

openMobility Working Group

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Berlin, Germany

Knowledge for Tomorrow



Eclipse SUMO Project

Simulation of Urban MObility

Welcome to Eclipse SUMO (Simulation of Urban MObility), an open source, highly portable, microscopic and continuous multi-modal traffic simulation package designed to handle large networks.

SUMO 1.7.0 for Windows 64bits

Latest Development Version (Nightly Snapshots)
Older releases

View on GitHub | Star 812 | Fork 543

Registration is now open!

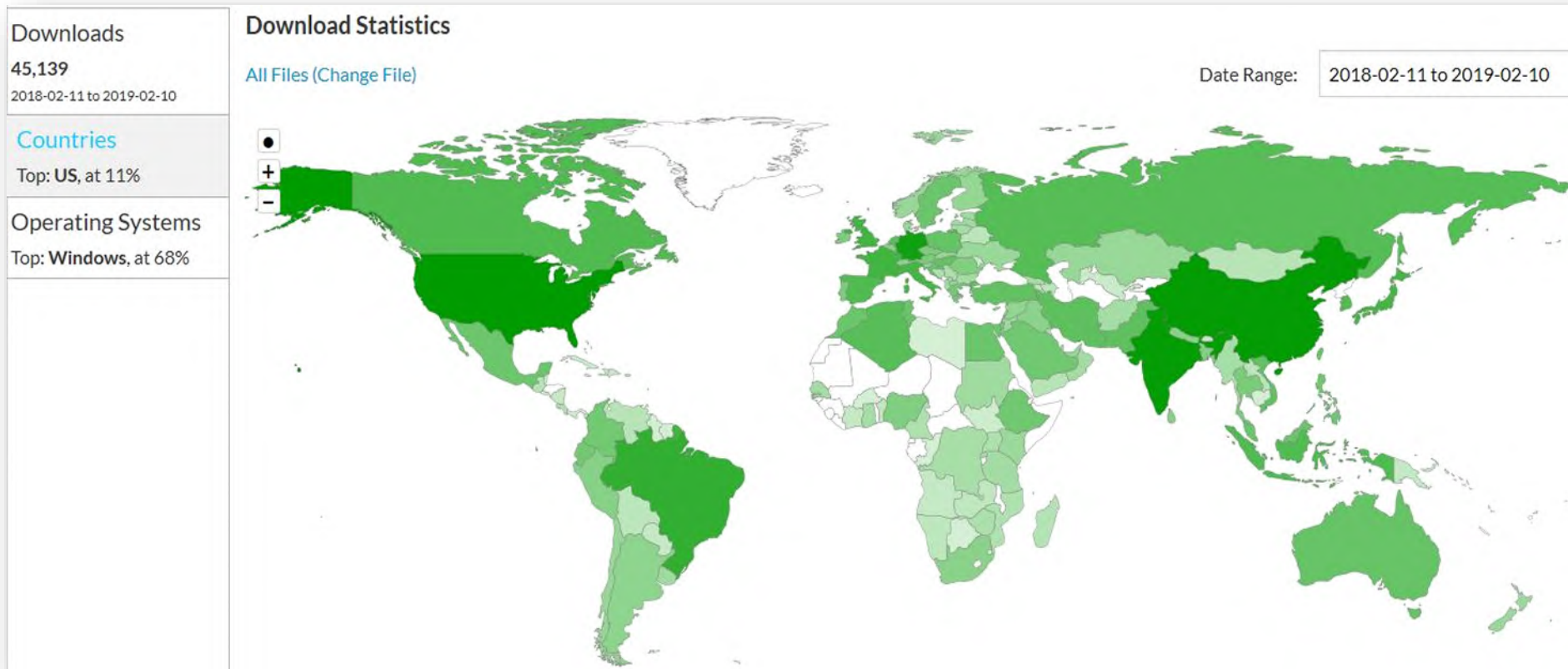
The **SUMO User Conference 2020** takes place October 26-28, 2020. This year's conference is going to be **online** and the participation will be **free** of charge. [More info about the conference](#)

<http://eclipse.org/sumo>



Open Source since the beginning

- Used world-wide, especially in the scientific community
- 26k hits on Google Scholar for 'sumo traffic'
- #Downloads 2019: > 50 000




Driving Simulation





Unity's Windridge environment for virtual test drives with DYNA4 and stochastic SUMO traffic

Virtual test driving in complex surrounding traffic with DYNA4 and SUMO

Integration of SUMO traffic simulation into DYNA4  vehicle and environment simulation for virtual development and testing of driver assistance systems (ADAS) and autonomous driving functions.

Applications

- Development and test of driver assistance systems
- Development of autonomous driving and Car2X
- Virtual validation of AI functions
- Development of intelligent transportation systems





ADD TRAFFIC AND PEDESTRIANS TO **YOUR TESTING**

For many types of testing it is important to populate your virtual test routes with accurately modelled traffic and pedestrians, for example, the testing of ADAS and Autonomous systems, or simulated RDE test runs.

rFpro allows you to populate the virtual test world with intelligent traffic, from swarm tools such as **SUMO** and PTV-Vissim. It also allows you to create specific scenarios, such as a potential collision at an intersection, using tools such as CarMaker Traffic, or even under direct control via Simulink IO Block. rFpro passes the details of the human test driver's car to the traffic systems, so that the intelligent traffic avoids and gives way to the vehicle under test.

CARLA 0.9.8 release

CARLA and ROS Debian packages, night mode, weather extension, improvements on the traffic manager, new documentation, SUMO co-simulation and much more.

Posted by @sergi-e on March 09, 2020

The CARLA team is delighted to finally announce the release of **CARLA 0.9.8!**

This release makes for a new CARLA experience, bringing improvements to well established modules, along with a bunch of new features. Among these features we would like to highlight the new installation method using deb packages for Ubuntu. A new repository provides deb packages for the CARLA simulator and the ROS bridge, which can be easily installed using apt.

Automated Mobility District “Digital Twin” Provides Insights for Urban Transportation Systems

Sept. 15, 2020

“[...] Overall, the AMD modeling and simulation toolkit offers insights into a range of mobility options not covered by previous transportation analysis models. The toolkit builds on the existing open-source [Simulation of Urban Mobility \(SUMO\)](#) package and the [Future Automotive Systems Technology Simulator](#) developed at NREL.”



The Automated Mobility District Toolkit acts as a decision-making resource for implementing emerging mobility systems, such as this automated electric vehicle at the NREL campus. *Photo by Dennis Schroeder, NREL*

<https://www.nrel.gov/news/program/2020/amd-digital-twin-provides-insight-for-urban-transportation-systems.html>



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Driving the Evolution and Broad Adoption of Open Source Mobility Modelling and Simulation Technologies.

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German Aerospace Center



Fraunhofer
FOKUS



itemis

VECTOR



<https://openMobility.eclipse.org>



User Stories on GitHub

openmobility-wg / userstories

Unwatch 8 Star 6 Fork 0

<> Code Issues 12 Pull requests Actions Projects Wiki Security Insights Settings

Filters is:issue is:open Labels 9 Milestones 0 New issue

12 Open 1 Closed Author Label Projects Milestones Assignee Sort

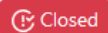
- Use customisable API in Traci/Sumolib to change vehicle parameters** User: BOSCH
#13 opened on 20 Apr by ZoltanBaksa
- Understand vehicle's decisions** SUMO User: BOSCH User: Uni Trento/Bolzano 5
#12 opened on 2 Sep 2019 by RobertHilbrich
- Be able to use SUMO in an ASAM openX Standards environment** SUMO User: BOSCH User: DLR User: Vector 1
#11 opened on 2 Sep 2019 by RobertHilbrich
- Create traffic surrounding an ego-vehicle "on-the-fly"** SUMO User: DLR User: Vector 3
#10 opened on 2 Sep 2019 by RobertHilbrich
- Run SUMO on SiL and HiL platforms (Software-/Hardware-in-the-Loop)** SUMO User: DLR User: Vector 2
#9 opened on 2 Sep 2019 by RobertHilbrich
- Use SUMO to evaluate my fleet scheduling** SUMO User: DLR 1
#8 opened on 2 Sep 2019 by RobertHilbrich



Achievements – User Story #1

use Google satellite pictures as background in Netedit and in SUMO Gui #1

New issue



behrisch opened this issue on 13 Aug 2019 · 8 comments



behrisch commented on 13 Aug 2019

Collaborator ...

As a
Advanced user

I want to
use Google satellite pictures as background in Netedit and in SUMO Gui

In order to

- ease map editing work in case of real world scenarios
- create such simulations, where the vehicles move 'likely' on the real world roads

Acceptance criteria
if there is a geo-referenced network loaded in Netedit or SUMO Gui, I can choose Google satellite pictures as background, as an alternative of background decals

👍 1

Assignees

No one assigned

Labels

SUMO

User: BOSCH

Projects

None yet

Milestone

No milestone

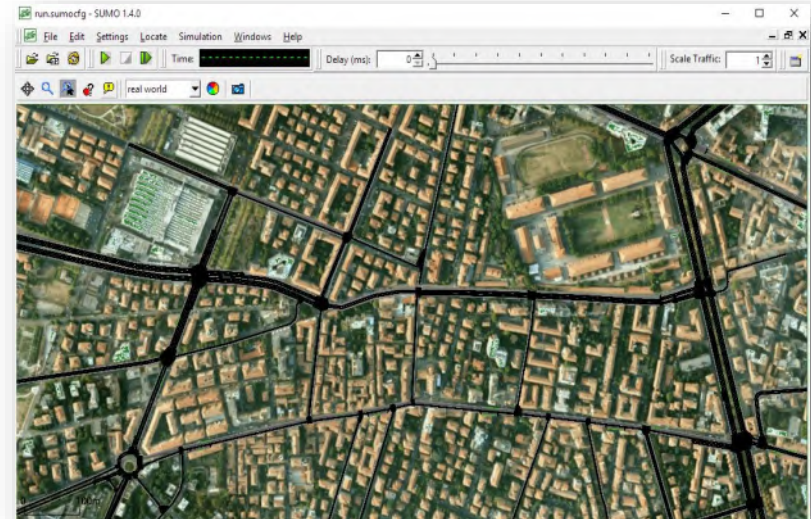
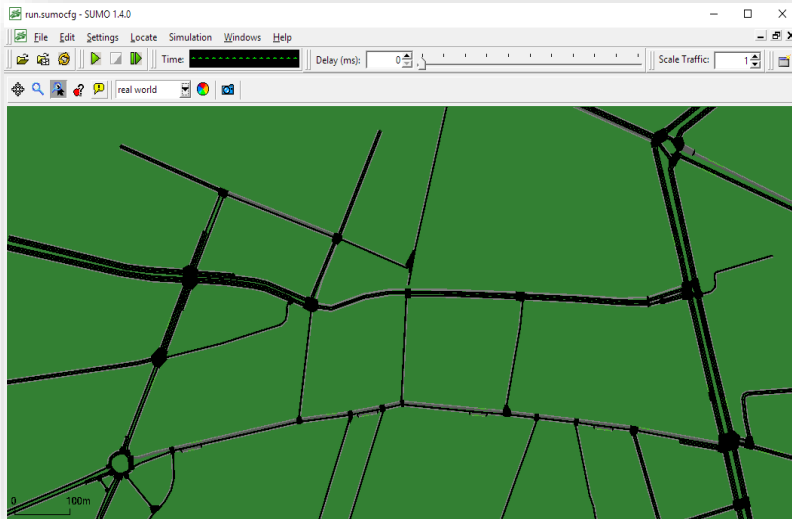
Linked pull requests

Successfully merging a pull request may close this issue.

<https://github.com/openmobility-wg/userstories/issues/1>



Achievements – User Story #1




- See `tileGet.py`: <https://sumo.dlr.de/docs/Tools/Misc.html#tilegetpy>




Achievements – User Story #2

Create traffic surrounding an ego-vehicle "on-the-fly" #10

 Open RobertHilbrich opened this issue on 2 Sep 2019 · 3 comments



RobertHilbrich commented on 2 Sep 2019

Member  ...


As a
New User

I want to
create traffic surroundi

In order to
make quick functional t
E.g. it would be interes
vehicles at the bounda


Acceptance criteria
t.b.d.

Run SUMO on SiL and HiL platforms (Software-/Hardware-in-the-Loop) #9

 Open RobertHilbrich opened this issue on 2 Sep 2019 · 2 comments



RobertHilbrich commented on 2 Sep 2019

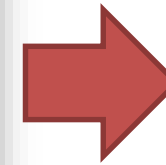
Member  ...

As a
New User

I want to
run SUMO on SiL and HiL platforms (Software-/Hardware-in-the-Loop)

In order to
run tests of software or hardware components of vehicles with platforms such as Vector
CANoe/VTSysm, dSpace etc.; It might already be possible when using SumoLib, but should be
verified.

Acceptance criteria
t.b.d.



<https://fmi-standard.org/>



Achievements – User Story #2

eclipse/sumo

<> Code 1.6k Issues Pull requests 1 Actions Security Insights

Update lanegreenverge.xpm

linux on: push

- build (full, gcc)
- build (full, clang)
- build (minimal, gcc)
- build (minimal, clang)
- build-manylinux-wheels
- publish-wheels

6 completed jobs in 36m 31s

Artifacts

- sumo-fmi2-linux64
- manylinux-wheels
- Linux-gcc-minimal
- Linux-gcc-full

Early Alpha!

<https://github.com/eclipse/sumo/actions>

SUMO

Developer/FMI

FMI

There is ongoing work towards building FMI 2 support for SUMO - especially libsumo.

Goal

The initial goal is to build a prototype which is able to load a SUMO simulation via `libsumocpp`, run the simulation and provide the total amount of vehicles in the simulation as a scalar variable.

Architecture

The current architecture to build the functionality for a functional mockup unit (FMU) is as followed. The source code is located in the `src/fmi` folder.

```


graph TD
    subgraph TestBinary [testlibsumofmi2.exe]
        T1[testlibsumofmi2.c]
    end
    subgraph Libsumofmi2 [libsumofmi2.dll]
        L1[fmi2main.c]
        L2[fmi2Functions.c]
    end
    subgraph Wrapper [libsumocpp2c.cpp]
        W1[libsumocpp2c.cpp]
    end
    subgraph SharedLib [libsumocpp.dll]
        S1[SUMO]
    end
    subgraph DynamicLib [Dynamic Library for FMU]
        D1["sumo-fmu2.fmu"]
    end
    subgraph Implementation [Implementation of FMU functions]
        I1["C file"]
    end

    T1 -.-> L1
    T1 -.-> L2
    L1 --> W1
    L2 --> W1
    W1 --> S1
    S1 --> D1
    I1 --> D1
  
```

<https://sumo.dlr.de/docs/Developer/FMI.html>



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<https://accounts.eclipse.org/mailling-list/openMobility>



Q & A

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