

LABORATORY FOR COMMUNICATIONS AND APPLICATIONS LCA

Traffic and Network Simulation Environment



Overview

TraNS (Traffic and Network Simulation Environment) is a GUI tool that integrates traffic and network simulators (SUMO and ns2) to generate realistic simulations of Vehicular Ad hoc NETWORKS (VANETs). TraNS allows the information exchanged in a VANET to influence the vehicle behavior in the mobility model. For example, when a vehicle broadcasts information reporting an accident, some of the neighboring vehicles may slow down.

TraNSLite is a stripped-down version of TraNS suitable for quickly generating realistic mobility traces for ns2 from SUMO.

The development of TraNS is suspended. Hence, TraNS does not support the latest version of both Sumo and ns2.

Currently, we cannot provide any support regarding TraNS. If you wish to perform VANET simulations with up to date software packages, please check the links from the 'Related'->'Projects' list.

Downloads

If you are interested only in generating mobility traces for ns2, you should use **TraNSLite** (*compatible up to SUMO 0.10*). Check a [screenshot](#).

The main features of TraNSLite are:

- Mobility trace generation for ns2 from TIGER, Shapefile, and OpenStreetMap maps (using the netconvert tool from SUMO)
- Map cropping and speed rescaling (*only for TIGER maps*)
- Generation of random and flow-based vehicle routes (using the duarouter tool from SUMO)
- Google Earth visualization of simulations (*only for TIGER maps*)
- Ready to use in a **few mins** wherever Java works

If you are interested in the interactive **TraNS v1.2**, please check first the **README** file (*TraNS is not compatible with the latest version of SUMO*). The main features of TraNS v1.2 are:

- Mobility trace generation for ns2 from TIGER and Shapefile maps (using the netconvert tool from SUMO)
- Map cropping and speed rescaling (*only for TIGER maps*)
- Generation of random and flow-based vehicle routes (using the duarouter tool tool from SUMO)

- Google Earth visualization of simulations (*only for TIGER maps*)
- SUMO and ns2 coupling through the TraCI interface (*the traci client included in the package works only with SUMO version r5499, available on the svn*)
- Possibility to simulate road traffic events, e.g., accidents (both vehicle-related and location-related)
- Framework for developing new VANET applications
- Two ready-to-use VANET applications: **Road Danger Warning** (safety) and **Dynamic Reroute** (traffic efficiency)
- Large scale simulations (tested up to 3000 vehicles)

Publications

TraNS: Realistic Joint Traffic and Network Simulator for VANETs

Michal Piorkowski, Maxim Raya, Ada Lezama Lugo, Panos Papadimitratos, Matthias Grossglauser and Jean-Pierre Hubaux

ACM SIGMOBILE Mobile Computing and Communications Review, Volume 12, Issue 1 (January 2008)

TraCI: An Interface for Coupling Road Traffic and Network Simulators

Axel Wegener, Michal Piorkowski, Maxim Raya, Horst Hellbrück, Stefan Fischer and Jean-Pierre Hubaux

In Proceedings of 11th Communications and Networking Simulation Symposium CNS'08, Ottawa, Canada, 2008

TraNS: Realistic Joint Traffic and Network Simulator for VANETs

Michal Piorkowski, Maxim Raya, Ada Lezama Lugo, Panos Papadimitratos, Matthias Grossglauser and Jean-Pierre Hubaux

Poster at the 13th ACM Annual International Conference on Mobile Computing and Networking MobiCom'07, Montreal, Canada, September 2007

DEMO

RELATED

At EPFL

Security of Vehicular

Networks

Mobility traces

Projects

TraCI

SUMO

VANET@CiteULike

vanet.info

VanetMobiSim

Vehicular Lab @UCLA

NCTUns

Mobility traces@ETHZ

GMSF

iTETRIS @ CVIS

SUMO projects