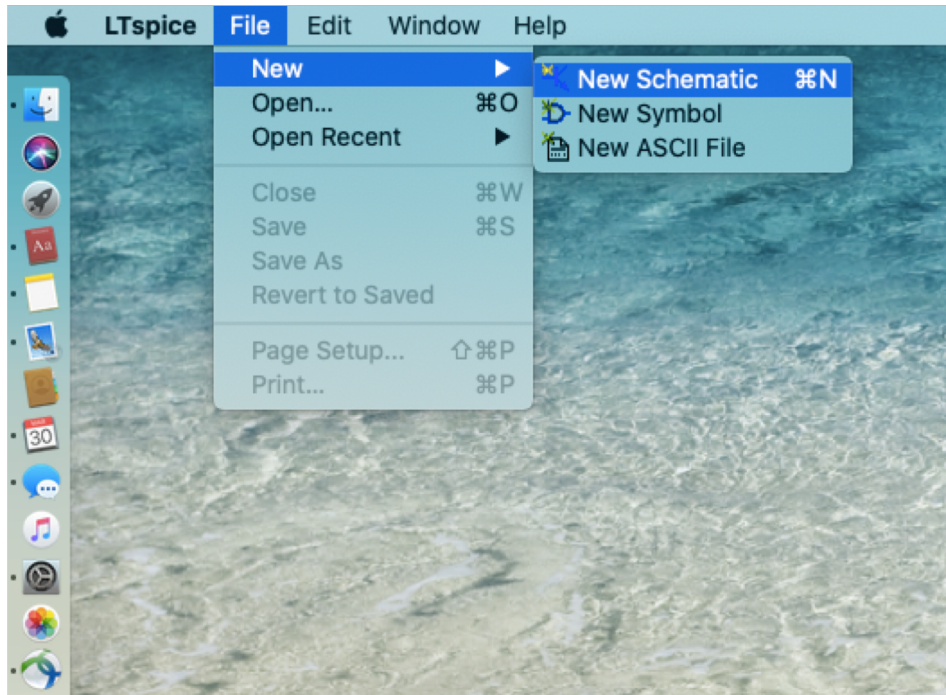


LT spice starting on a Mac

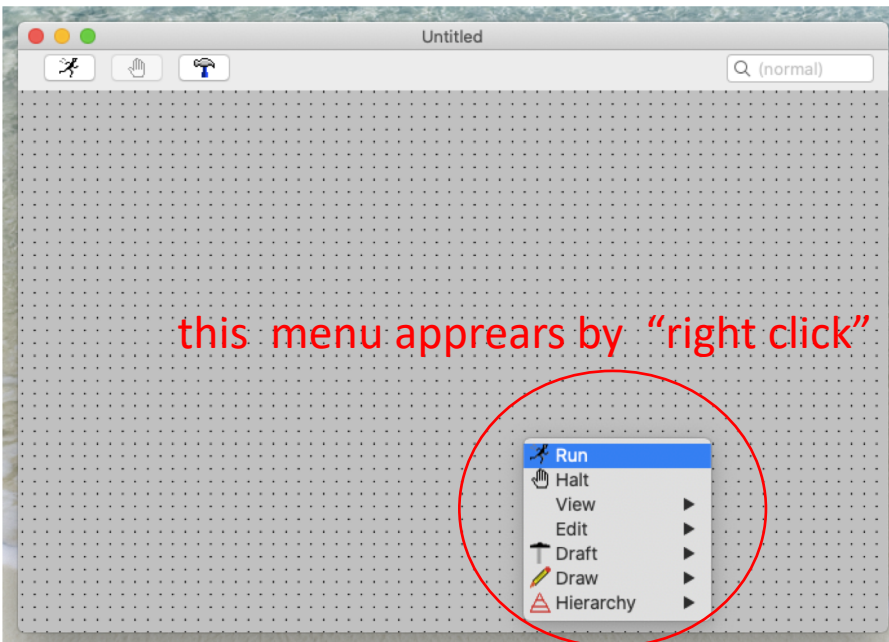
Minhyea Lee

1. Download .dmg file and install as instructed in Handout.

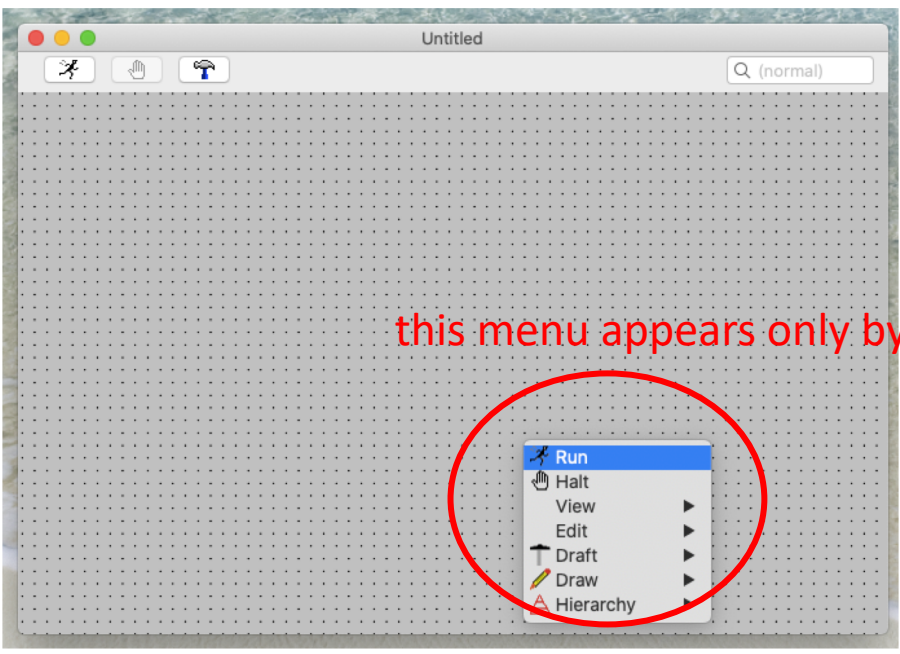
2. Starting Ltspice and open New Schematic – this will be your .asc file to submit for assignment



3. It will open a gray area for drawing circuits. Note that there are only 3 buttons on the menu. Dotted gray background can be selected from **View> grid**

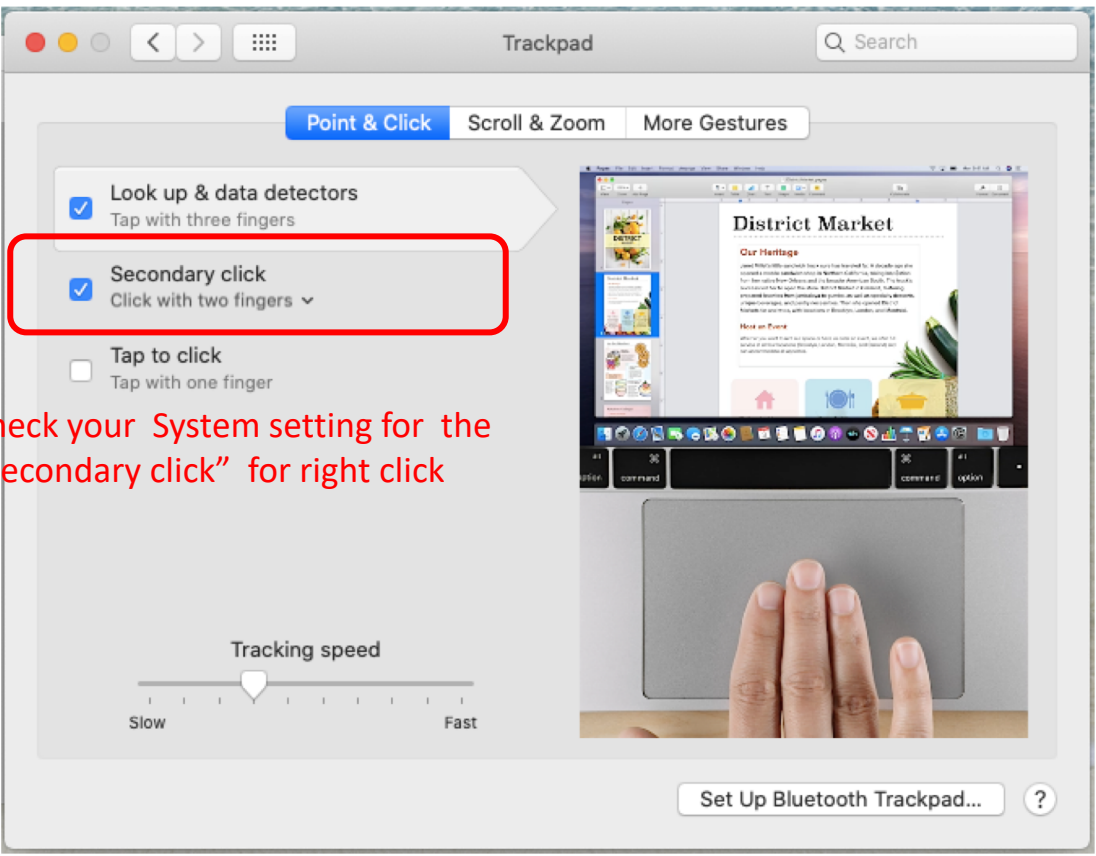


4. On Mac, LTspice uses right-click a lot! So this is a good time to check your computer how it was set .



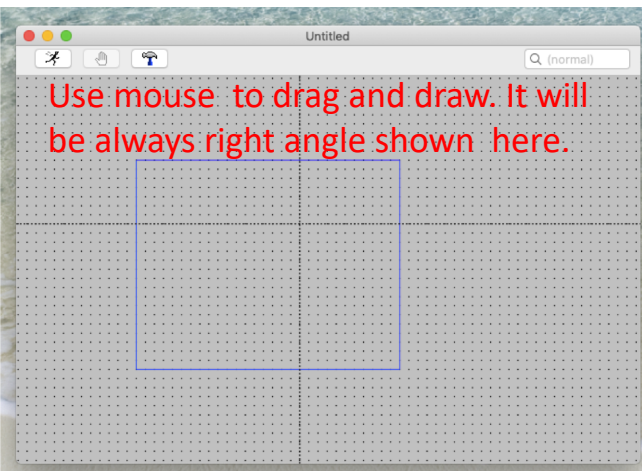
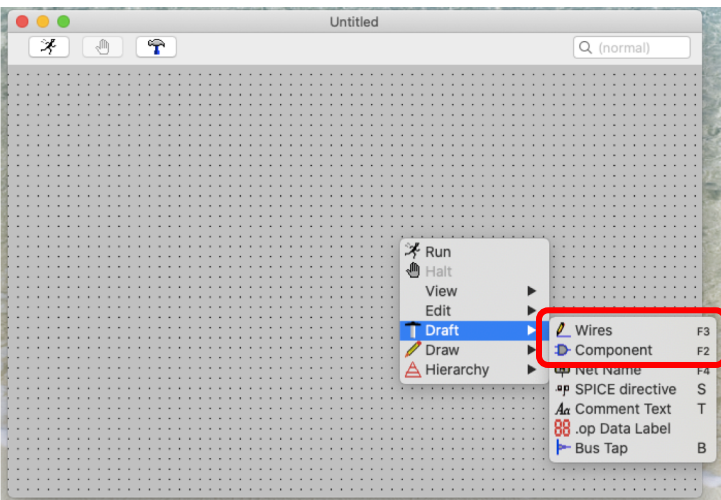
this menu appears only by “right click”

** Go to your **System Preference > mouse** or **> trackpad** and check your setting for **Secondary click is right-click** for trackpad.

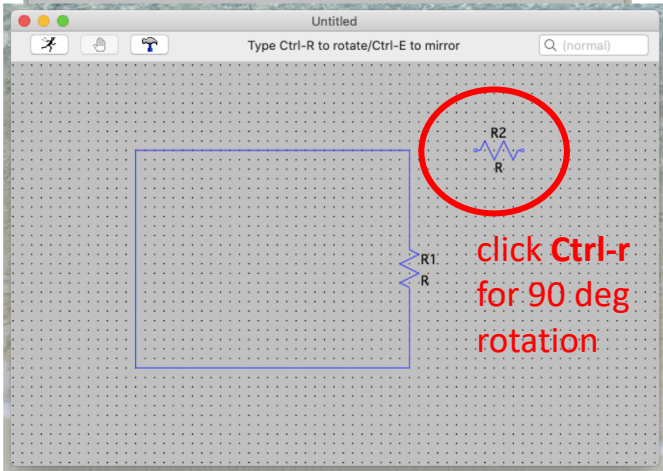
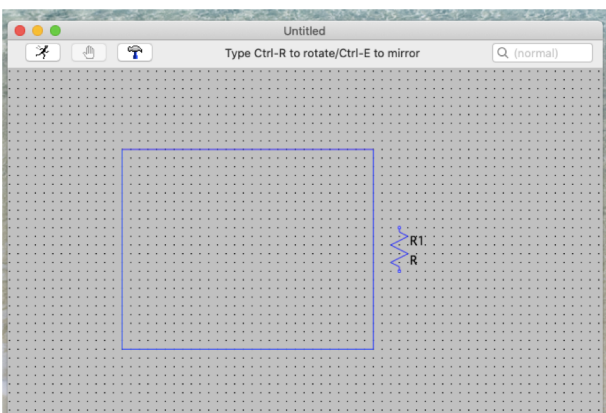
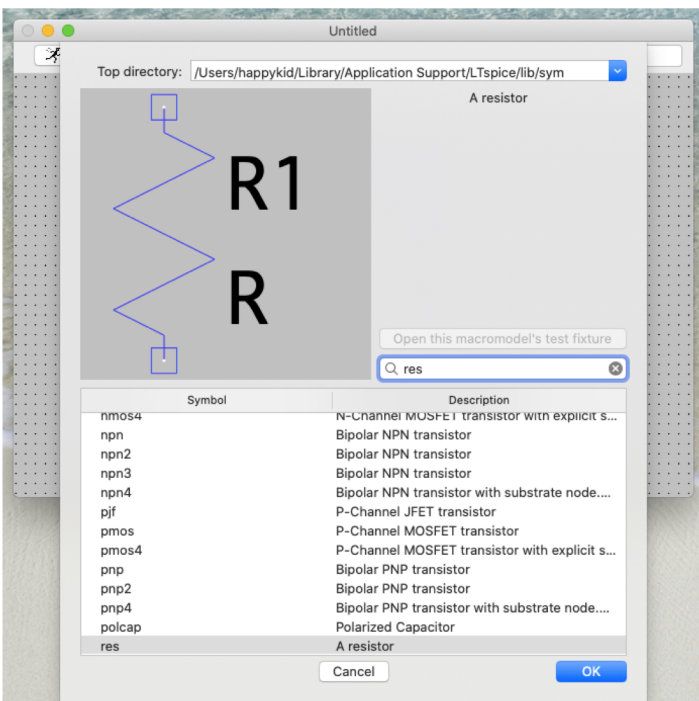


Check your System setting for the “Secondary click” for right click

5. Once you figure out your right click, here we can start with drawing wire by clicking **Draft> Wires:**

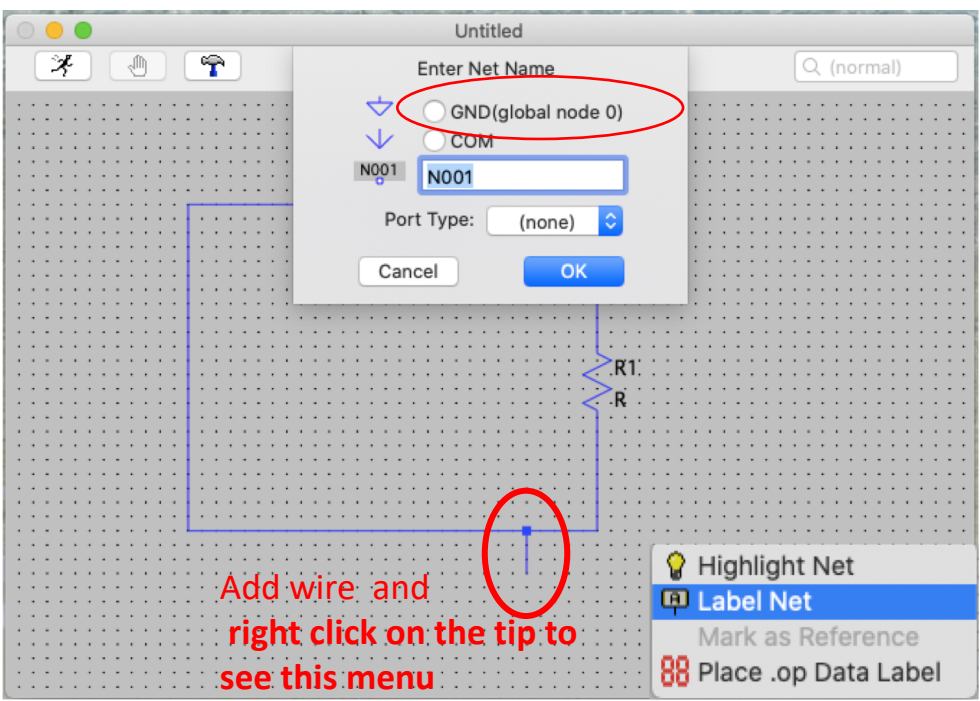


6. Here I draw a box for closed circuit. Now add resistance. Again go to **Draft>Component type Resistor** and then click **OK**

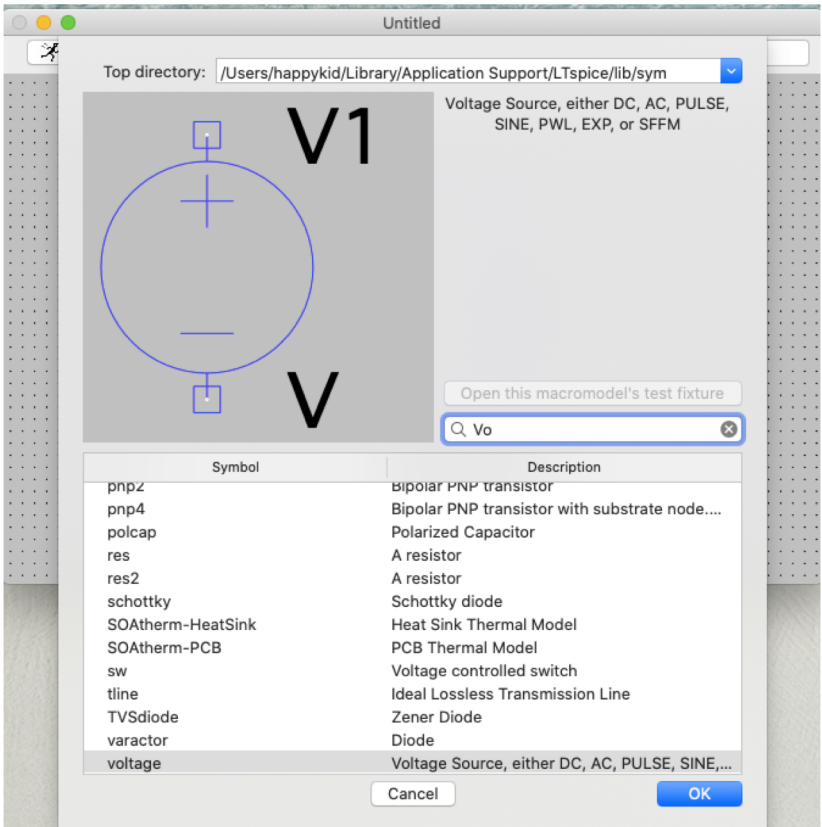


Then place it where you'd like it to be. If you'd like to rotate, press **Ctrl-r** until the correct direction. You can escape the component cursor mode by pressing **esc** key.

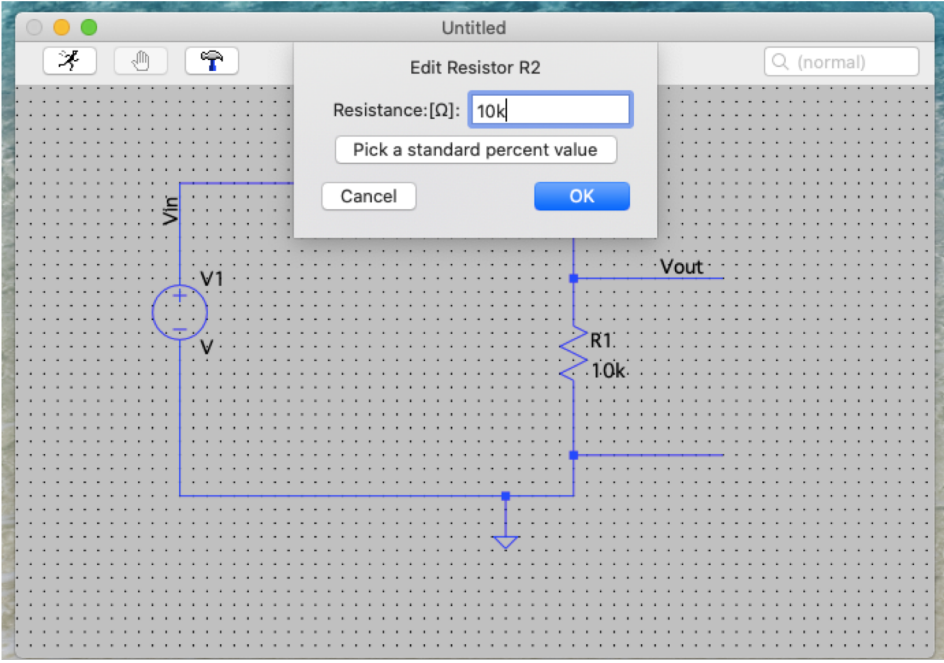
7. **IMPORTANT:** LTspice circuit will not work WITHOUT ground!! Add wire and right click at the end of wire . Select **Label Net** then choose **GND**, then the wire tap will change to



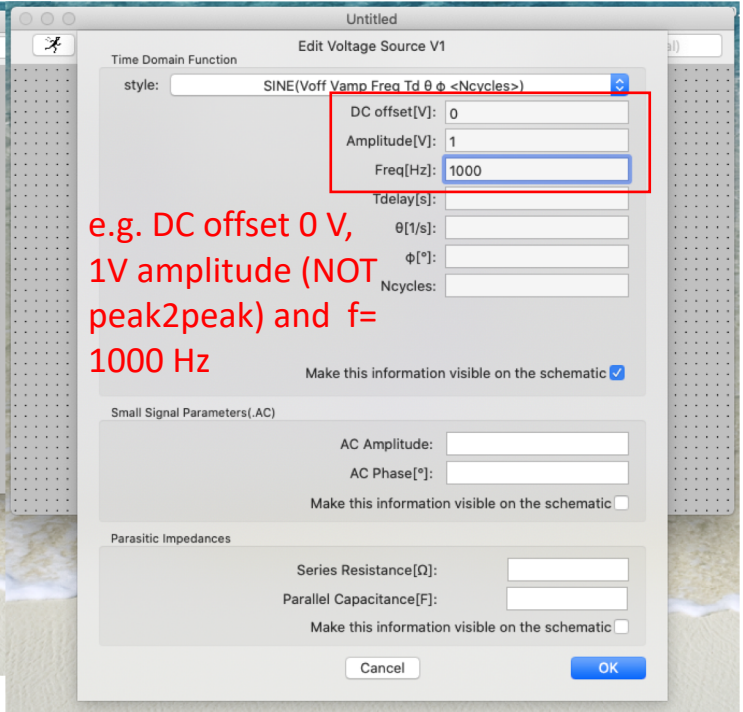
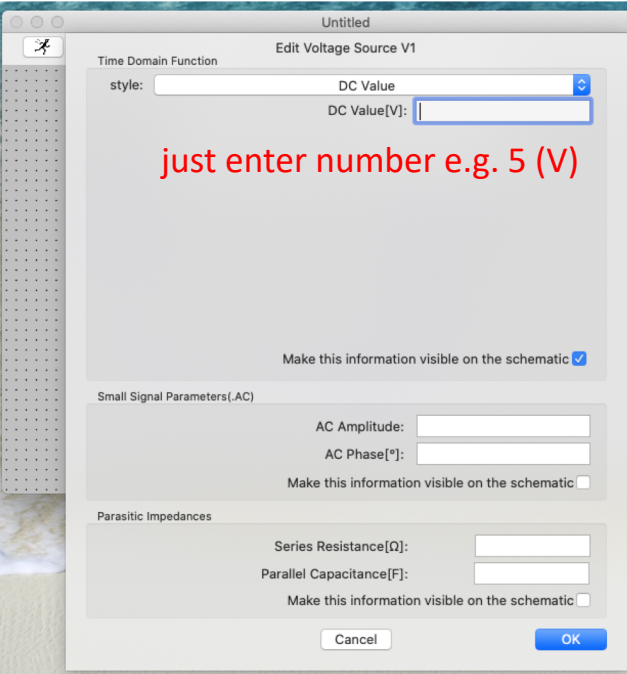
8. Now add voltage source – either DC or AC Pulse – Right click and **Draft>Component** and start typing. Then highlight the one you are looking for (here voltage source) from menu and click **OK**. You can specify the characteristics of Voltage source by **right-click**. It opens up a property menu for Voltage source (See Step 10).



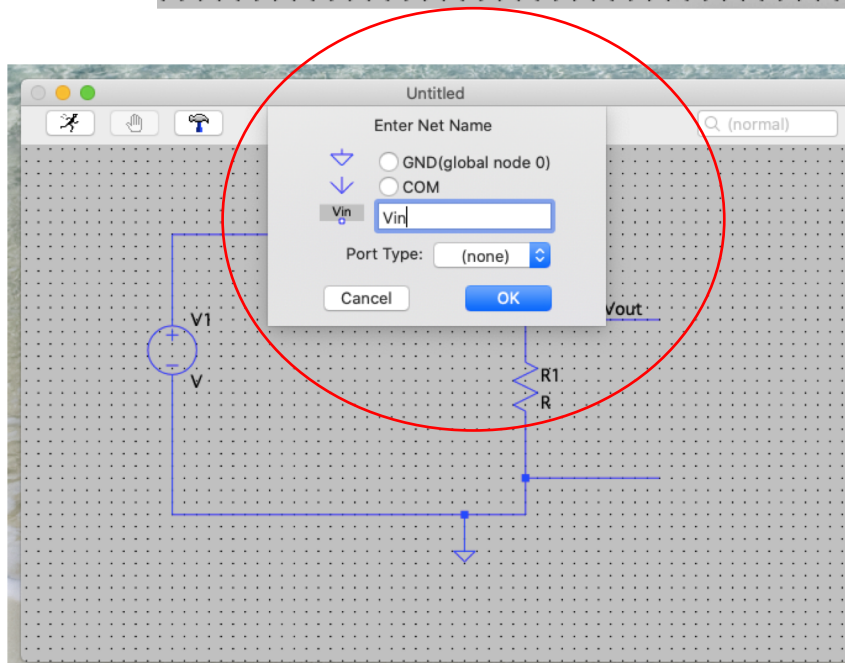
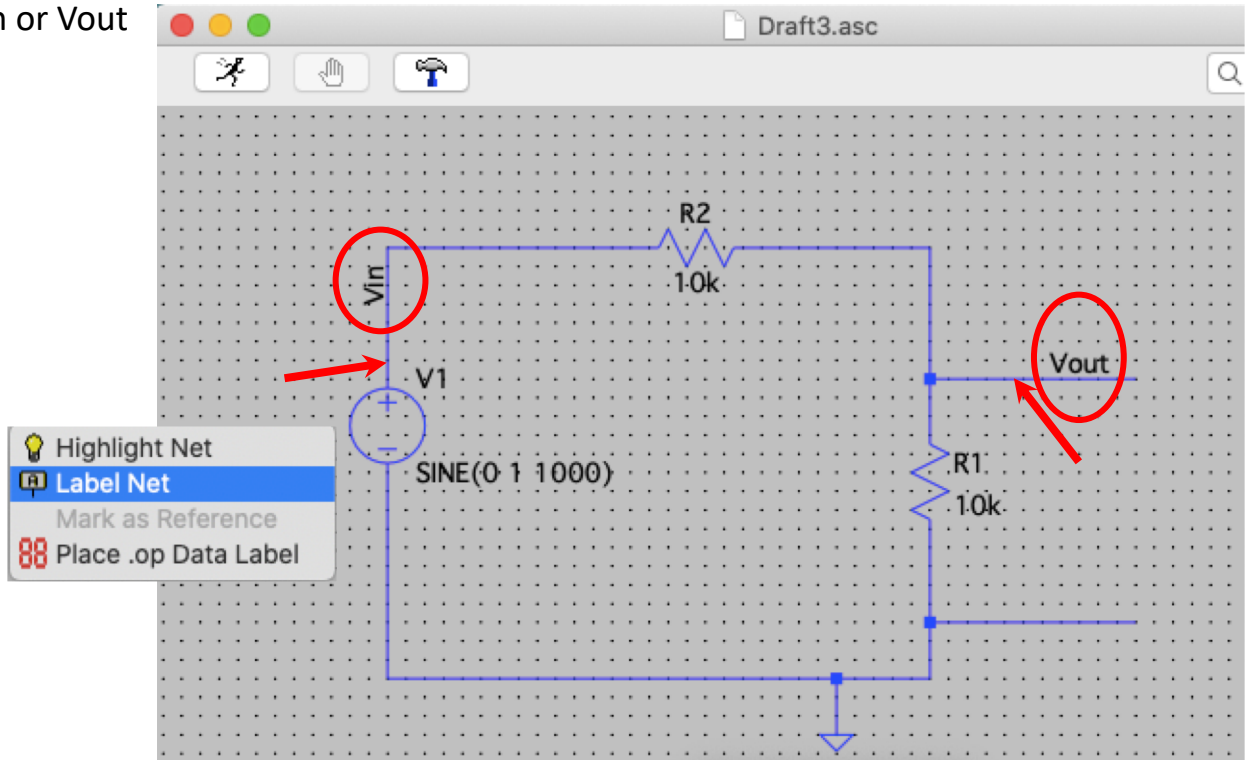
9. Add resistance values : **Right click** on the resistor (cursor changes from arrow to hand). Enter the number. "k" represent 103, "MEG" , 106, etc. Please google the numeric format.



10. Specify Voltage source: Similarly **right click** on the voltage source – either DC (simply enter the value) or AC , at least give DC offset (0V), amplitude (1V) and Freq (1000 Hz)

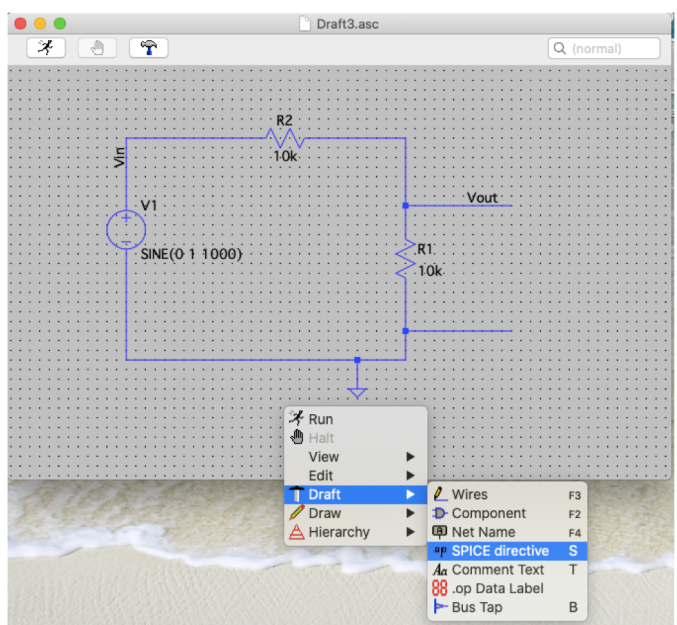


11. Finally, Each node to be measured have to be specify. Here that would be **Vin** and **Vout**. **In order to do this**, place the cursor for the location for Vin (or Vout) would be measured (indicated as arrow) and right click. The select **Label Net** and on third item, add name Vin or Vout

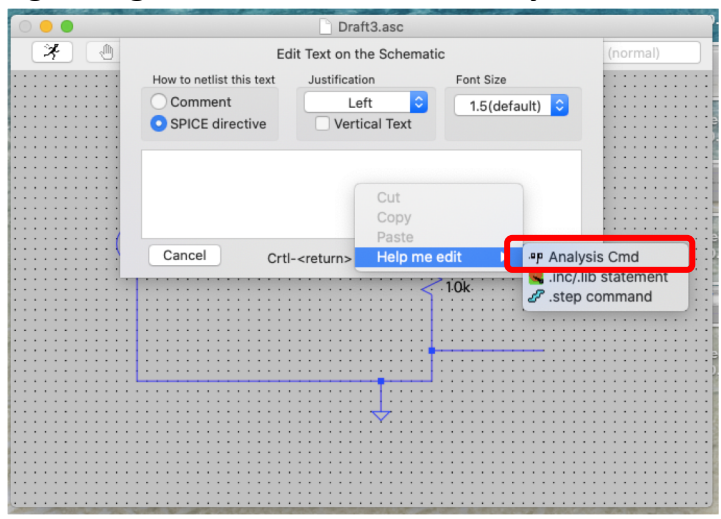


** Now your circuit is completed and need to measure What Vin and Vout looks like

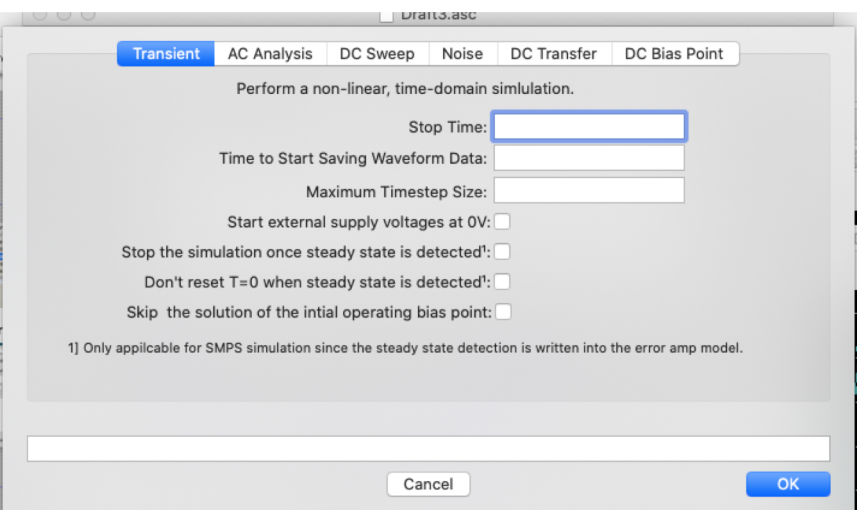
12. Right-Click anywhere and choose **Draft>SPICE directive** .



13. Edit Box appears. Don't know what to type? Again **Right-click** and choose **Analysis Cmd**

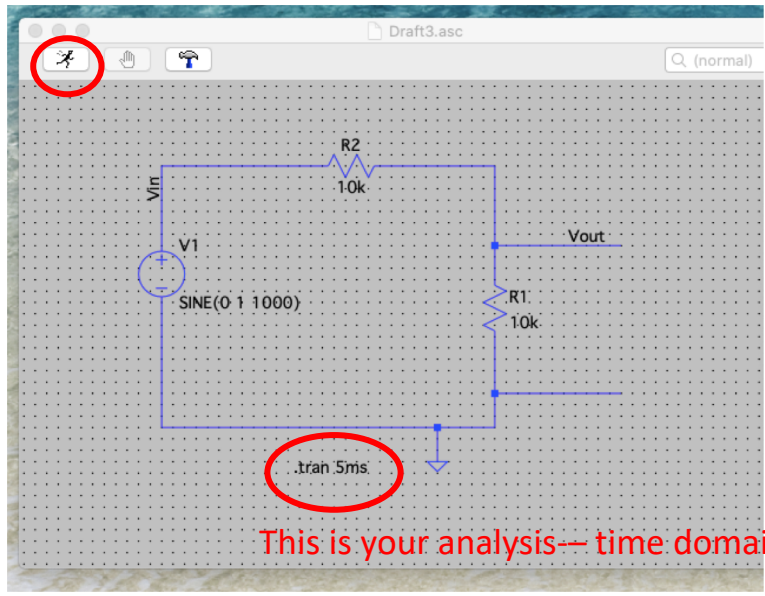


14. We will mostly use **transient** and AC analysis. **Transient** is for time-domain (i.e. x-axis is time as oscilloscope screen).

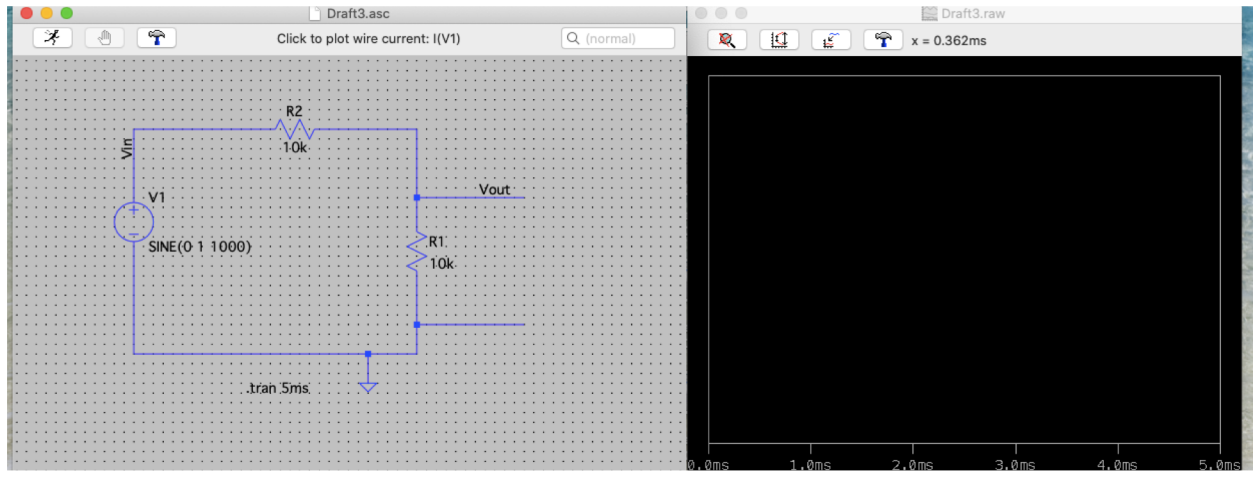


15. Specify **Stop time** -- consider your frequency. 5 periods. e.g. for 1kHz, it would be 5 ms. For now, just specify the **Stop Time** and leave others blank (which is always good thing to do , if you don't know what to do with it.) Then click **ok**

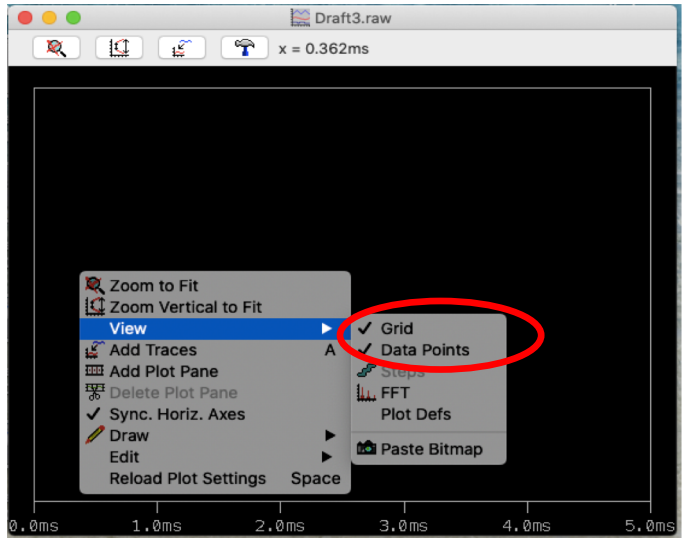
16. Now your circuit simulation is ready to run by clicking (obviously) run button



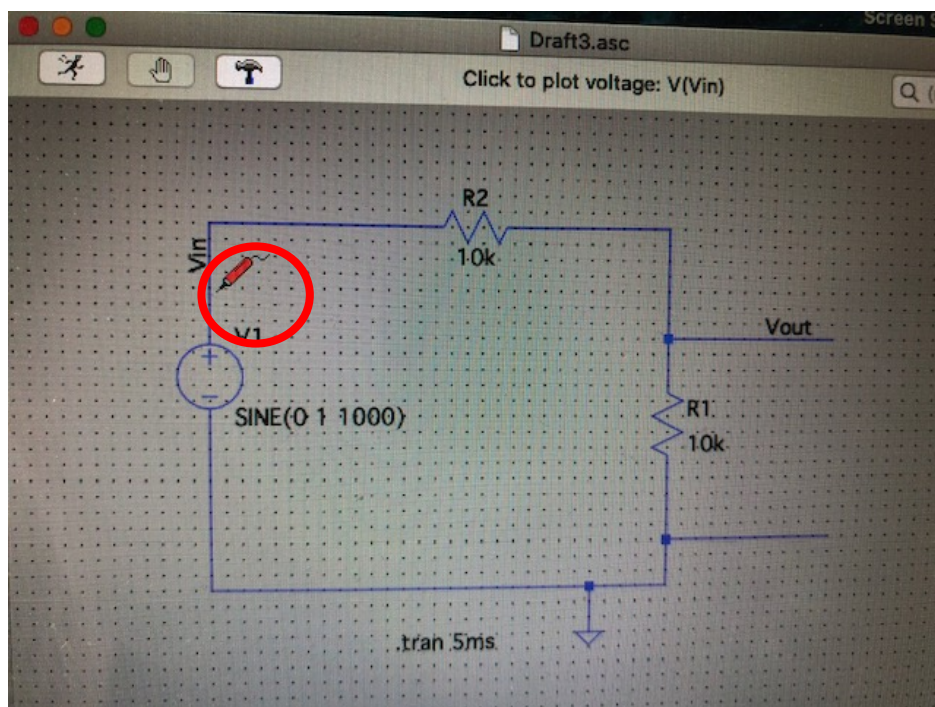
17. Then graph screen appears Note that x-axis is already marked up to 5 ms



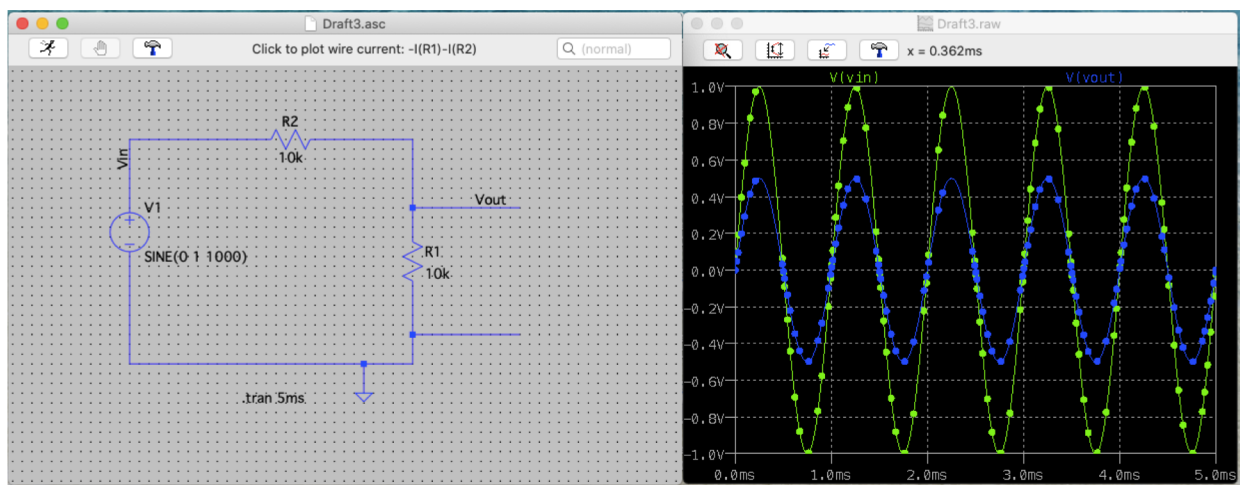
**You can right-click and specify property – like showing grid and data points.



18. Bring the cursor near V_{in} . The arrow will change to voltage probe and clicking while "Voltage probe" shape cursor, it will plot the V_{in} .



19. Then click V_{out} with the voltage probe. It will overplot. (Below green is V_{in} and blue is V_{out})



** If you click while holding down Shift-Ctrl, the voltage probe will change to the **current probe cursor** and clicking will make current vs time plot appear (on current values shows on right y-axis).

Ok .. this is just a bare-bone instruction and now go and play around !!!
END