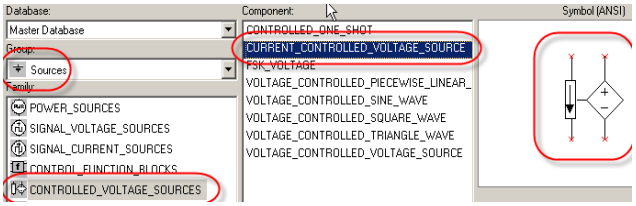
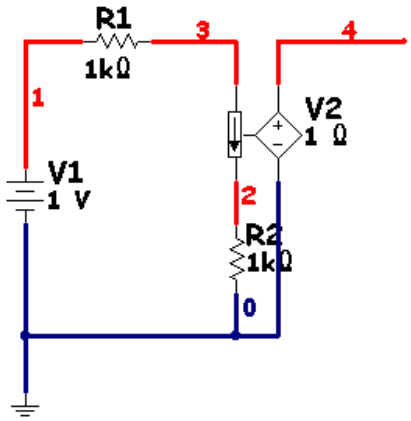
So you want to plot current or sweep resistance?

If you desire to see a plot of current in a lab environment you tend to run into a problem. O-scopes will only measure voltage vs current. The way that it would be accomplished in a real lab is to either:

- take voltage measurements at over time by hand and then divide by the resistance and then plot by hand or program.
- place a 1 ohm resistor in the circuit (referenced to ground) and then measure the voltage over time w.r.t. (with respect to) ground which will in effect be current. The problem with this method in lab is that the resistor needs to be able to handle large amounts of heat (i.e. a wire resistor).

Multisim makes the process easier thru the use of a ICVS (Current Controlled Voltage Source).

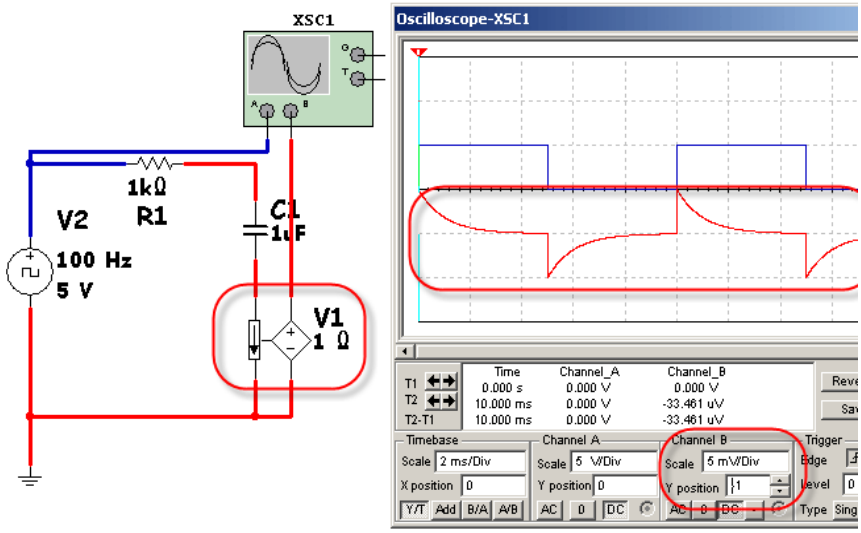




When you are asked by the analysis mode in question for the output node, you would enter node 4 for this example.

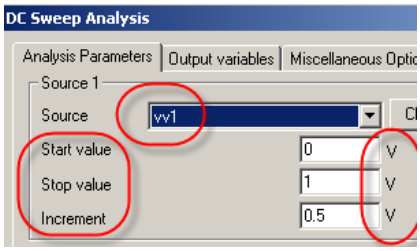
(Note that the output stage of the ICVS is referenced to ground)!!!!

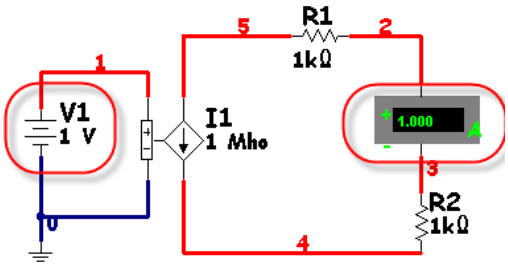
Another example



(Note that the output stage of the ICVS is referenced to ground)!!!!

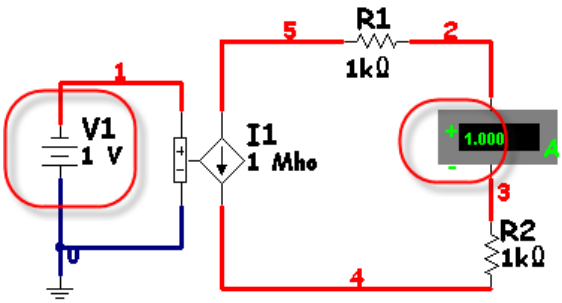
Suppose you desire to perform a DC Sweep Analysis on a circuit which is being driven by a current source. The problem is that a the DC Sweep Analysis will only sweep VOLTAGE sources over a series of voltages. There are no settings for current sources.



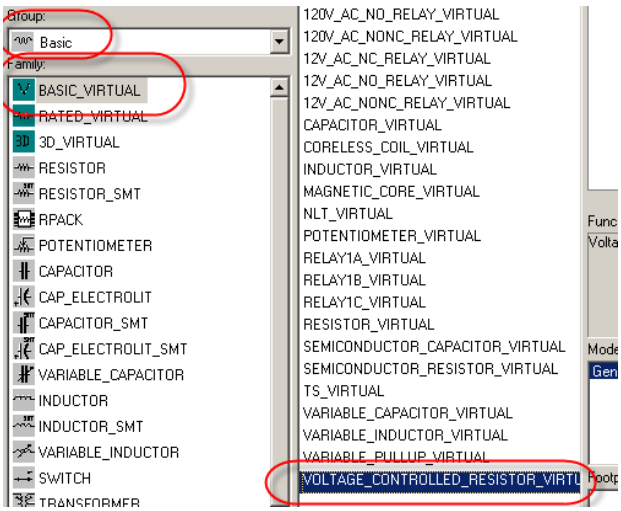


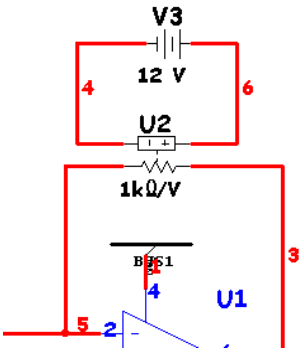
The fix for this is to use a Voltage Controlled Current Source (VCIS) as a replacement for the circuits current source.

Note: Before going any further you need to note that the current arrow of the VCIS is pointing down vice up. If you desire to have the current go in the other direction then you need to change the polarity of the controlling voltage source.



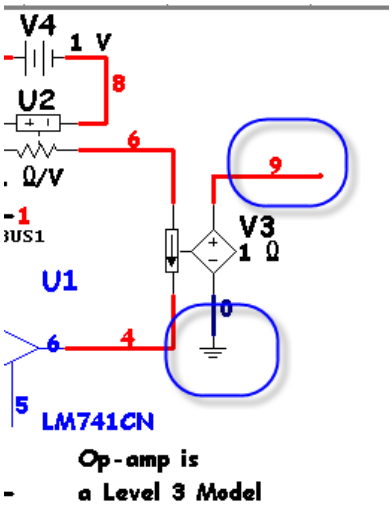
Suppose you desire to analyze a circuit for varying values of a resistor. Multisim has a method called Parameter Sweep to do this but it is very hard to use. There is another way to do it. Multisim has a device called a **Voltage Controlled Resistor and you would use it in the DC Sweep analysis**.





The value of the battery isn't important since you will be sweeping it over a set of values in the DC sweep. In it's present configuration the resistor would be a 12k resistor. Care must be taken in the sweep to keep in mind that the value of the resistor ratio is 1k ohm/v. Feel free to change it to 1 ohm/v if that helps with the values you need to sweep.

What do you do if you are looking at a current which is not related to ground?



In this case the output node would be Node 9. Note the requirement tht the voltage side MUST be grounded. This can also be setup with a resistor on the output stage. This output stage again must be grounded just as it was earlier in the tutorial!