Mesoscopic simulation with PTV Vissim 8

PTV Group presents a new modelling level at ITS World in Bordeaux

Karlsruhe, 5 October 2015. PTV Vissim 8 introduces mesoscopic simulation to the Vision Traffic Suite. This additional modelling level speeds up simulation by a factor of 50 compared to microscopic simulation. PTV Group is presenting the new feature for the first time at ITS World in Bordeaux (Booth A99).

"Users need to simulate increasingly large networks", says Koenraad Verduyn, Director Solution Management at PTV Group. "With PTV Vissim 8 we have responded to this trend by introducing dynamic assignment even in medium-sized networks, as mesoscopic simulation is ideal for achieving quick computing times". This allows users to observe the effects of phenomena such as blocking back or traffic light signals on journey times without having to wait for their computer systems to keep pace. This is made possible by the different level of detail involved.

A question of detail

In microscopic simulation, vehicle behaviour and interaction are modelled as close to reality as possible, whereas mesoscopic simulation is based on a greatly simplified model. "Individual vehicles are still simulated in mesoscopic simulation, but their behaviour is based on a car-following model which can be solved very efficiently with an event-based approach", says Dr. Arne Schneck, software developer and expert in mesoscopic simulation at PTV Group. Unlike microscopic simulation, vehicle data is not updated at every time interval, but only at specific times. This might be when a vehicle enters a network link or reaches the end of a link. Another advantage is the fact that mesoscopic simulation provides a convenient way to calibrate networks due to the limited number of parameters. The simulation is more stable with respect to minor network changes which also means that phenomena such as gridlocks, where vehicles block each other’s way, occur less frequently.

Maximum efficiency

How is mesoscopic simulation integrated with microscopic simulation in PTV Vissim and with macroscopic simulation in PTV Visum? "Networks already created in PTV Visum can be very easily transferred to PTV Vissim, where they can be simulated mesoscopically", explains Schneck. "If users need to go into detail on specific routes or junctions, they can do this through a hybrid simulation". This involves users specifying sections of the
mesoscopic simulation in which all modes of transport and their interactions - including pedestrians and cyclists - will be simulated at a microscopic level. "This combines the high speed of mesoscopic simulation with the level of detail provided by microscopic simulation", says Schneck.

2,705 characters. We look forward to receiving your proof of publication!

Press Images

Hybrid simulation in PTV Vissim 8 combines mesoscopic and microscopic simulation.

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PTV. The Mind of Movement.
PTV Group plans and optimises everything that moves people and goods worldwide – be it transport routes, distribution structures or private and public transport. The company offers software, data, content, consulting and research. Thanks to expert knowledge in traffic and transport planning, PTV occupies a unique position.

Environmentally-compatible and cost-effective mobility requires finely-tuned coordination of flows of traffic and goods, so that people and products can reach their destinations safely and efficiently. The focus here is on road safety, climate protection and future-proof mobility concepts. PTV solutions in transport logistics, traffic planning and traffic management help to achieve this, even in real time.

In the Logistics business field, PTV’s portfolio ranges from software for scheduling transport routes and trips to distribution planning and fleet management, including truck navigation and parking. A special online service provides real-time transparency during the transport process and across the entire supply chain. In the Traffic business field, PTV offers software, data and scientific techniques for modelling and simulating traffic networks. This helps traffic and city planners in over 120 countries to organise optimal traffic flow.

PTV's headquarters have been located in Karlsruhe – a centre of innovation and development – since the company was founded in 1979. Around 600 employees around the world are working on powerful solutions for public administration, government departments, trade and industry.

The German company PTV Planung Transport Verkehr AG is a member of PTV Group. www.ptvgroup.com