

## CHAPTER 25

# WagonSim

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### 25.1 Basic Information

**Entry point to documentation:**

<http://matsim.org/extensions> → wagonSim

**Invoking the module:**

<http://matsim.org/javadoc> → wagonSim → RunWagonSim class

**Selected publications:**

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### 25.2 Summary

The wagonSim contribution allows use of MATSim's route-optimization process to find optimal paths for rail-based freight wagons in a given rail-based freight infrastructure.

The network links, here, define the rails, nodes define train stations and schedule transit stops define train station stopping points. Freight locomotives are driven by a strictly fixed schedule, where each locomotive is given as a single transit line with a single transit route and a single departure. Freight wagons correspond to agents with a given origin and destination (single trip agents). Routing takes various constraints into account, i.e., a minimum shunting time while switching locomotives and maximum freight train weight and length; it also differentiates between locomotive stops for shunting and stops only for waiting (without shunting possibility).

WagonSim contribution is based on specialized input data. The first step converts input data into MATSim formats (scenario data). In a second step, it allows one to manually adapt the scenario for different parametrization of train stops, shunting stations, minimum shunting times and

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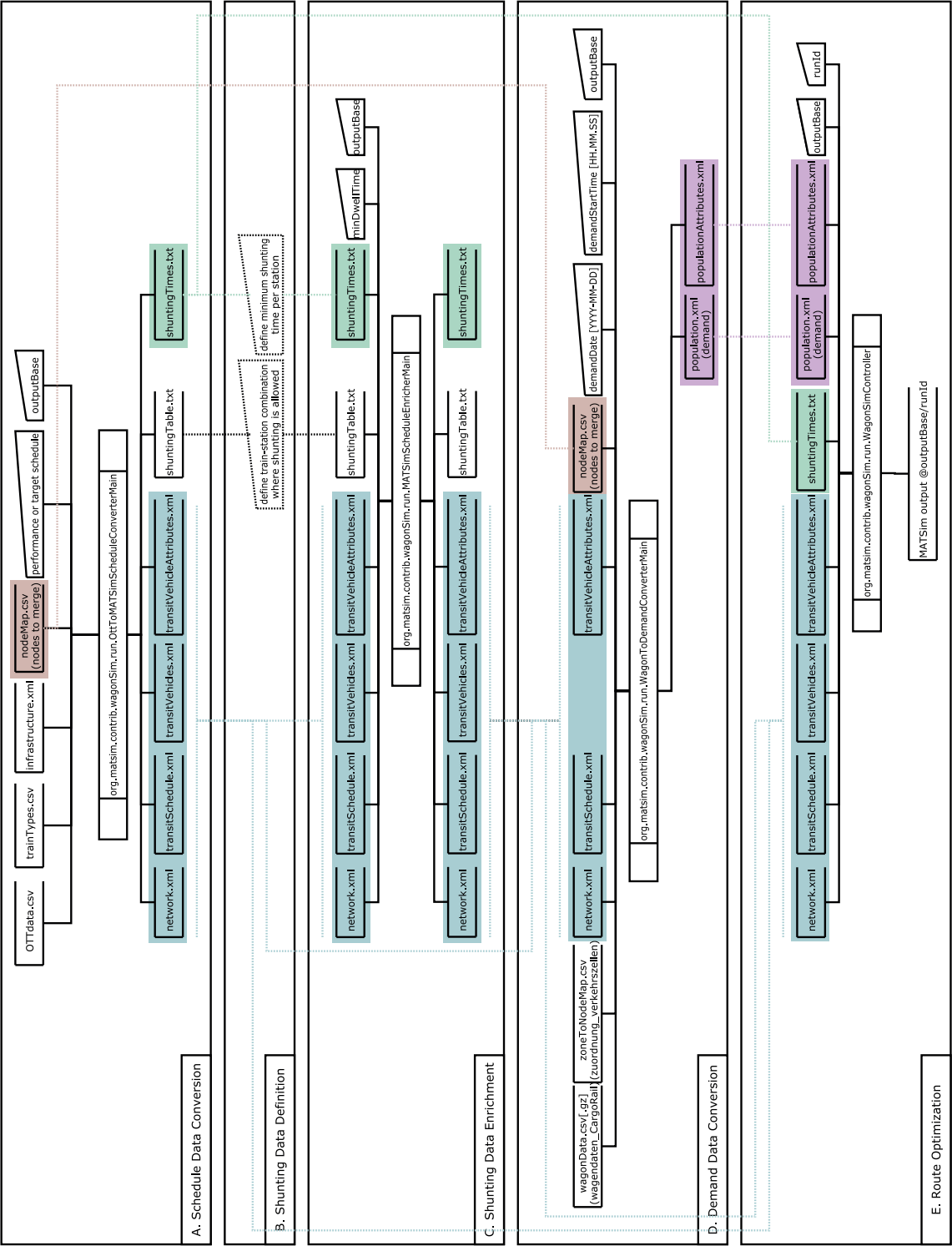


Figure 25.1: WagonSim process chain.

dwelling times of trains at stops. The third step sets up route optimization configuration and runs the MATSim optimization cycle.

As shown at <http://www.matsim.org/docs/extensions/wagonSim> and in Figure 25.1, data conversion and WagonSim execution is composed of five stages, described in more detail at above referenced url:

- A)* schedule data conversion,
- B)* shunting data definition,
- C)* shunting data enrichment,
- D)* demand data conversion, and
- E)* route optimization.

WagonSim contribution has been applied to ETH (Eidgenössische Technische Hochschule), IVT (Institut für Verkehrsplanung und Transportsysteme – Institute for Transport Planning and Systems) Transport Systems group projects.

