

# Logic Simulator

## User Guide

To load graphical user interface (GUI), change directory into the folder *gf2\_python* and run the *logsim.py* program using the command:

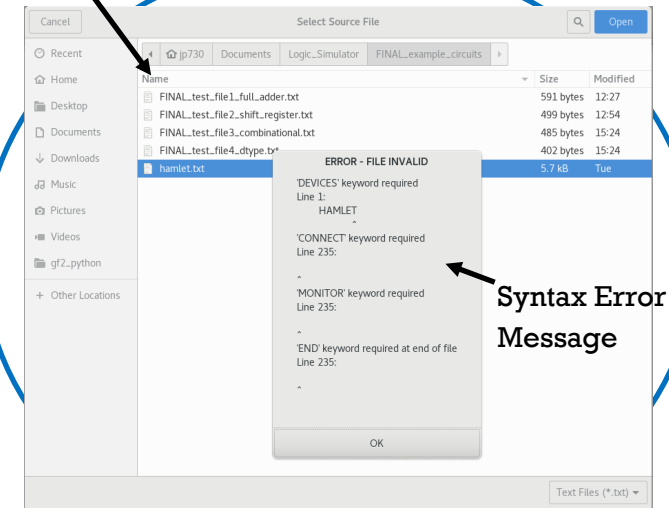
```
python logsim.py (def file location)
```

The location of a definition file is optional and the GUI will be preloaded with the file if the argument is given.

### Performing Circuit Simulation:

- 1 If not preloaded, then click browse button and select your desired '.txt' definition file.
- 2 Add/Remove points in the circuit at which the trace will be recorded on the canvas by the simulator.
- 3 Select the desired initial state of the switches in the circuit (this will not appear if no switches exist)
- 4 Enter the number of cycles for which the circuit should be simulated and click the run button.
- 5 The trace for each monitoring point will be displayed on the canvas. Pressing the continue button will continue simulating each trace for the specified clock cycles (max 100 per run/continue).

### File Selector Dialog



Syntax Error Message

### LOGIC DEVICES SUPPORTED

- CLOCK
- SWITCH
- SIGGEN
- AND
- NAND
- OR
- NOR
- XOR
- DTYPE

The screenshot shows the Logic Simulator GUI. The main window displays a 3D trace of circuit signals over time. The x-axis represents time (0 to 20 cycles), and the y-axis represents the signals. The signals are color-coded: blue for 'switch3', orange for 'andb', brown for 'xor1', green for 'switch1', red for 'or1', and purple for 'xor2'. The signals are shown as horizontal bars indicating their state over time. The 'Time axis' is labeled at the bottom. The 'Control number of cycles' is shown in the top right corner, with a value of 10. The 'Control Buttons and switch from 3D to 2D' are shown in the bottom right corner, including 'Run', 'Continue', 'Exit', 'Switch to 2D Traces', and 'Reset Position'. The 'Current Monitor Points and Scrollbar' are shown in the bottom right corner, with a list of monitor points: 'xor2', 'or1', 'switch1', 'switch2', 'xor1', and 'and1'. The 'Current Switch States' are shown in the bottom right corner, with a list of switch values: 'switch1' (Off), 'switch2' (Off), and 'switch3' (On). The 'Name of monitoring point and trace' is labeled on the left side of the trace. The 'N.B. Initial states of clocks and dtypes are randomised' is noted on the left side of the trace. The 'Other features:' are listed on the left side of the trace.

Name of monitoring point and trace

N.B. Initial states of clocks and dtypes are randomised

Other features:

- Click the button "Switch to 2D traces" to see a 2D graph of your results.
- This software will inherit the local language on your device and support English, French and Hindi.

Control number of cycles

Control Buttons and switch from 3D to 2D

Current Monitor Points and Scrollbar

Current Switch States

Time axis