

JEM 4000 number 1 specific information

Go back to the main page [SerialEM tutorial page for IVEM users](#)

- [Aligning the 4000 #1](#)
- [Pixel Sizes with the 4k x4k lens coupled system](#)
- [Starting up the software for using the 4000#1](#)
 - [Stage Computer Software](#)
 - [FasTEM server software](#)
 - [FasTEM client](#)
 - [Stage Software](#)
 - [Stage Control Webservice](#)

Aligning the 4000 #1

[JEOL 4000 Number 1 Alignment Procedure](#)

Pixel Sizes with the 4k x4k lens coupled system

The below pixel size measurements should help you determine which magnification you would like to collect data at. This should also help you in any further analysis of the data and if you are making comparisons to data collecting with other detectors.

4000#1	4kx4k NCMIR Lens Coupled CCD Camera (Measured Jan 2010)
Mag(X)	Pixel Size(nm)
3000	4.7
4000	3.57
5000	2.86
6000	2.41
8000	1.8
10000	1.43
12000	1.23
15000	0.98
20000	0.75
25000	0.6
30000	0.49
40000	0.37
50000	0.301

Starting up the software for using the 4000#1

On the 4000#1 there are two separate PC machines that are using. One is referred to the FasTEM computer and the other is the Camera computer. The FasTEM computer runs the FasTEM software along with the stage control software. These software packages are critical and should always be running. The Camera computer PC relies that these pieces of software are running. Below is quick run through of how to start and how the software on the FasTEM computer should run.

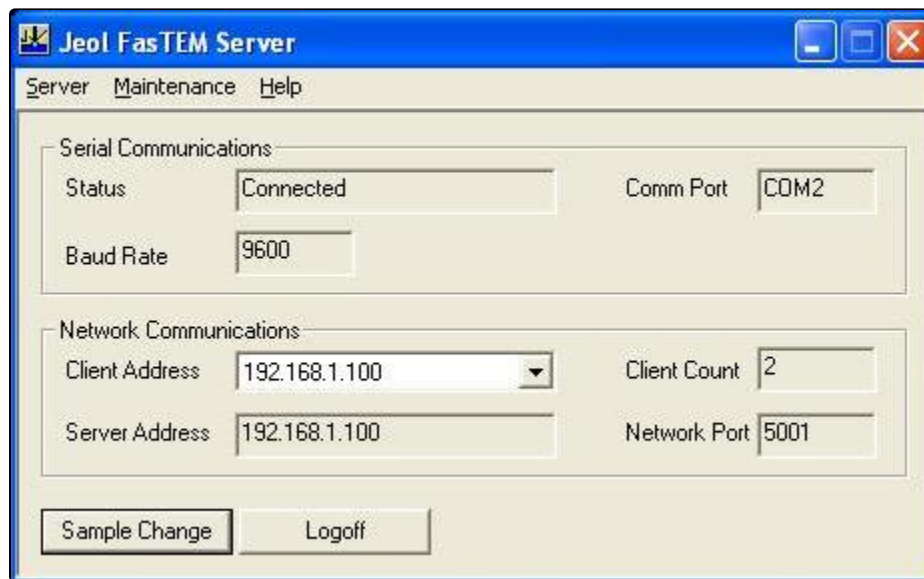
Stage Computer Software

FasTEM server software

The first critical piece of software that should be running is the FasTEM server. Locate the icon entitled "Shortcut to FasTEMServer.exe". If it is not running then it should be launched. Simply double click the icon and give it some time to start up. After about 10 seconds it should wait for you to enter in a password.

This password is : *gato!*

Once it is started up then it should look like this:



This software program will now allow the FasTEM client and SerialEM communicate with the microscope. If you need to kill or stop this program you will want to click on the Menu item "Server" -> "Exit". It should prompt you for the same password in order to successfully close the program.

FasTEM client

Next you will want to start the FasTEM client. Remember that the FasTEM client will not work properly unless the FasTEM server is running. Find the Fastem client icon on the desktop and double click it. It will prompt you for a username and a password.

Please enter the following:

username: a

password: a

When it starts up it should look like the following. Please note if you did not get this far then most likely the FasTEM server was not started properly. This could also be an indication of an issue with the microscope.

The software is very straightforward and allows you to change the parameters of the microscope. Once critical note is how to use the HT panel properly. See the image below:

When either bringing up the HT or bringing down the HT ensure that the option for "Enable Initial Voltage" is **NOT** selected. You never want this checkbox selected. This will bring the HT immediately to 100KV, which is not good in most cases. Typically if you are bringing up the HT to 400kV you would do the following:

*Select Target Setting: 400
Step Voltage: 0.10
Step Time(sec): 1.00
Total Time(min) ~ 16 mins*

You should wait until this is fully completing before proceeding.

Stage Software

The stage control software was specifically written to control the goniometer or the x,y,z, tilt axes of the microscope. Note that the FasTEM software does not control or have access to the stage. This software must be running. Below is a snapshot of what the software looks like:

The software is quite straightforward to use and the left hand toolbar really provides the features that you will need to use. If you simply hover over the icon it will give you a quick description of what it does. For the most part SerialEM will control the stage for you, so you do not have to worry too much on how the software works. The stage speed combobox at the top of the screen controls the speed of the tilt motor. I would recommend you keep it at "Medium".

Perhaps the most useful features of this software is saving points, though I would recommend you save your stage points in the navigator menu of SerialEM.

Last but certainly not least.....

Stage Control Webservice

This last piece of code is mostly necessary for SerialEM. At the time of this writing this software piece is separate from the Stage Software. In the near future it should be integrated so you do not have to worry about starting this piece of software. Simply double click on the shortcut that says

Must be started for Stage.exe

You should see the following:

Next simply click on "Start Webservice". You should be all set to next start SerialEM from the Camera Computer.