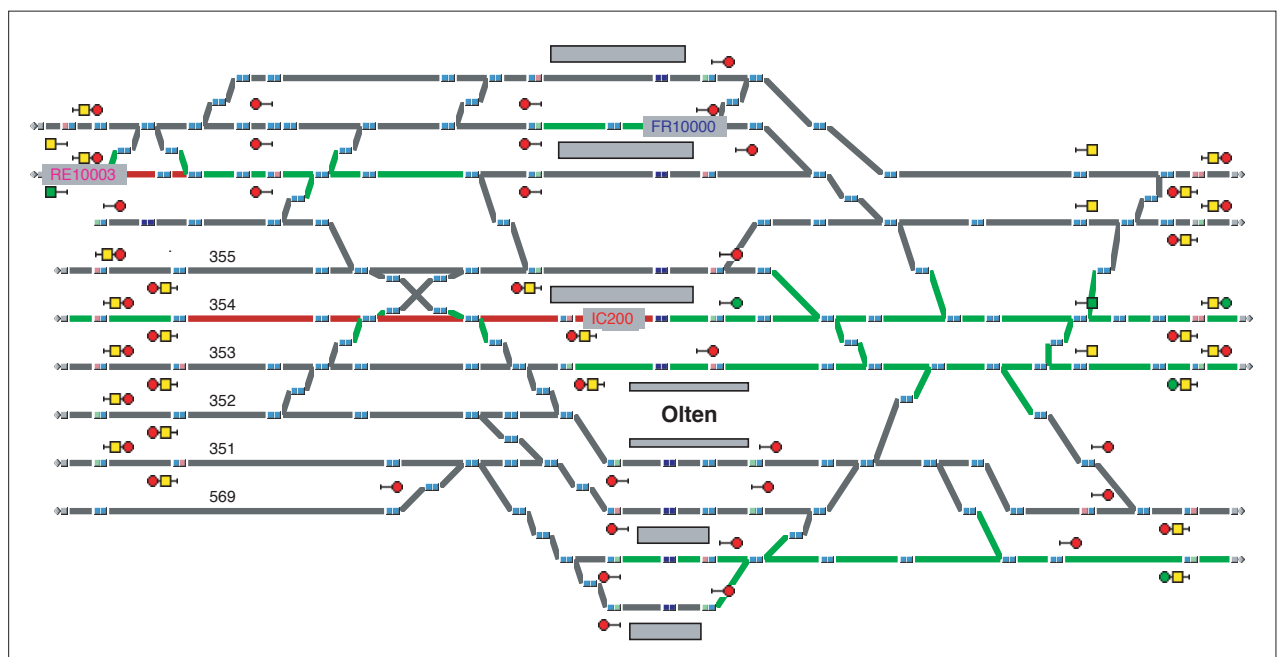


## OpenTrack - Simulation of Railway Networks



## Functions of OpenTrack

OpenTrack is a planning and simulation tool for railway operations. It was developed at the Swiss Federal Institute of Technology Zurich and is currently supplied by OpenTrack Railway Technology Ltd. to over 230 organisations in 46 countries.

OpenTrack offers support for the following tasks:

### Operations

- Determining capacity of stations
- Determining capacity of lines
- Localizing capacity bottlenecks
- Calculating headways
- Determining occupation times for station tracks
- Optimizing rolling stock scheduling
- Evaluating how disturbances affect the network as a whole
- Planning of maintenance and construction projects
- Visualization of operations (including rolling stock, routes and signals)

### Infrastructure

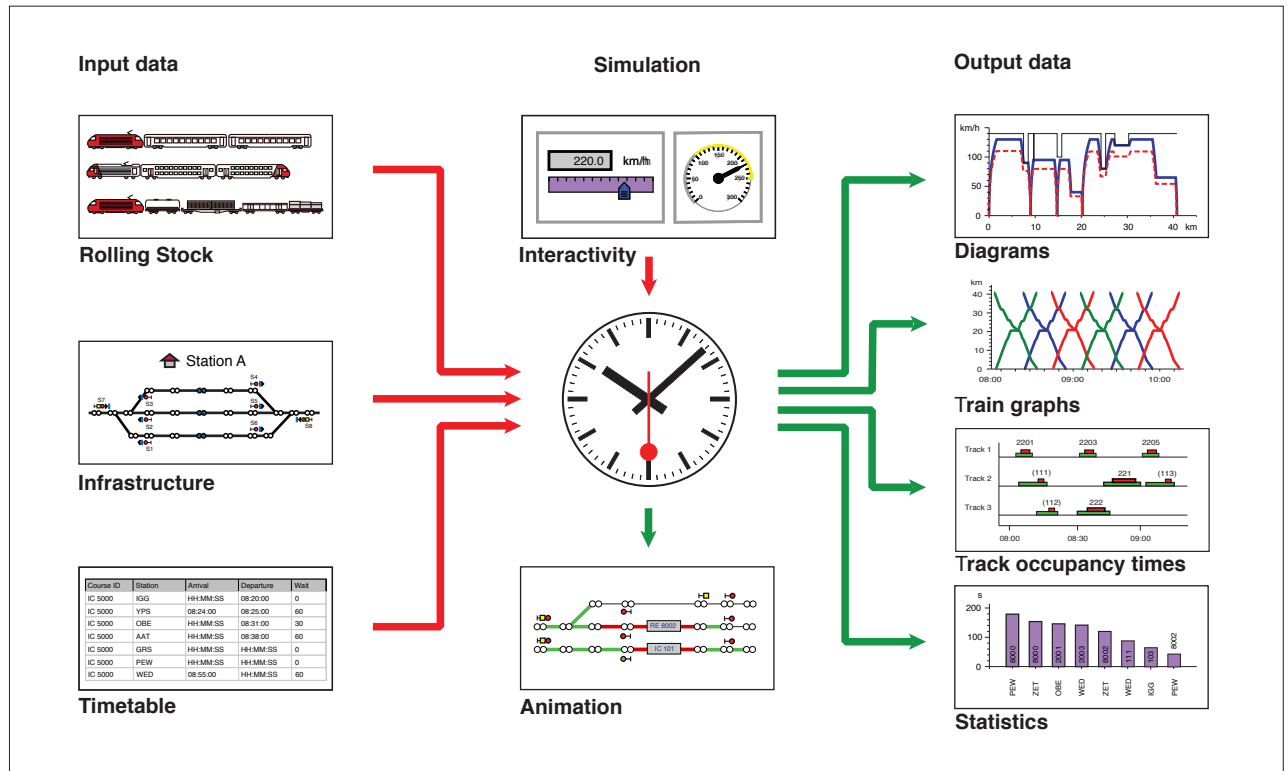
- In-depth evaluation of different infrastructure variants
- Determining requirements for expansion
- Evaluating and designing signaling systems
- Managing infrastructure data by means of a graphical user interface
- Testing the impact of component and system reliability

### Timetable

- Calculating running times
- Checking feasibility and stability of timetables and identifying conflicts

### Rolling Stock

- Rolling stock scheduling
- Determining requirements for future rolling stock



## Working with OpenTrack

The diagram above shows the process sequence for a simulation. Predefined trains run according to the constraints of the timetable data on a defined track topography. The simulation has both continuous and discrete parts. The continuous part calculates differential equations for train speeds and distances. The discrete part simulates processes such as states of the signaling system and the propagation of delays.

During a simulation, the user can watch the track topography in an animation mode that shows running trains, prepared routes and current signal aspects. The user can interrupt the simulation at any time, and if required go into OpenTrack and modify certain constraints.

After a simulation run, various forms of evaluation are available:

- Distance/time and speed/time diagrams
- Station track occupation times
- Acceleration behavior
- Report on obstructions and disturbances
- Train graphs
- Occupancy time stairway
- Tractive effort
- Comparison of real and planned running times

OpenTrack runs on all popular computer systems (Windows 2000 / XP / Vista / 7 / 8 / 10, Mac OS X).

For further information on OpenTrack, please contact OpenTrack Railway Technology Ltd. ([info@opentrack.ch](mailto:info@opentrack.ch)).