

SUMO

Steps to follow to simulate a Traffic Simulation at road Intersection in Sumo →

1. Create a Node file
→ In my case it is nodes.nod.xml
2. Create an Edge file
→ In my case it is edge.edg.xml
3. Generate network file using the command
→ `netconvert --nodes nodes.nod.xml --edges edge.edg.xml --output-file network.net.xml --lefthand`

→ This command generates a Left Hand Drive network.

→ Add the following additional information in this file

```
<additional>
  <vType id="car" type="car" guiShape="passenger"/>
  <vType id="bus" type="bus" guiShape="bus"/>
  <vType id="bike" type="bike" guiShape="motorcycle"/>
</additional>
```

→ This information is added for various types of vehicles we want in our network.

4. Generate Random Trips file using the in-built randomTrips.py file
→ `python randomTrips.py -n network.net.xml -e 200 -o trip.trips.xml`

→ The above command generates 200 trips.

5. Modifying this Trip file
→ The file `modifying_trip.py` mentioned above is used to generate a `modified_trips.trips.xml` file.

6. Generating route file with the help of modified_trips and our network file.

→ `duarouter -n network.net.xml --route-files modified_trips.trips.xml -o route.rou.xml --ignore-errors --no-warnings`

7. Modify this route file to generate trips to be at random interval but in a sorted way.

→ The above mentioned file `modifying_routes.py` does this work.

8. Now pass the sorted_random_route file and network file to the config file.

→ In my case the config file is `config.sumocfg`

9. The last step is to calculate the Average Waiting Time for a particular car which is waiting at the signal.

→ The file name is `avg_waiting_time.py`

10. Now the algorithm will be applied to reduce this waiting time at a traffic signal at road intersection.