Lab 1

First stage

Cyber Security Science Department

Computer Organization and Logic Design

Lab 1: Introduction to Multimedia Logic

By

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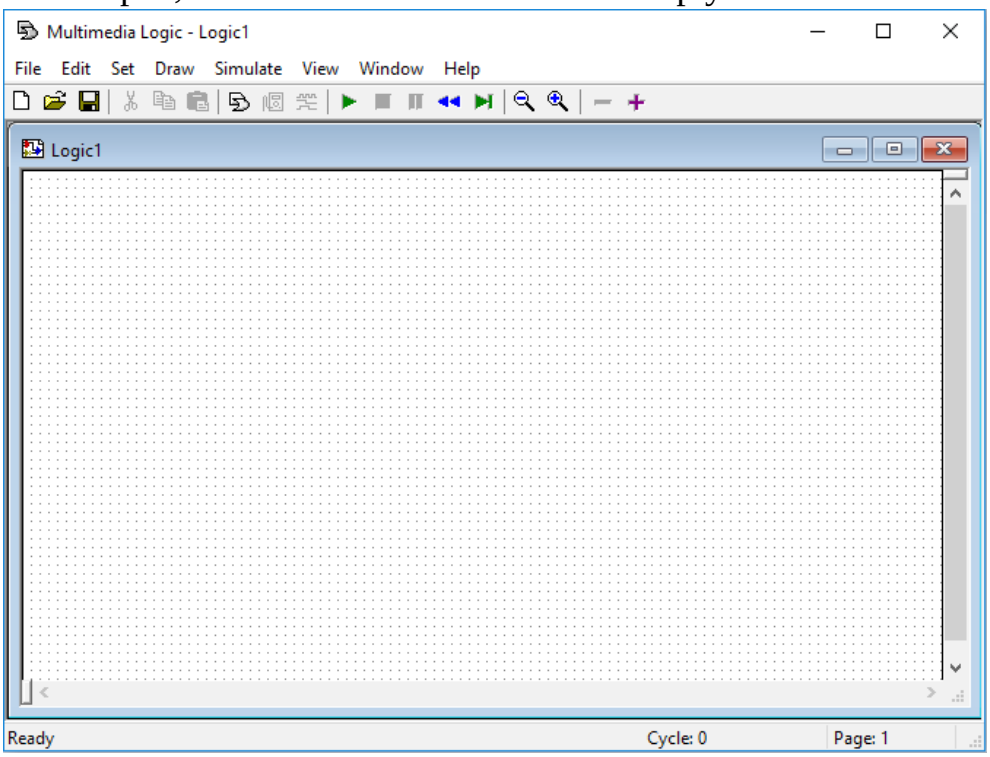
Introduction to Multimedia Logic

Multimedia Logic a logic simulator is a high level simulation of a "digital" circuit, the kind used in a computer. At this level of simulation we ignore the details of the "real world" such as power for circuits, how fast circuits are, ground signals, cost and etc. These details are ignored so that you can deal directly with the logical aspect of the problem at hand. In the "real world", when you're ready to build your circuit you can worry about these details.

You can download Multimedia Logic (MML) for free at

https://www.softronix.com/mmlogic-downloads/.

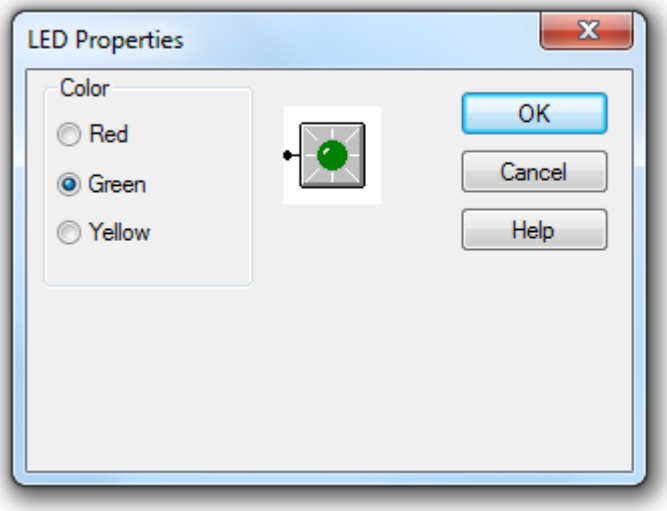
When open, the MML interface shows an empty canvas with a menu bar:

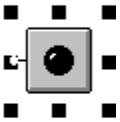


Click on the Palette symbol  to view circuit components:

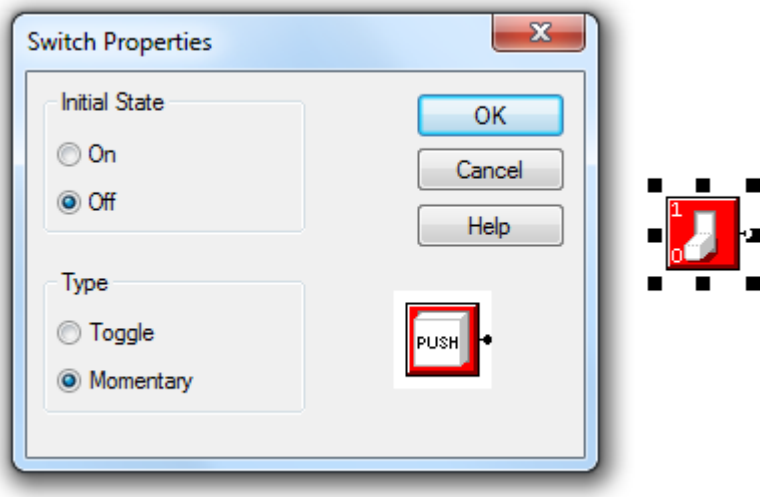
You can use switches as inputs and LED's as output to simulate a circuit. Include text labels to annotate your circuit.

If you double-click a component, you may change its properties. For example, you may select the colour of an LED:

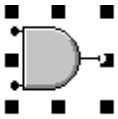


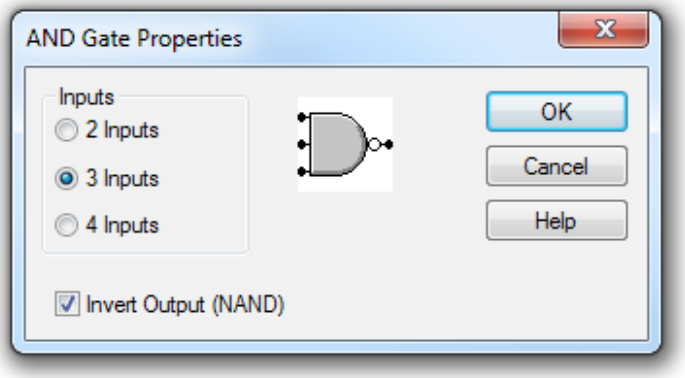


Similarly, you can select the type of switch you need:

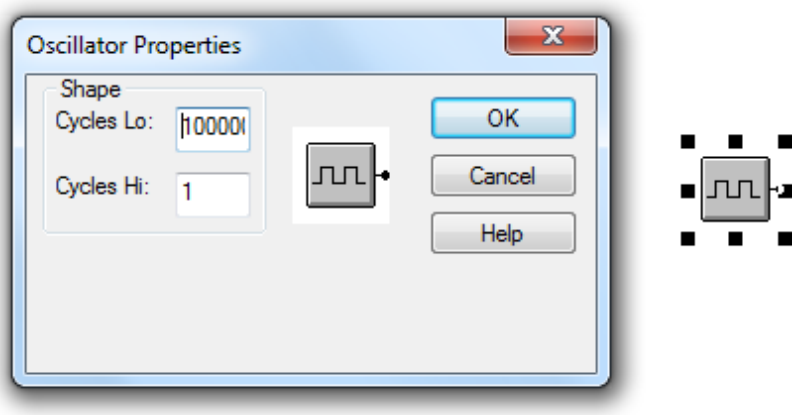


If you double-click on a logic gate, you may choose how many inputs you require. You also havethe option to invert the output if necessary:





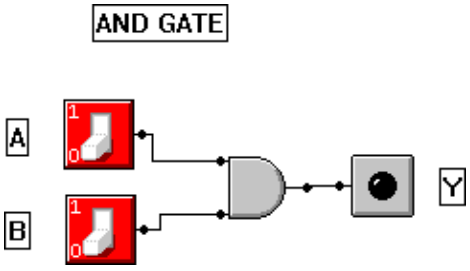
In the properties for an oscillator, you may change the speed of the pulse. Changing the Lovalue to 10,000,000 is very close to 1 pulse per second:



Testing your circuit

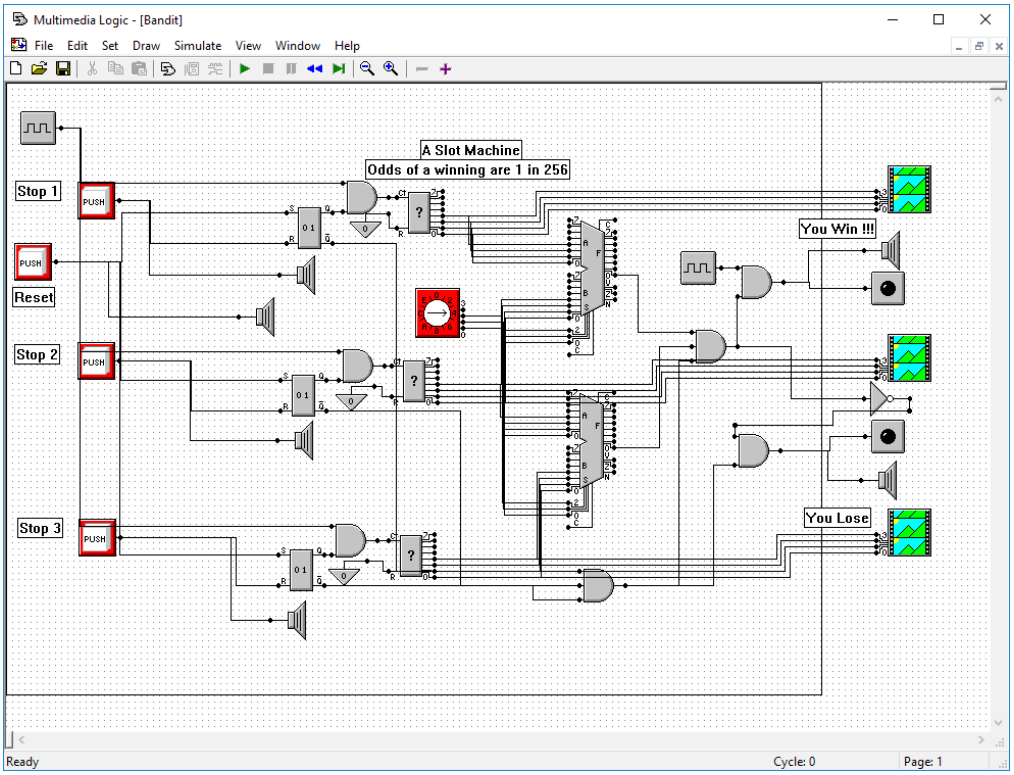
Run your simulation by clicking on the green arrow  on the menu bar. This allows you toturn the switches ON and OFF, and see the output of the LED.

Example:

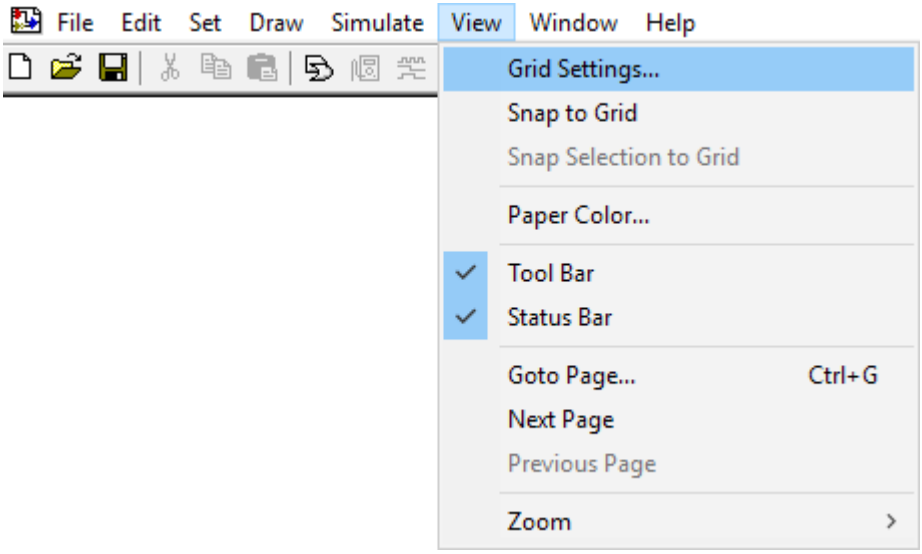


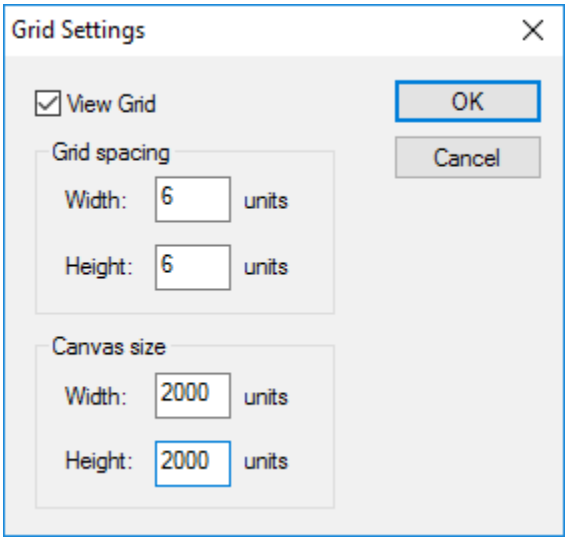
Resizing the Window

When working in MML, sometimes we run out of space on the within the working window of thecanvas:



In order to resize the window, select View in the menu bar, then click on Grid Settings…:

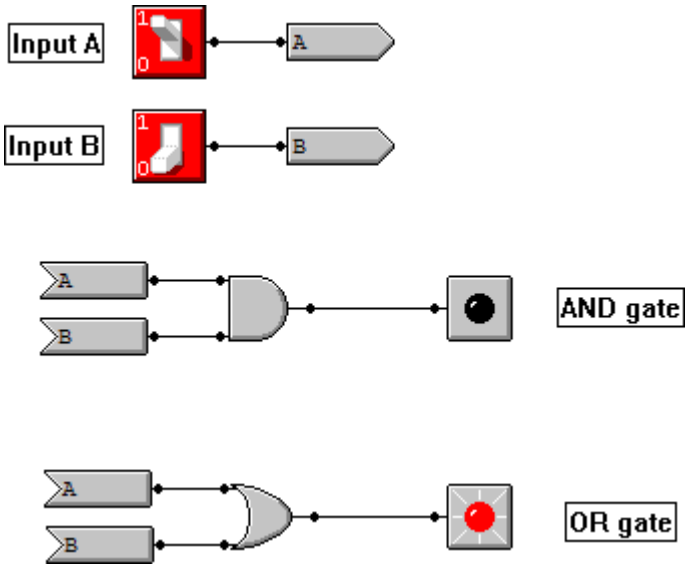




Then change the Canvas size to desired dimensions, for example 2000 x 2000.

Wireless Connectors

Sometimes we need to reuse the same input in several parts of the circuit. Rather than having a web of connecting lines running across every which way, we can choose to use connectors:



In the above case, we create sending connectors for the inputs A and B. Then we can createtwo or more receiving connectors to use in different parts of the circuit.

Note, for each input, the name on the sending and receiving connectors must be perfect match!

Multiple pages

You can add pages to your file by clicking the plus sign at the right end of the menu bar.

Receiving connectors can be used across several pages, however, you cannot create two sending connectors with identical names.