however many images you asked for. It will reset the focus back to what it was originally when it's done. You will see an image on Bart where stars will stack vertically either becoming larger donuts if you are moving away from focus, or smaller if you are moving towards focus.
9. Once you do a sequence where you go through focus, you can do smaller steps around where you went through focus to find best focus.