Taking Images with CCDSoft

1. The telescope should already be initialized using the appropriate procedure.
2. Flip the secondary mirror to the Newtonian configuration. Refer to the 'Flip Mirror Operating Procedure'.
3. Activate the IP9258 1-2 selection.
4. Turn the CCD camera supply on. It is located on one of the telescope trusses. The green power supply light should be illuminated and within a few seconds, the red CCD camera light and fan should come on.
5. Double click the CCDSoft icon on the desktop to start the software.
6. In the Camera Control window, click on Setup/Camera. Click the 'Connect' button on the right. At a bottom box under 'Status' it should say 'Attempting connection …'. If a new window does not immediately appear and you have to wait a bit, this is a good sign.
7. If a CCD Software window immediately appears saying 'SBIG driver device not found', go to the Appendix.
8. Else, the words 'Ready' should appear in the 'Status' boxes. Note that the camera has two chips – one for imaging, and the other for guiding. We are not using the Autoguider chip just now because the Sidereal Technology software includes autoguiding capabilities.
9. Now click the 'Temperature' tab at the right. In the first box, set some convenient temperature. For the most part, -10° will suffice. On hot evenings, the camera cannot be cooled this low, as it can't go more than 30°C below ambient temperature. On cooler nights, you can go to -20° or -30°C, or even lower (but there is not much advantage below -30°C).
10. Then click 'On' at the top under the Temperature Regulation window. The fan should be on, and you should also select the next choice 'Shut down temperature regulation …' (since it may be some time before the camera is used next, and shutting off regulation will reduce wear).
11. If the desiccant has not been purged of moisture recently, the camera window may frost up during use. You will know right away because a horrible streaky background will appear. If this happens, back off the temperature regulation, perhaps shutting it off completely in extreme cases (old desiccant, humid night, etc.). Inform someone if the desiccant needs to be renewed.
12. You should now be ready to go.
13. You will probably want to set up the 'Autosave' function; if so click the AutoSave tab. Click the 'Choose Folder' button. A new window will appear enabling you to browse through the hard drive directories. Using the computer 'C' drive or a USB stick, create an appropriate subfolder (using a button at upper right) with the date (yyyy-mm-dd works for me) and click 'Open' then 'Save'. You can—if you want—select a name prefix (in the very long box) if you know what you are after, or you can wait until you are set up on a target. Set the 'Starting number' to 1. Do not select 'Autosave on' at this time, because you will want to do a few test images first, and you probably don't want to save them.
14. If you don't want to use AutoSave you can save images immediately after each exposure.
15. Find your star using the Mallincam camera and C8 telescope.
16. Select the 'Take Image' tab. Enter an appropriate test exposure (say 1-3 seconds) in the boxes at the left. The 'Delay' should be set to 0, and the 'Series of' box set to 1. (You need to use the drop box here.) Near the top, the 'Subframe' box should not be checked. The 'Bin' drop box should be set to 1x1. Under Image>Frame, select 'Light' and Image>Reduction select 'None'. Make sure that the 'Imager' radio button is selected.
17. Take a few images at short exposures without saving, to get the telescope pointing where you want.

18. *Autoguiding procedure to be placed here soon.*
19. Enter an appropriate exposure time. Obviously, this will vary with the objects in the field, but you might want to start with 30 seconds, working your way up to several minutes or an hour …
20. When you are finished imaging, close the Camera Control window and exit from the CCDSoft program. Shut off the CCD camera power supply.

Appendix: What to Do if You Can't Connect with the Camera

If a CCD Software window immediately appears saying 'SBIG driver device not found', in all likelihood the USB extender unit is offline. Check that the two power bars at the base of the telescope are on, there is power to the CCD camera, and the USB cable is plugged into the camera. If all appears OK at this point, you can either reboot the ALCYONE computer and hope the USB link is re-established, or you can check the wiring from the camera to the computer using the wiring diagram below. If that doesn't solve the problem, exit from CCDSoft, shut the camera off, and log a trouble report on the login sheet.

AXIS PANEL   AXIS PANEL   EQUIP BAY

CCD CAMERA ←USB cable→ USB EXTENDER ←Patch cord→ ‑ ‑ ‑Building wiring‑ ‑ ‑ JACK 4 / PP 1 JACK 6 — Patch cord

CONTROL ROOM   CONTROL ROOM   CONTROL ROOM   EQUIP BAY

ALCYONE COMPUTER ←USB cable→ USB EXTENDER ←Patch cord→ ‑ ‑ ‑Building wiring‑ ‑ ‑ JACK 22 / PP 1 JACK 22