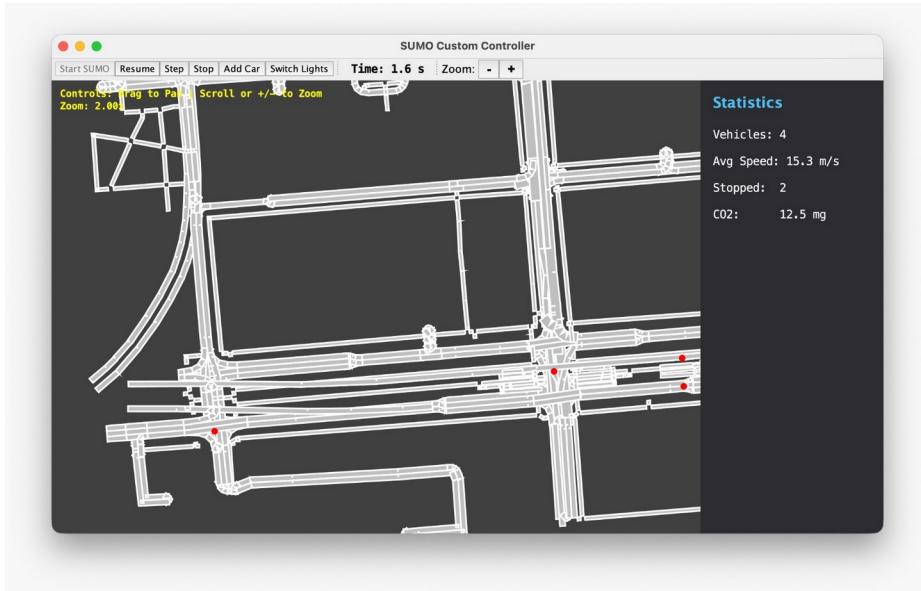


TrafficSim – User Guide

1. Introduction

TrafficSim is a graphical simulation tool based on SUMO that allows you to start, control and observe traffic simulation in real time. The application provides basic simulation controls, zoom and navigation features, and live statistics.



2. User Interface Overview

The application window is divided into three main areas:

- Top Toolbar – Simulation controls and tools
- Center Area – Traffic visualization
- Right Panel – Simulation statistics

3. Visualization Area

The central visualization panel displays the road network and vehicles

- Roads and intersections are drawn dynamically
- Vehicles are shown moving through the network
- Zoom and pan allow detailed inspection

4. Statistics Panel

The right hand panel displays live simulation vehicles:

- Vehicles – number of active vehicles
- Average Speed – Mean speed of all vehicles
- Stopped – Number of stopped vehicles
- CO₂ – estimated emissions (mg/s)

These values update continuously during the simulation

5. Notes & Limitations

- SUMO must properly installed and configured
- Large stress test may reduce performance
- This software is intended for educational and experimental use

6. Toolbar Controls

I. Start SUMO

Starts the traffic simulation using the configured SUMO scenario.

- Enabled at the application start
- Disabled while the simulation is running

II. Pause/Resume

Pauses or resumes the simulation

- When paused, the simulation time stops
- Button label changes between Pause and Resume

III. Step

Advances the simulation by one single step

- Only enabled when the simulation is paused
- Useful for detailed analysis

IV. Stop

Stops the simulation completely and resets the time counter

- Re-enables the “**Start button**”
- Disables all simulation controls

V. Add Car

Opens a dialog to manually insert a vehicle into the simulation

- Allows custom vehicle parameters

- Only available while the simulation is running

VI. Stress Test

Runs an automated stress test by injecting multiple vehicles

- Used to test network performance and congestion
- Intended for experimental and analysis purposes

VII. Zoom Controls

- “+“ Zoom in
- “-“ Zoom out

Additional controls:

- **Mouse Drag** → Pan the map
- **Mouse Scroll** → Zoom in/out

VIII. Help

Opens the User Guide as a PDF document in your system's default PDF viewer

7. Typical Workflow

1. Start the application
2. Click Start SUMO
3. Observe traffic flow
4. Pause or step through the simulation if needed
5. Add vehicles or run stress test
6. Stop the simulation to reset

8. Support

If you encounter issues:

- Check your SUMO configuration files
- Verify that required resources are available
- Restart the application if needed

Collaborators:

- Oleksandr Bahno
- John Grosch
- Abdulrehman Saqib Khan

End of Help Document
