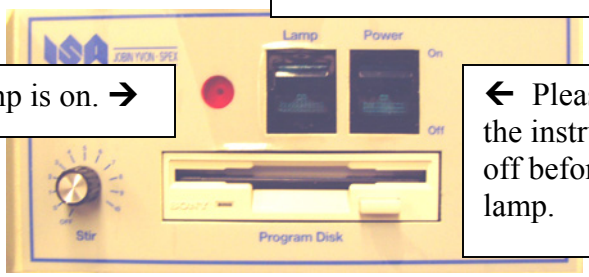
Fluorimeter User's Booklet

1) Verify that the instrument power and the computer are both off. Then turn on the lamp. The red indicator light will glow when the lamp is on.

↓ Turn on lamp switch here.

This red light will glow when the lamp is on. →



← Please be sure that the instrument power is off before turning on the lamp.

Please note: If you turn on the lamp while the instrument or computer is powered on, then the instrument or computer could be damaged.

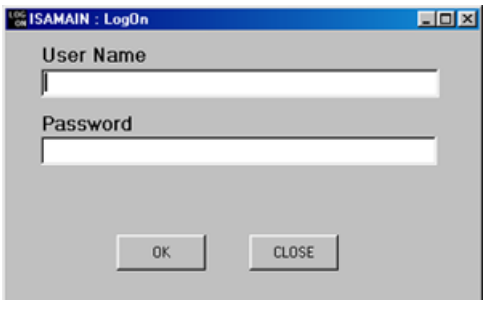
2) After the lamp is on, then turn on the instrument power switch.

← Turn on power switch after the lamp is on.

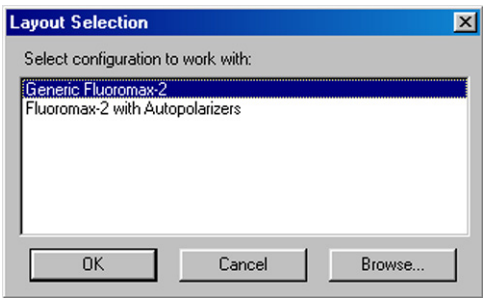
3) Turn on the computer by using the switch on the power strip.

Turn on the switch here → for the computer.

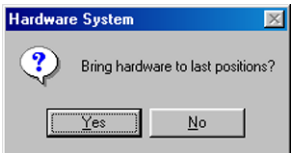
4) After the computer comes up, log into Fluoromax II with your username & password.



5) You will be asked to choose between the "Generic Fluoromax-2", and the "Fluoromax-2 with Autopolarizers" option. Choose "Generic" if you are not using the autopolarizer accessory. Choose "Autopolarizers" if you are using the autopolarizer accessory.

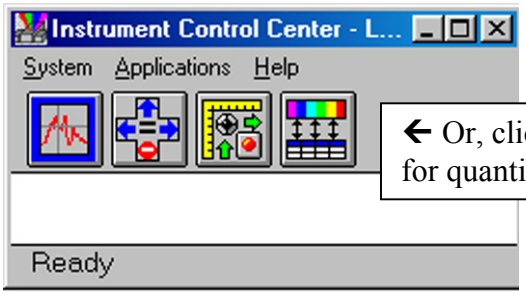


6) When asked if you want to bring the hardware to the last positions, click on Yes.



7) When the Instrument Control Center comes up, you must choose whether you want to do continuous spectra over a wide scan range, or whether you want to make quantitative measurements at only a few discrete wavelengths. If you want to run continuous spectra, then click on the "Run Experiment" icon. If you want to make quantitative measurements, then click on the "CWA" button for Constant Wavelength Analysis.

Click on the Run Experiment icon → for continuous spectra.

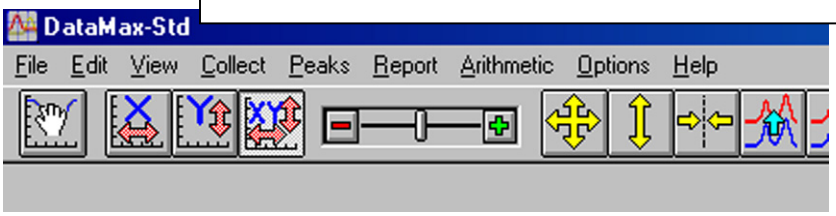


← Or, click on the CWA button for quantitative analysis.

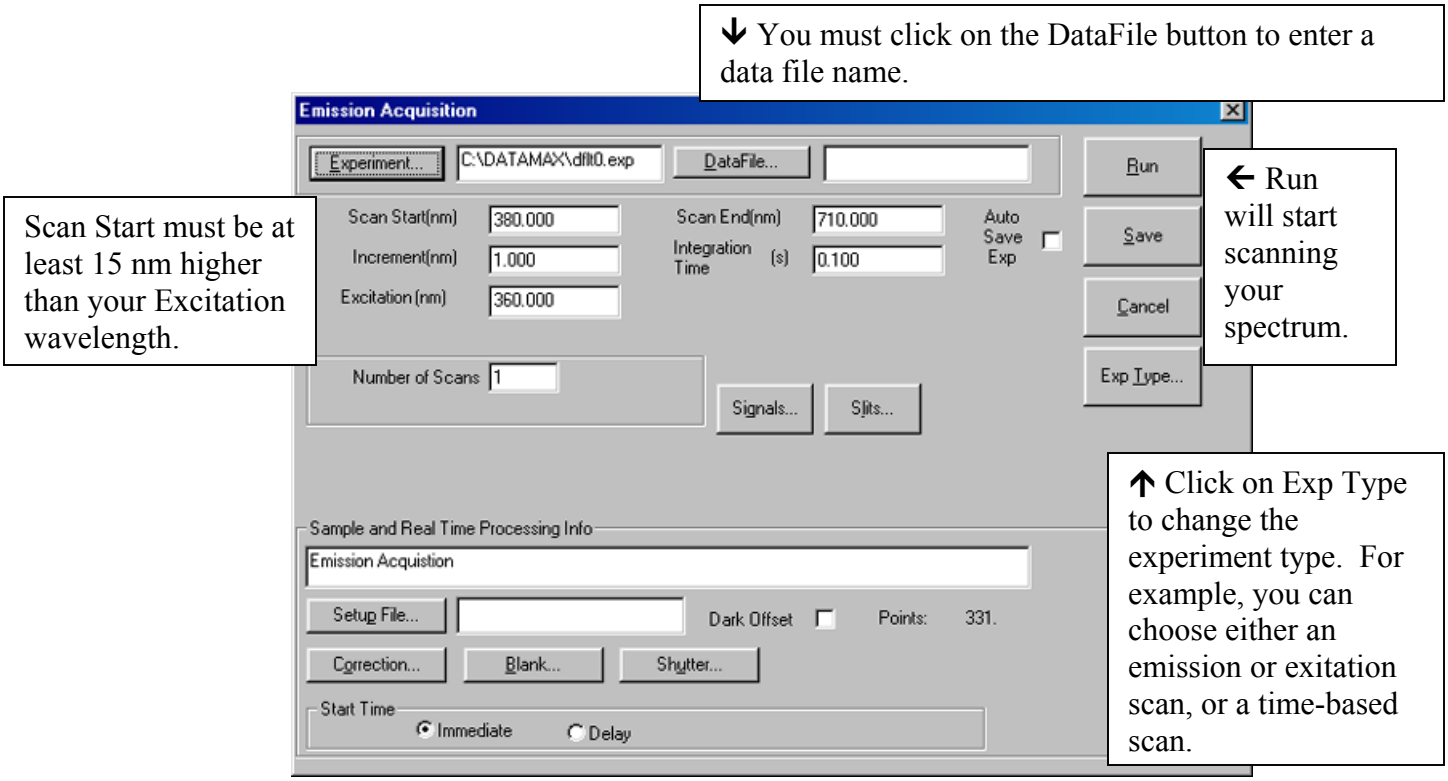
I. Running Continuous Spectra

1) After clicking on the "Run Experiment" icon, the main window for the DataMax-Std will come up. When the main window comes up, click on the "Collect" menu, and then click on "Experiment":

↓ Click on the Collect menu, and then click "Experiment"



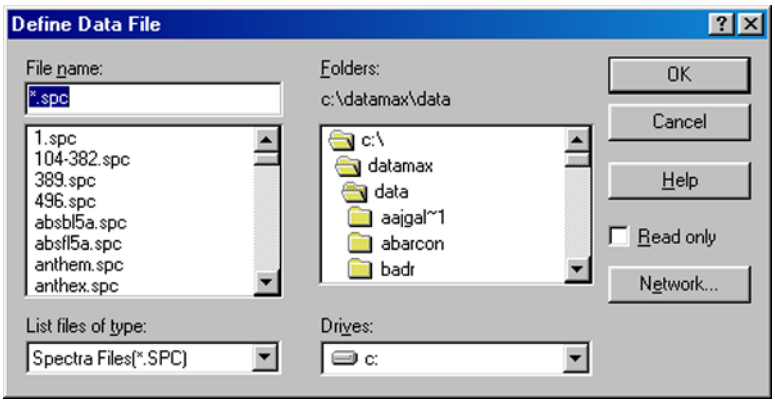
2) The following page will appear:



First, click on the "Exp Type…" button to choose the type of experiment you wish to do. For example you can choose either an emission or exitation or time-based scan.

For an emission scan, you must choose an excitiation wavelength. Then the "Scan Start" wavelength must be at least 15 nm higher than your excitation wavelength. The "Scan End" wavelength should be less than 2X the excitation wavelength.

To enter a data file name, click on the "Data File…" button. The following box will appear:



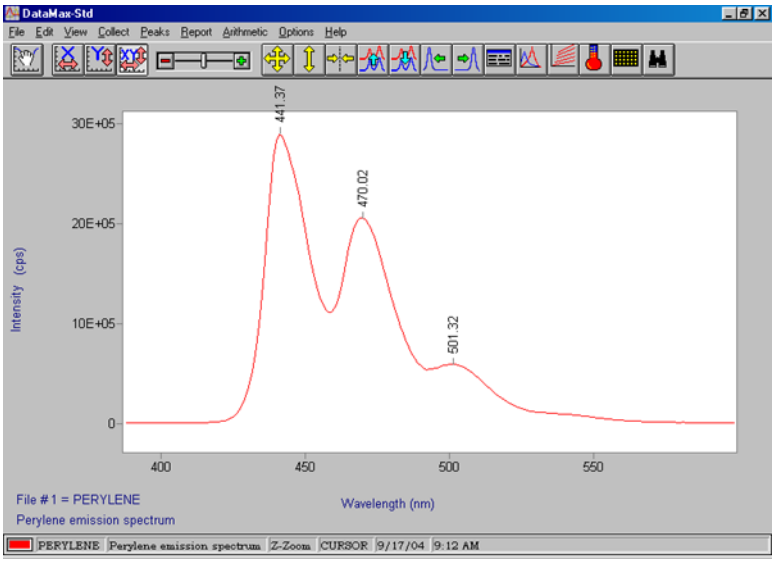
You can navigate to the folder where you want to store the data, and you can type in a filename, and click OK.

Please Note: File names are limited to 8 characters with this software.

You can type in a text sample description in the box labeled "Sample and Real Time Processing Info".

The “Slits” button will allow you to change the excitation and emission slit settings. This is done to optimize the intensity of your signal. If you signals are very weak and noisy, then you might want to increase the slit widths. If you signal is too strong, i.e. if it is over 4,000,000 cps, then you are saturating the photomultiplier, and you should make the slit widths smaller.

3) When your parameters are set up, and you have entered a filename, click on the Run button to start scanning your spectrum.

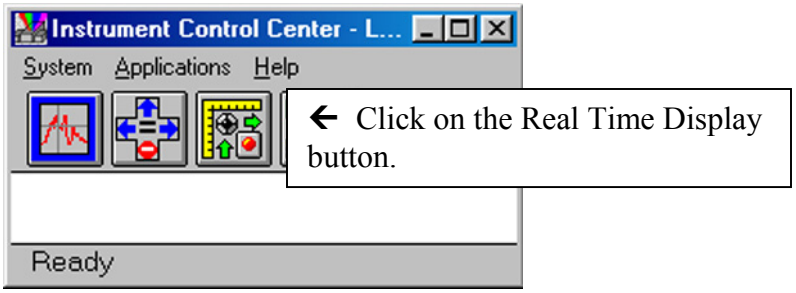


3) What is the intensity in cps on the y-axis? If it is over 4,000,000 cps, then the photomultiplier is in saturation. If this is the case, then you should close either the excitation or emission slits, or both, and try re-scanning the spectrum.

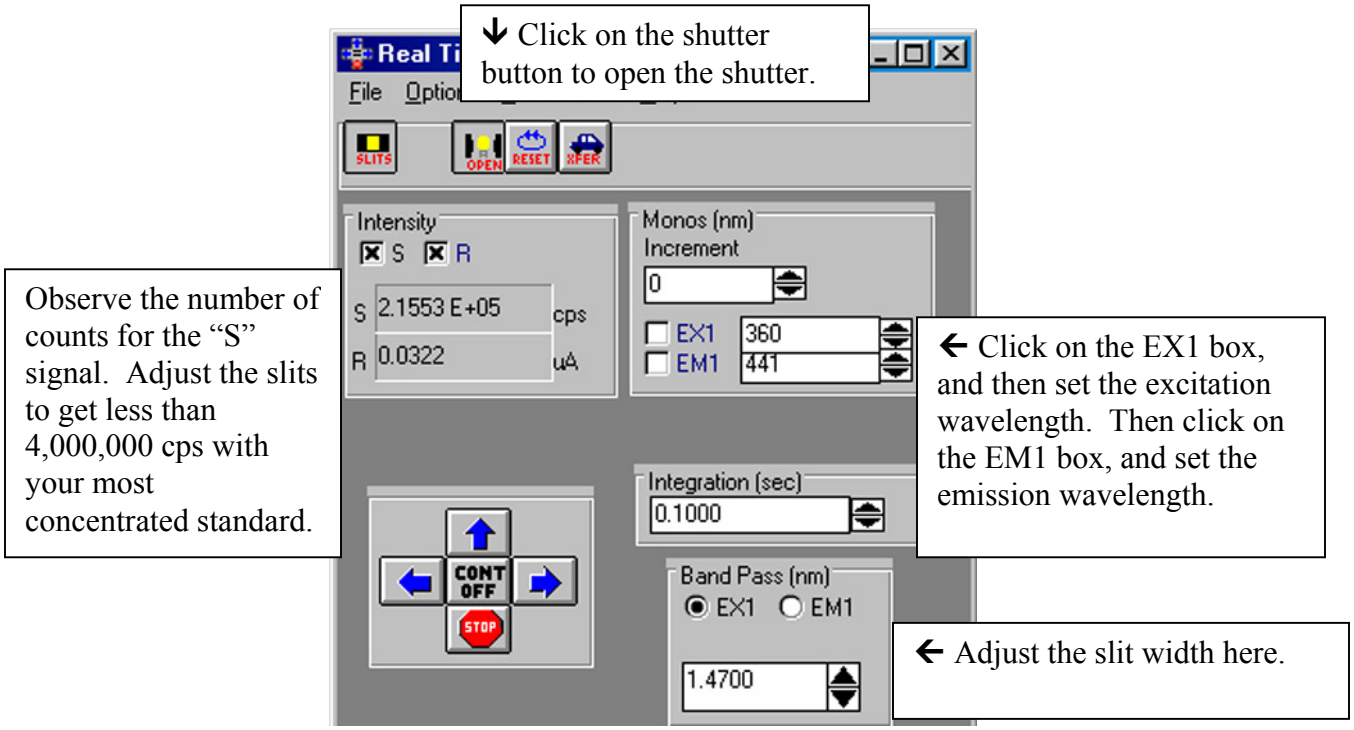
4) To label peaks on the spectrum, click on the View menu, and Add Text…, and then click on Peak Mark. Position the cursor on top of the peak you want to label, and click the mouse. A dialog box will come up that lets you customize the peak label. Just click on OK, and the peak will be labeled on the spectrum.

II. How to do Quantitative Analysis

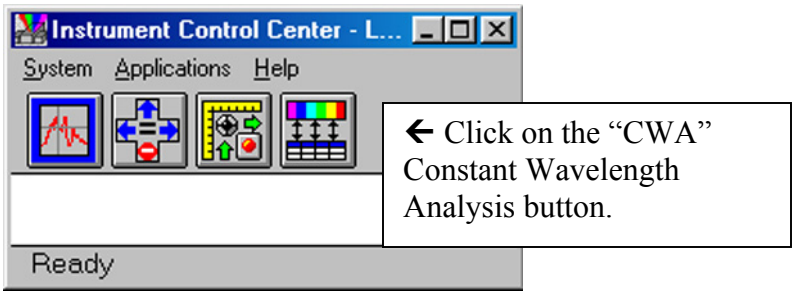
1) At the Instrument Control Center, click on the Real Time Display button.



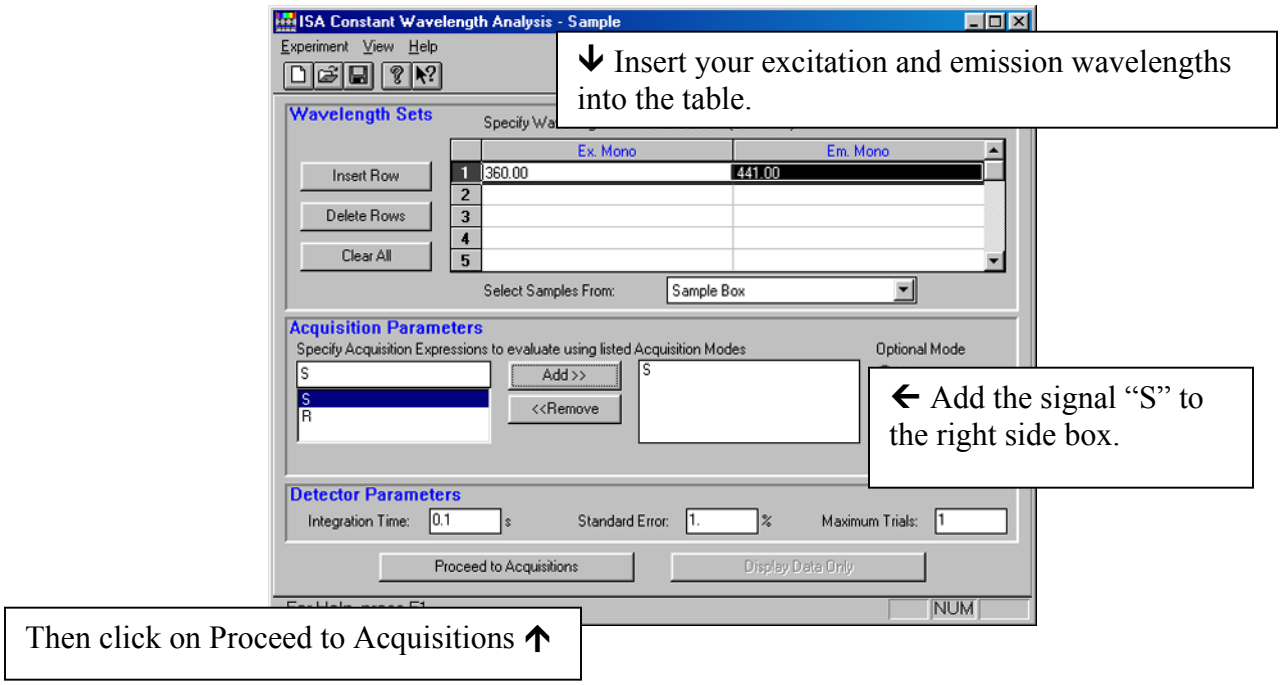
2) The following page will come up. Insert your most concentrated standard into the sample compartment and close the lid. Click on the shutter button to open the shutter that allows excitation light to enter the sample compartment. Observe the number of counts per second (cps) for the "S" signal. If necessary, you must then adjust the excitation and emission slits to optimize the size of the signal. If the signal is very low (say a few thousand cps), then you would need to open up the slits to allow more light through. If the signal is too high (over 4,000,000 cps the photomulitplier is in saturation), then you need to close the slits down so that the signal is less than 4,000,000 cps. After you have optimized the signal, click on the shutter button to close the shutter again.



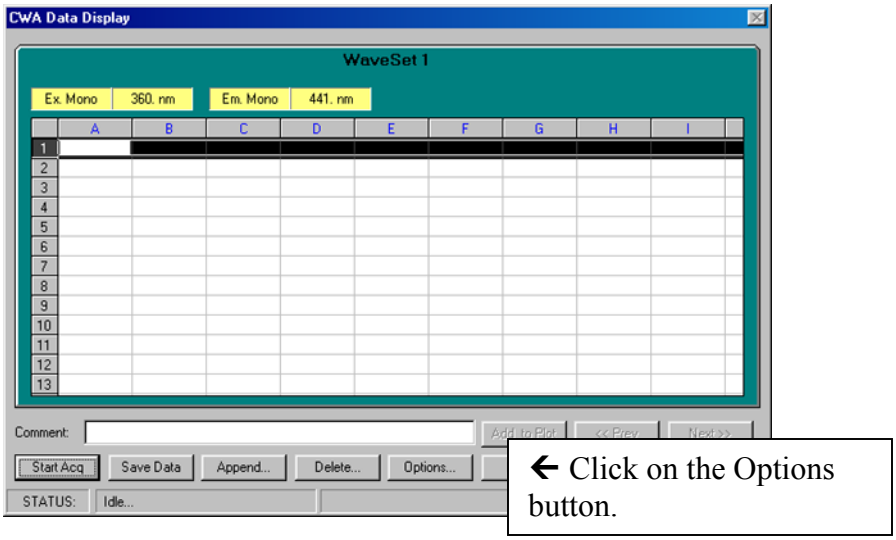
3) After you signal has been optimized with your most concentrated standard, then click on the CWA (Constant Wavelength Analysis) button to set up your acquisition parameters.



4) The following box will come up:

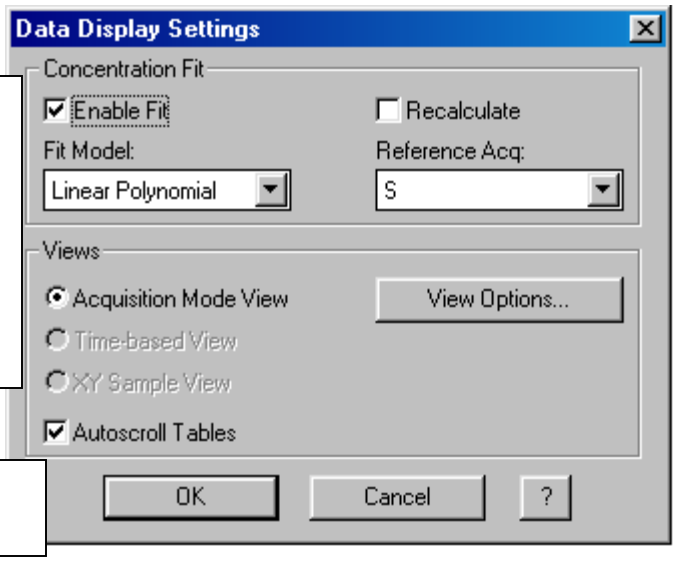


5) After you click on Proceed to Acquisitions, the following box will come up:



6) After you click on the Options button, this dialog box will come up:

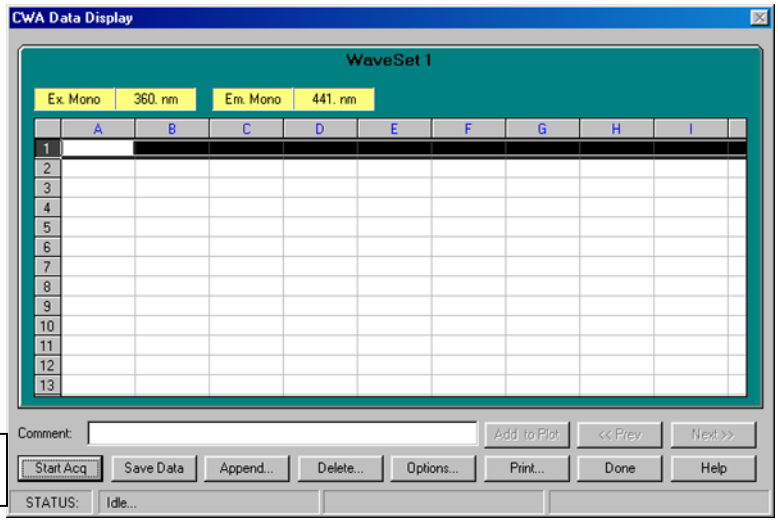
Click on "Enable Fit", and use a linear polynomial, to enable unknown concentrations to be automatically calculated.



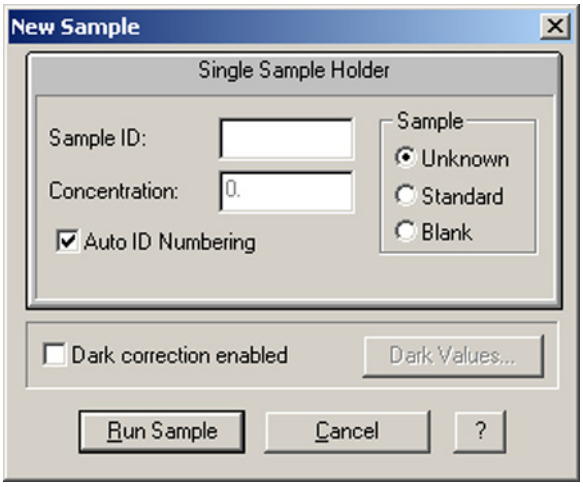
Click on OK when done.

7) Next, Click on the "Start Acq" button.

Click on "Start Acq" ➔

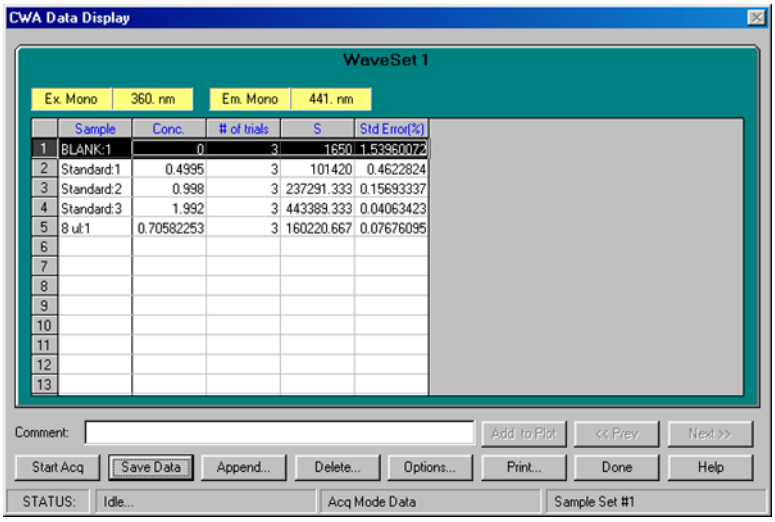


8) After you click on the "Start Acq" button, the following box comes up:



This box allows you select whether you are going to measure an unknown sample, a standard, or a blank. If you select "Standard", then you must enter the concentration of the standard. Then insert your cuvette into the sample compartment and close the lid. Then click on the "Run Sample" button. The instrument will make the measurement and put the results into the table.

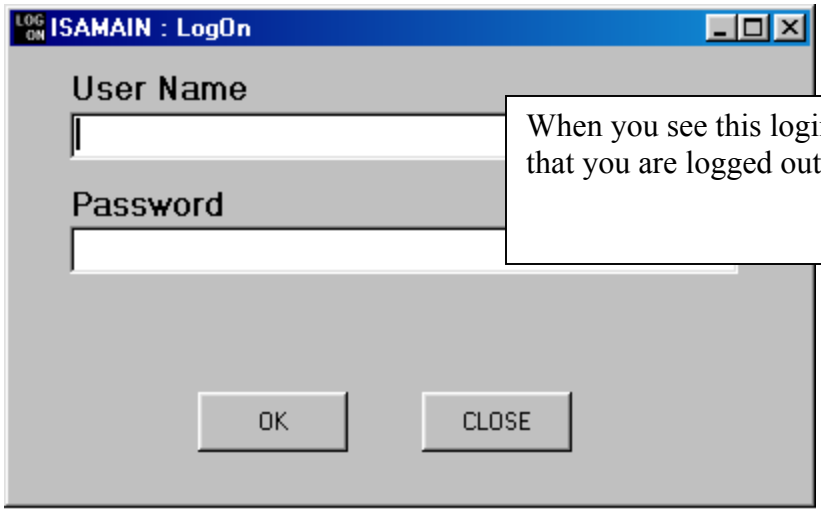
9) After you have collected all of your blanks, standards, and samples, you should have a table with all of the data, that looks something like this:



You can print the results from the table, or you can click on "Save Data" and save the table as an Excel spreadsheet.

How to Shut the Instrument Down When You Are Finished

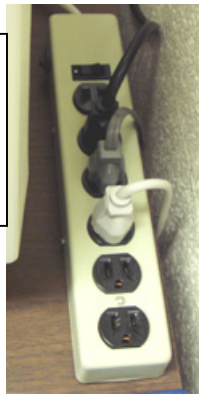
1) Close all of the DataMax software windows. When you exit from the Instrument Control Center, you should see the Login screen. This tells you that you are logged out.



When you see this login screen, you know that you are logged out.

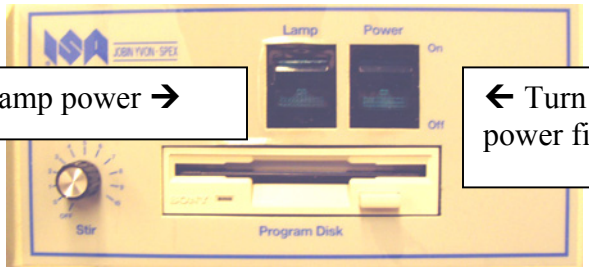
2) Shut down the computer. When Windows tells you that you can turn the power off, turn off the power using the switch on the power strip.

Use the switch on the power strip to turn off the computer after Windows tells you it is okay to turn the power off.



3) Turn off the spectrometer power. Then turn off the lamp power.

Then turn off the lamp power →



← Turn off the spectrometer power first.