GGCS Disk Making:

1. Go to a DOS prompt (If you don’t know how to get to a DOS prompt, Click: Start > run > type cmd > hit Enter: you should go to DOS prompt)
2. Put Bruker CD, Bruker Nonius CD or Bruker software CD in CD-ROM drive.
3. Change the prompt to the CD ROM by Typing the drive letter (ex D:)
4. Type: cd ggcs then hit enter
5. Your dos prompt should look like this now:
   D:\ggcs>
   …now type:
   
   mk_ggcs a
   …make sure you put a space in between ‘ggcs’ and ‘a’, no colon, and hit enter.
   Place a blank floppy in the A drive (Note: If using a 1.44Mb floppy disk make sure that there is a piece of tape over the hole in the bottom right corner of the disk to make the computer see it as a 720K disk)
6. Hit Enter.
7. There should be a line that says ‘percent completed’ - if it just starts transferring files, see *note below. When it is 100% done (or cylinder 79), it will ask if you want to format another disk. Hit N for no and then enter. It will then transfer system and GC files.
   • (*Note: If your disk does not give you a % completed line and just transfers files immediately when you try and make the disk, then go back into windows, go into the explorer select the 3 ½” floppy and delete any files on the floppy disk. Right-click the 3 ½” floppy icon and select ‘format…’. Change the disk capacity to 720 KB click start. Now go back to the dos prompt and try again; if it does the same thing, try a new disk.)
8. When you return back to the d:\ggcs prompt the disk should be complete. Next check to make sure that your EZ values for your system are written down somewhere either on your old GGCS floppy disk or on top of the power supply inside your GGCS. If they are, continue with the next step. If not, then skip down to bulleted section at the end of the document.
9. Put the new disk in the GGCS’ floppy drive.
10. Close any open applications on the computer for your system (especially SMART, GADDS or any other applications that use COM ports).
11. Communicate with the GGCS controller by double-clicking the ‘talk to GGCS’ icon (this icon should be on the desktop or in the Bruker AXS programs folder) if you don’t have a ‘talk to GGCS’ icon, then start communications to the GGCs controller by going to start > programs > accessories > then either
‘communications’ or ‘HyperTerminal,’ whichever folder contains the program HyperTerminal.

- Once in the HyperTerminal program, it might ask you if you want to install a modem; click no if it does. Then you need to name your session; call it talk to ggcs. Select an icon and click ok.
- Then it will ask you to select a com port. Select com1 click ok
- Then it will ask you to enter your settings. The only thing you have to change is the bits-per-second to 9600 click ok.

12. Turn the GGCS On. If already on, reboot.

13. After the GGCS is finished booting and the green light on the floppy drive goes off, a prompt will appear in the TALK window asking you to select a manual or automatic setup. Do an automatic setup, No.1, then enter.

14. The automatic setup routine will auto-detect the installed hardware in the GGCS and begin formatting the floppy drive. The formatting is complete when the current cylinder is listed at 79.

15. Type: ? (question mark).

A screen with commands for the ggcs should appear.

16. Type: W0 then hit enter. (W zero). This enables the screen echo to let you see what you type.

17. Type: EZ1 then hit enter. It will return a value.

18. Set that value to zero by adding whatever that value is after EZ1. ( Ex. If EZ1 is 30 then type EZ130 or if EZ1 is –30 then type EZ1-30), then hit enter.

19. Type: EZ1 then enter to check the value; the value should now be zero. If not, repeat the previous step until it is zero.

20. Now to set the EZ1 value to your desired setting which you should know from step 9. You need to place the opposite of the value you actually need. (Ex.: type EZ1-30 for a value of 30, or type EZ130 for a value of -30) then hit enter

21. Do the same for the EZ2 and EZ3 value (also the other EZ angles if you have a Huber, motorized zoom axis, or XYZ system).

22. Type: M and then hit enter. This will put you in manual mode. Drive all angles to zero.

23. Your angles need to be updated now. Type U1,0 for 2-Theta Type U2,0 for Omega and U3,0 for Phi, then hit enter.

24. Type U0 (U zero), then hit enter. Now 2-theta, Omega, and Phi angles should report as zero

25. Now drive 2-theta to 10 degrees. To do this, type F1,10d and hit enter. 2-theta should drive to exactly 10.
26. Now drive omega to 10 degrees to do this type $\textbf{F2,10d}$ then hit $\textbf{enter}$ omega should drive to exactly 10.

27. Now drive phi to 10 degrees to do this type $\textbf{F3,10d}$ then hit $\textbf{enter}$ phi should drive to exactly 10.

28. If you have a CCD detector, type $\textbf{DT1}$ and hit $\textbf{enter}$ to activate the detector enable signal (necessary for scans using correlated frames).

29. Your GGCS should now be ready for use. Type $\textbf{W0}$ and hit $\textbf{enter}$ again to turn off the screen echo. Failing to do this step can result in problems with software applications communicating with the GGCS.

30. Close HyperTerminal and enter SMART or GADDS and see if everything works make but sure you check limits before driving.
Retrieving EZ Values from old disk:

- Put old disk in GGCS that works
- Close any open application on the computer for your system (especially SMART or GADDS or any other programs that use com ports)
- Reboot ggcs wait until light on the floppy drives goes out
- Enter Talk to GGCS through icon (this icon should be on the desktop or in the Bruker AXS programs folder) if you have one or enter talk by going to start > programs > accessories > then either communications or HyperTerminal whichever folder contains the program HyperTerminal.
  - Once in HyperTerminal program it might ask you if you want to install a modem click no if it does. Then you need to name your session call it talk to ggcs make sure that big red phone and little yellow phone is the icon selected then click ok
  - Then it will ask you to select a com port select com1 click ok
  - Then it will ask you to enter your settings the only thing you have to change is the bit per second to 9600 click ok.
- Type: ? a screen with commands for the ggcs should come up now.
- Type: W0 (that is a zero not an o) this will let you see what you type
- Type: EZ1 then hit enter it will return a value (ex. EZ1 28.995) copy this value down it is your EZ value which will be used later.
- Do the same for the EZ2 and EZ 3 value (also EZ 5, 6, 7, 8 if you have a Huber or XYZ system or zoom)
- Take out the old disk and put the new disk reboot the ggcs and go back to step 9.

Retrieving EZ Values from Hard Drive:

- With most systems if you still have the original hard drive in your computer the EZ values were saved in a file called PLATFORM.RD
- To find this file click Start > select Find > select files and folders > type PLATFORM.RD >select the C drive to look in > then click find now
- If you have this file it will contain your EZ values from when your system was first installed. However if your EZ values have changed since you have had the system these values were probably not updated. The old GGCS disk is the best source to find the current EZ if you can get it to boot up.