Using LTspice – a Short Intro

LTspice, also called SwitcherCAD, is a powerful and easy to use schematic capture program and SPICE engine, which is a general-purpose circuit simulation program for nonlinear DC, nonlinear transient, and linear AC analysis. LTspice authored by Mike Engelhardt can be downloaded for free at

https://www.analog.com/en/design-center/design-tools-and-calculators/ltspice-simulator.html

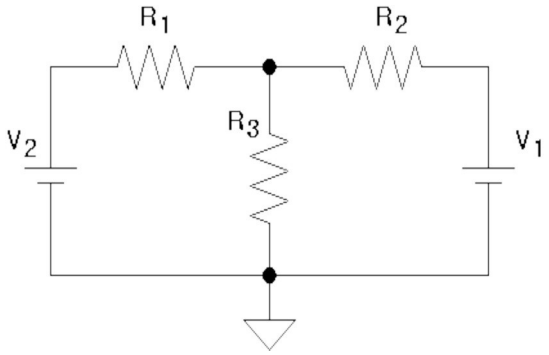
On the left side there are several downloads

-the program itself, you must run the LTspiceXVII.exe program to install the software

-user guide

-getting started

1. Example of a simple DC analysis



The values of components are:

V_1= 5V

V_2=10V

R_1=10

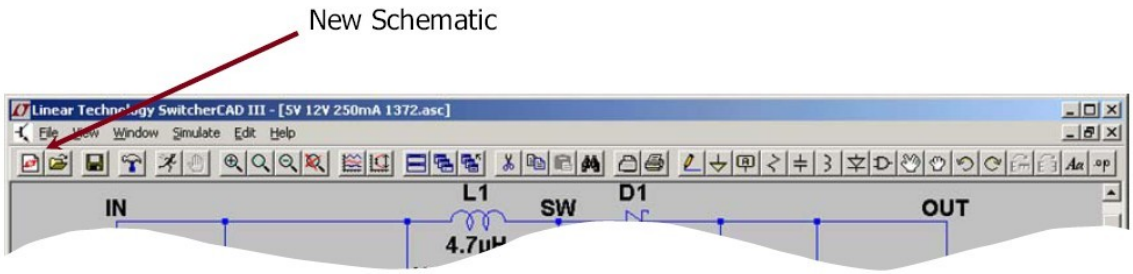
R_2=20

R_3= 5

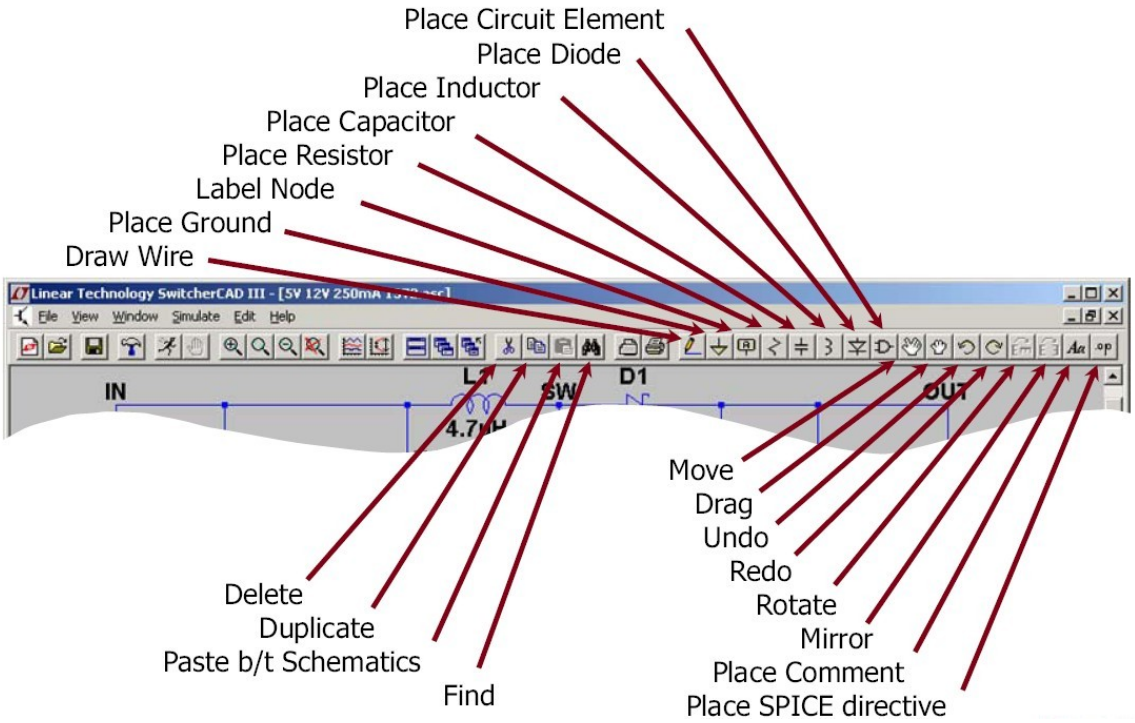
Goal: determine the current flowing through each resistor and voltages of nodes.

Step 1. Draw the circuit.

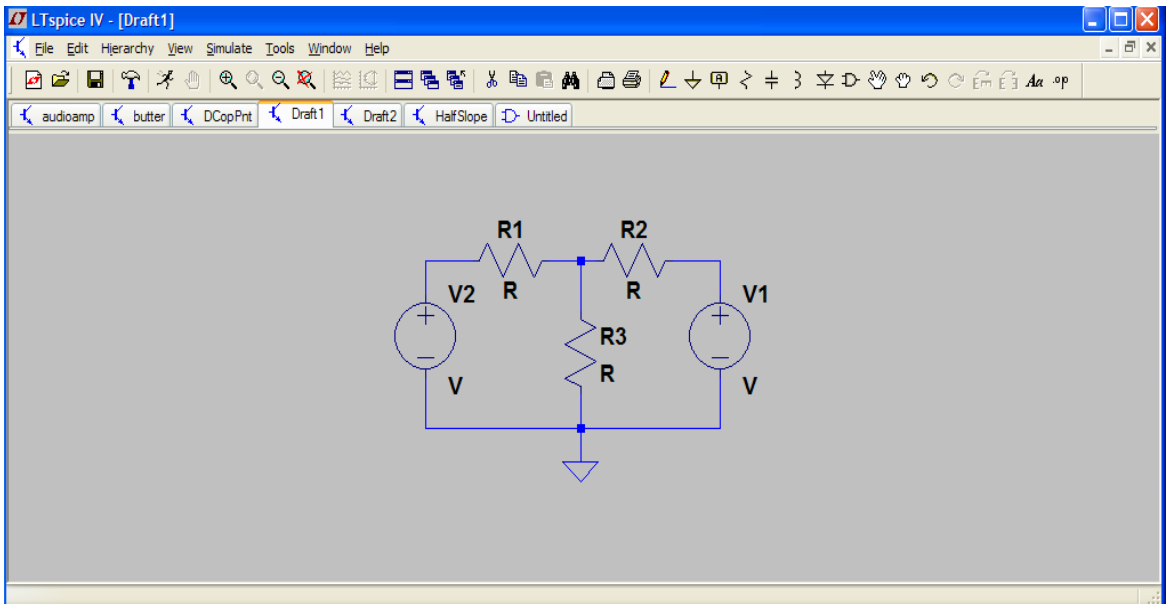
Go to File ->New schematic to create a new circuit.



Select the components from the Schematic Editor Toolbar. In this example, you'll need three resistors  , two DC voltages (select Component  , type voltage and hit ok), a ground  , and wires connecting the components  . By default, components are placed vertically, so you may want to rotate two resistors. You can do so by typing Ctrl-R while moving the elements in order to place them wherever you want.

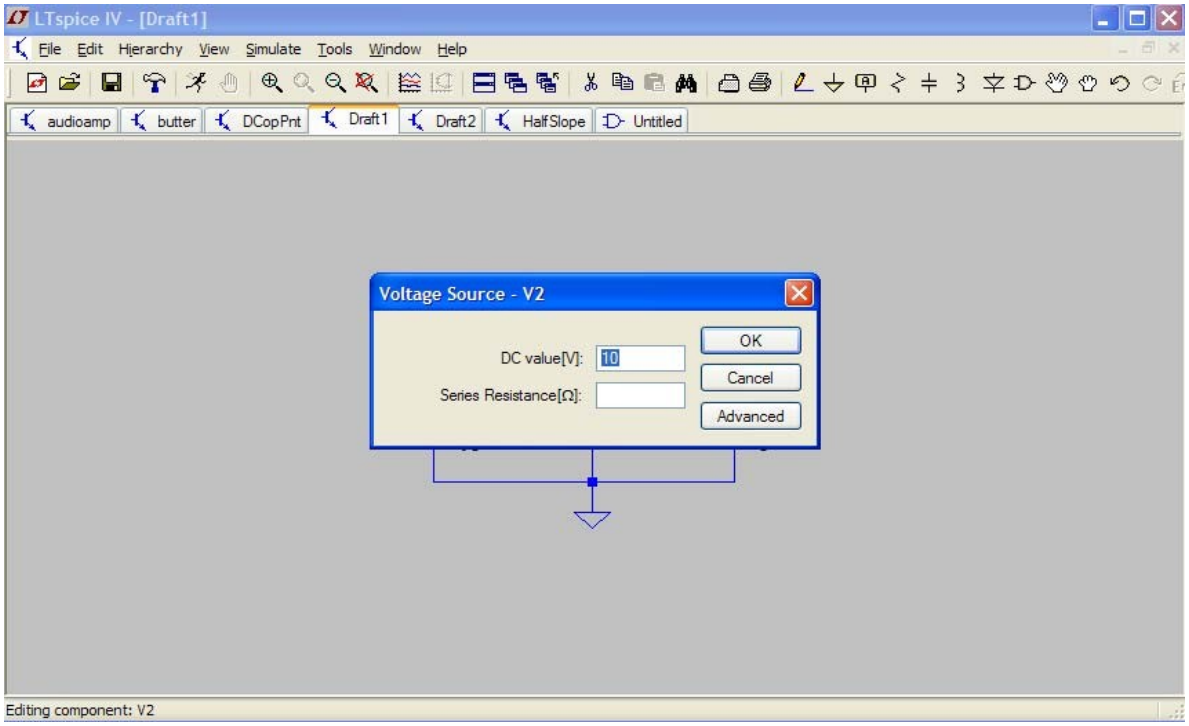


Once you are done your circuit should look like this. Note that you can zoom in/out by scrolling.

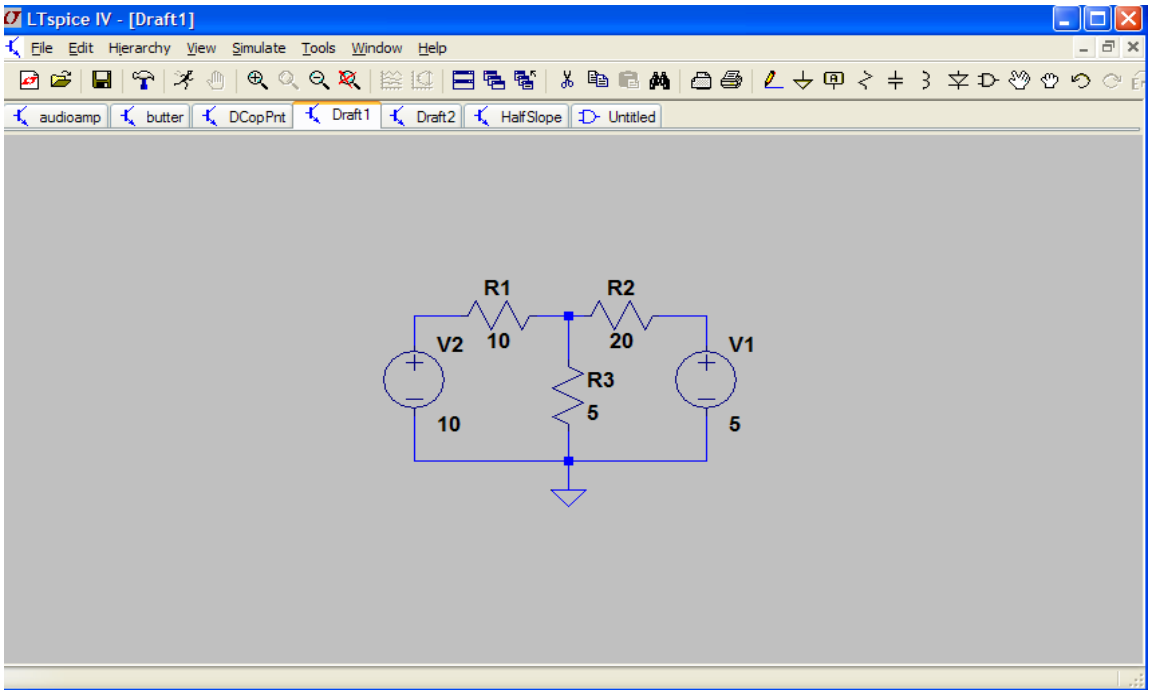


Step 2. Enter the values.

Right click on each component. A window will pop up like this. Enter the value and hit ok.



Finally, your circuit diagram should look like this.



Step 3 Go to Simulate > OK or hit icon.

Result will be shown in a pop-up window.

```
       --- Operating Point ---

V(n002):        3.57143       voltage
V(n001):        10            voltage
V(n003):        5             voltage
I(R3):          0.714286      device_current
I(R2):          0.0714286     device_current
I(R1):          -0.642857     device_current
I(V2):          -0.642857     device_current
I(V1):          -0.0714286    device_current
```