

# Welcome to Zurich / Willkommen in Zürich



**IT08 ● RAIL**

**OpenTrack  
User Conference  
January 24, 2008**

**Marco Luethi  
Daniel Huerlimann**

# Agenda

- Introduction of the participants / Vorstellungsrunde
- Release notes
- Presentation of version 1.5 of OpenTrack /  
Präsentation der Version 1.5 von OpenTrack
- Key features / wichtigste Neuerungen
- Short demo / kurze Demo

# OpenTrack - an ETH Zurich spin-off company

**OPEN  TRACK**OpenTrack  
Railway Technology GmbH**spinoff** **OpenTrack Railway Technology Ltd.**c/o Institute for Transport Planning  
and Systems  
CH - 8093 Zürich, Switzerland

A spin-off company of ETH Zurich is a newly founded company based on research results of ETH Zurich in which ETH employees or graduates participate.

# Train Categories: Running time distribution

Performance Distribution

Use Performance Distribution (on Time)

From [%]	To [%]	Perc. [%]
89.0	90.0	2.5
90.0	91.0	7.5
91.0	92.0	10.0
92.0	93.0	22.5
93.0	94.0	30.0

Delete Add

Use Performance Distribution (delayed)

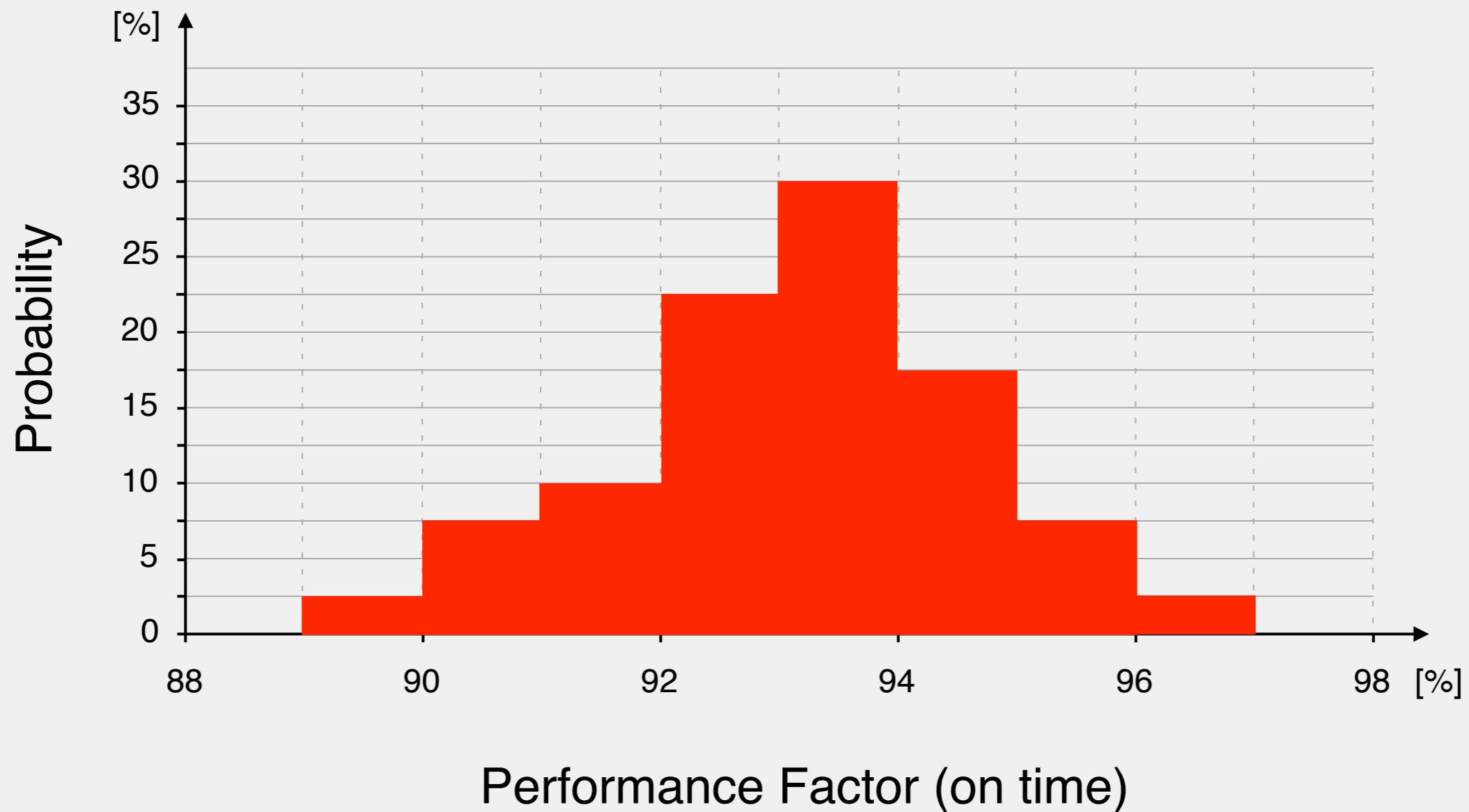
From [%]	To [%]	Perc. [%]
100.0	100.0	100.0

Delete Add

Trains on time

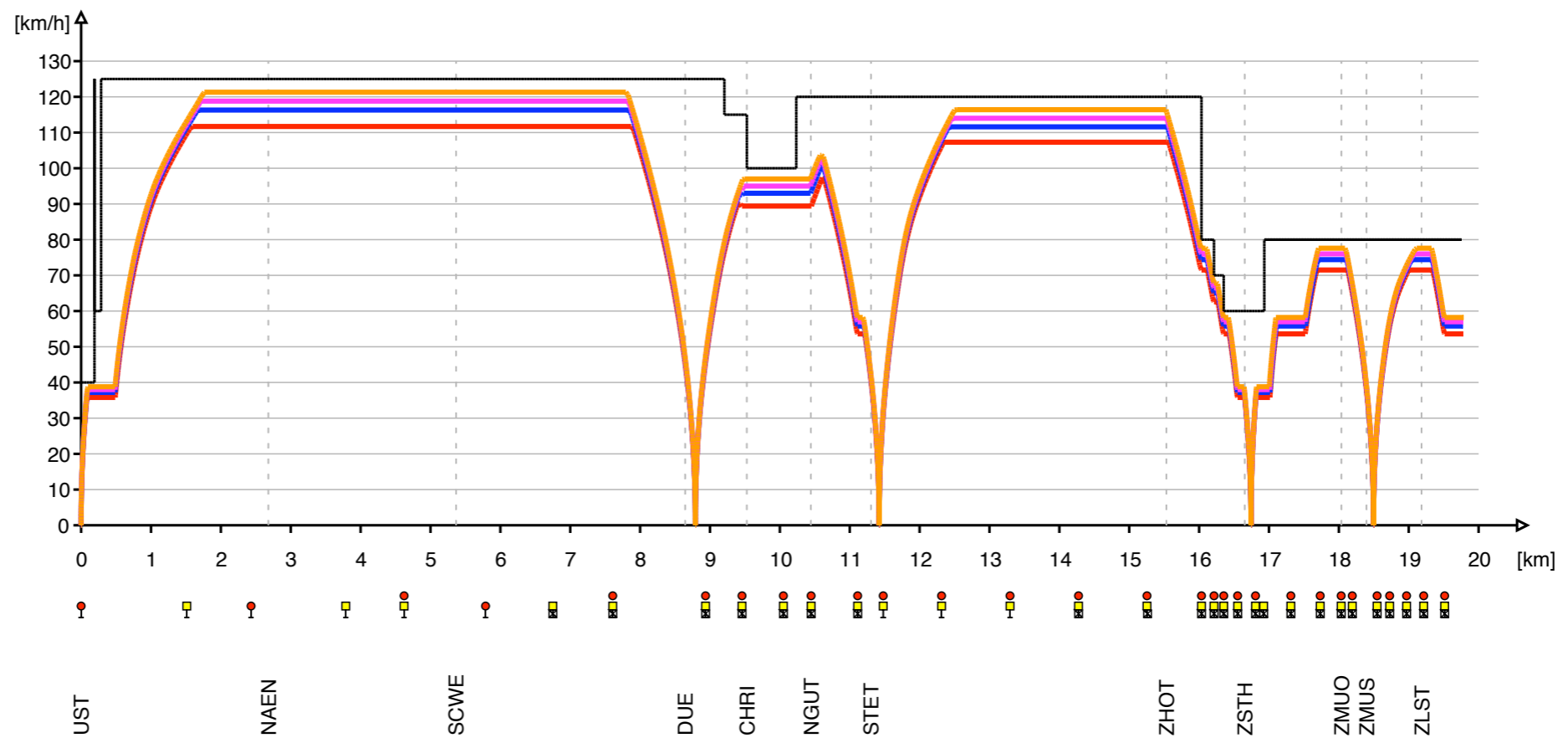
Delayed trains

# Distribution (Type: piecewise linear)



# Train Categories: Running time distribution

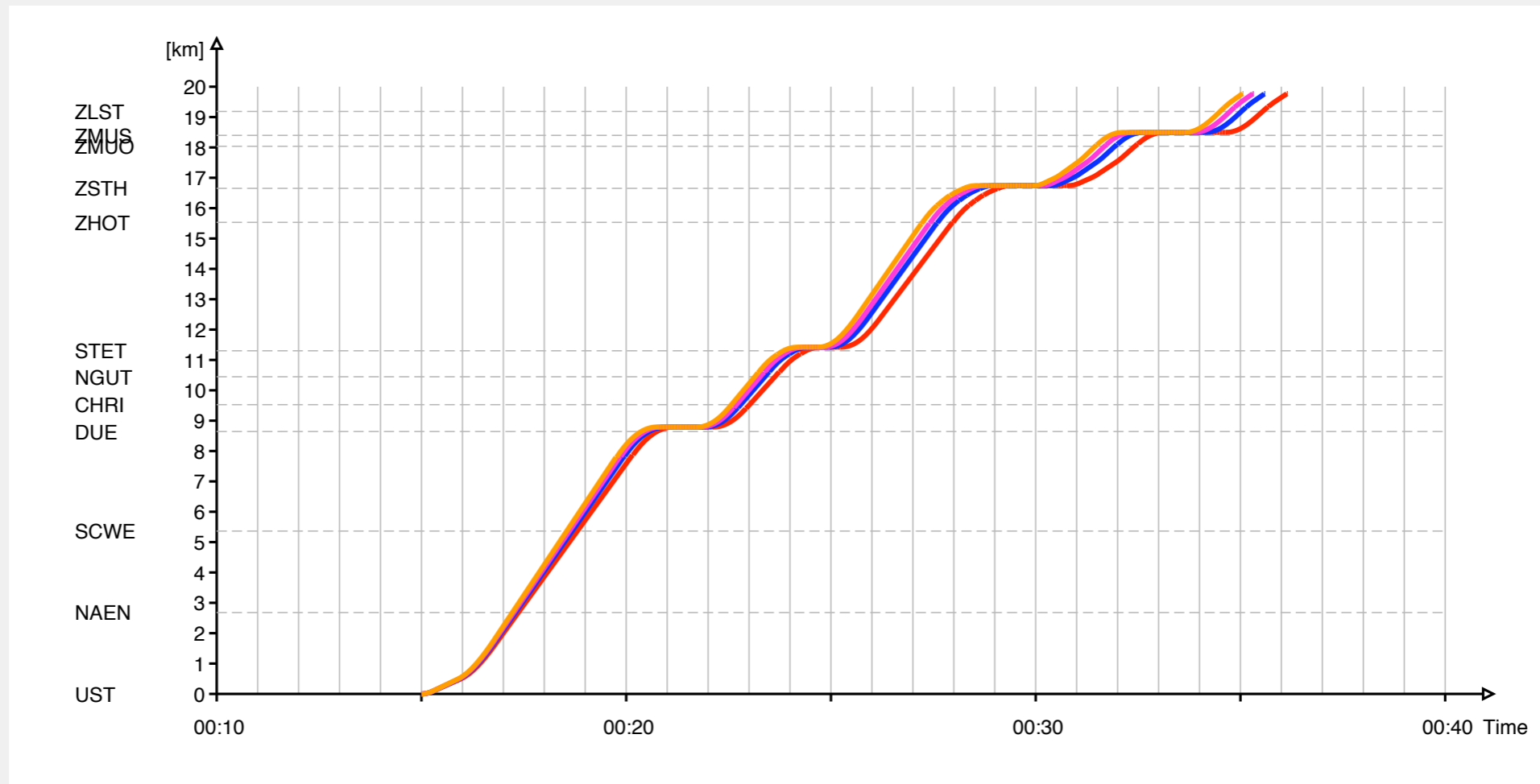
Speed /  
Geschwindigkeit



Distance / Distanz

# Train Categories: Running time distribution

Distance / Distanz



Time / Zeit

# Dispatching

Dispatching

Delay [s]	Priority	
0.0	6	<input type="button" value="Add"/>
30.0	3	<input type="button" value="Delete"/>

Look ahead Distance [m]:

Look ahead Time [s]:

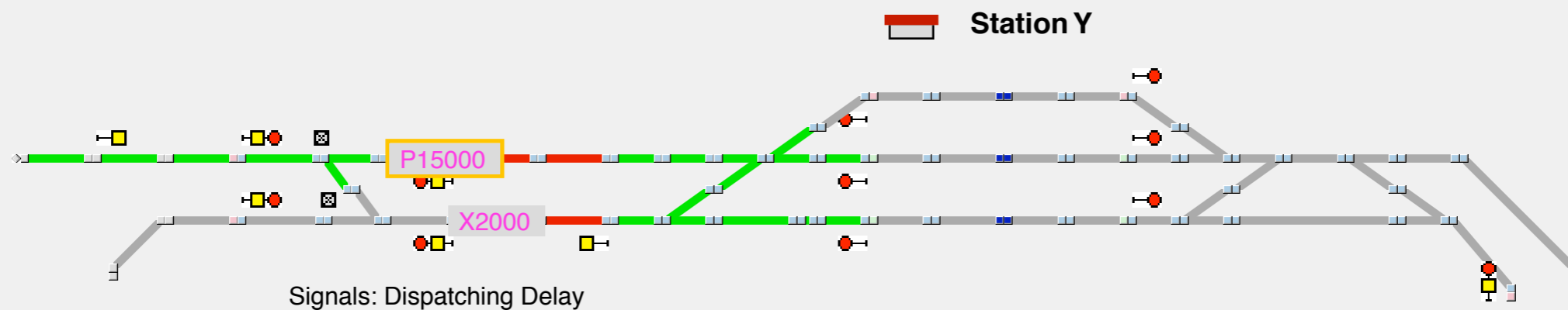
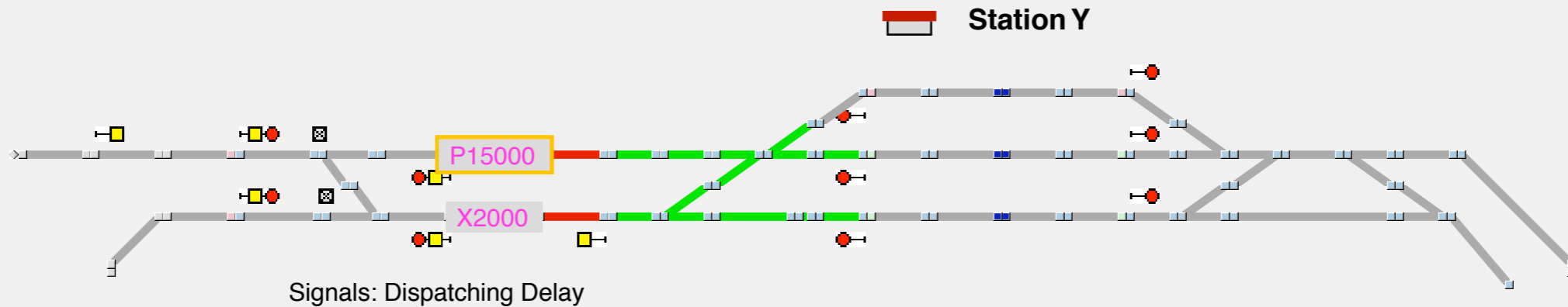
Selection of alt. Routes:

Priority in function  
of time

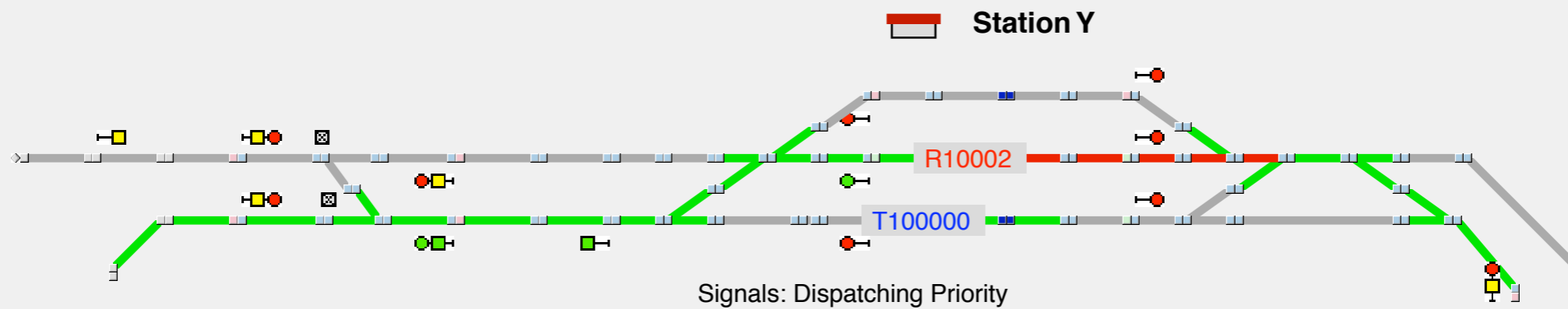
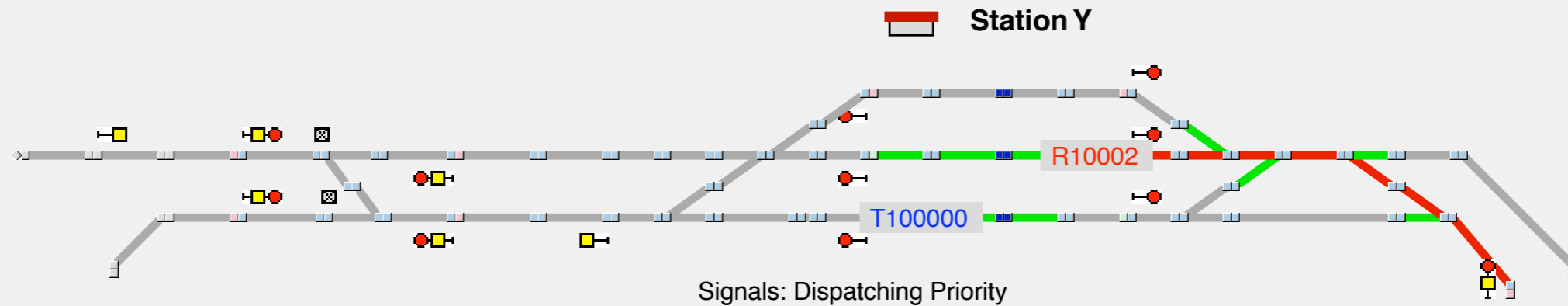
Route setting  
(offensive/defensive)



# Dispatching (Local Dispatching 1)



# Dispatching (Local Dispatching 2)



# Incident sets

The screenshot shows the 'Incidents' window in the OPEN TRACK software. The window title is 'Incidents'. It contains a table with the following columns: Incident Set Name, No. of Incidents, Use, Incident Name, Comment, Type, Object, Begin, End, and Speed [km/h].

Incident Set Name	No. of Incidents
Tram Incidents	2

Below the table, there are buttons for 'Delete', 'Use', and 'Select'. At the bottom of the window, there are buttons for 'Sort by Incident Name', 'Inv.', 'Unuse', 'Use', 'Delete', 'Save Set', 'Show', 'Duplicate', 'Edit', and 'New'. The 'Save Set' button is highlighted with a red box.

**New table**

# Periodic incidents

Incidents

Type: Edge

Object

Name: Periodic Incident

Comment:

Begin: 08:00:00 [HH:MM:SS]

End: 10:00:00 [HH:MM:SS]

Restr. Speed: 0.0 [km/h]

Wait Time after Stop: [s]

Discrete for Mov. Block Operations

Valid for Head of Train only

Periodic Incident (on/off/on/off)

40 10 50 15 [s]

Cancel OK

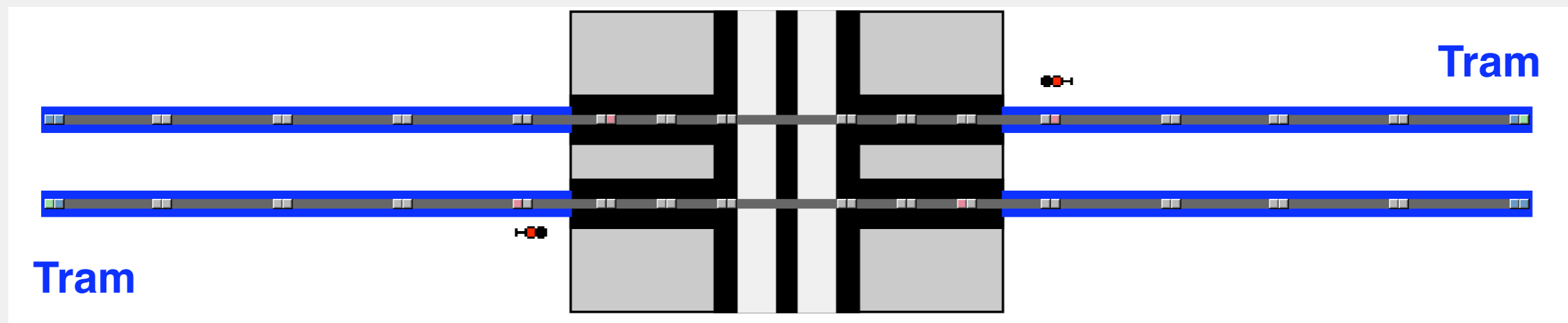
Periodic edge incident

Period:

40 s ON, 10 s OFF,  
50 s ON, 15 s Off

# Periodic incident: Example crossing

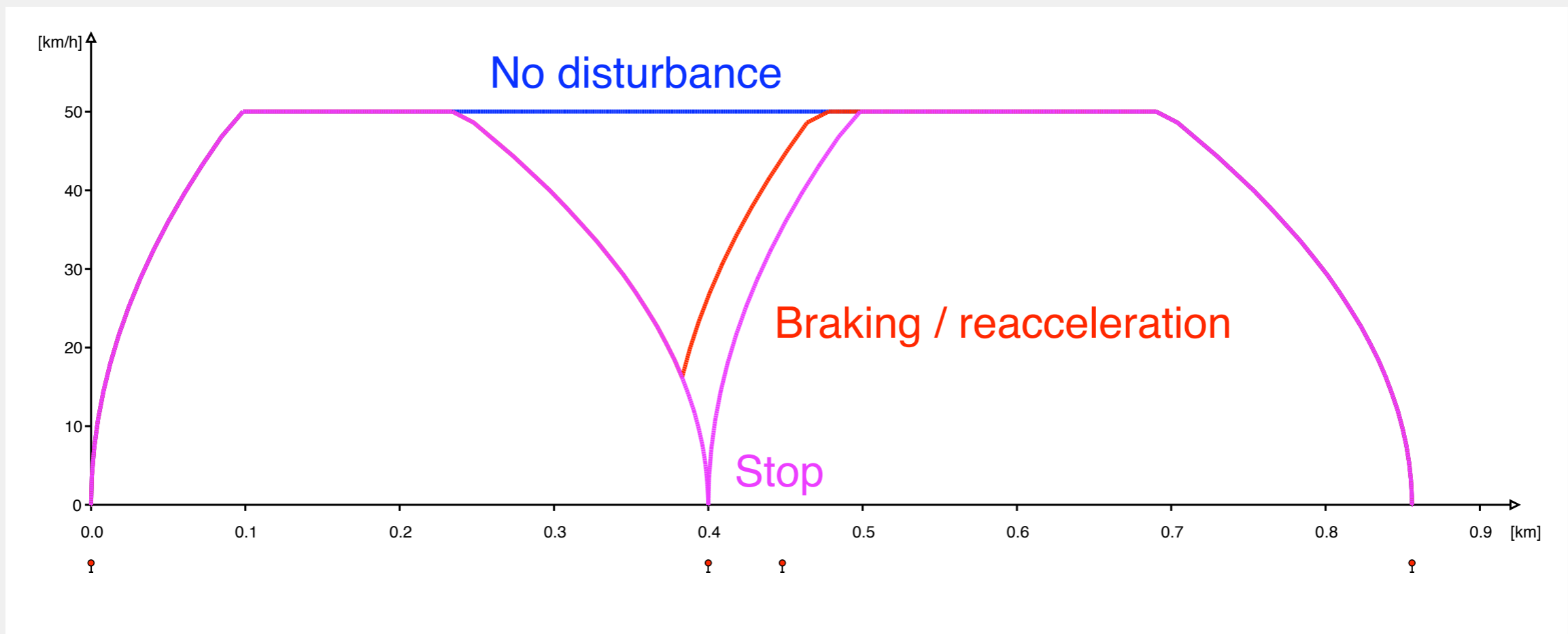
crossing with  
individual traffic



Tram: 10 min. interval, Moving Block

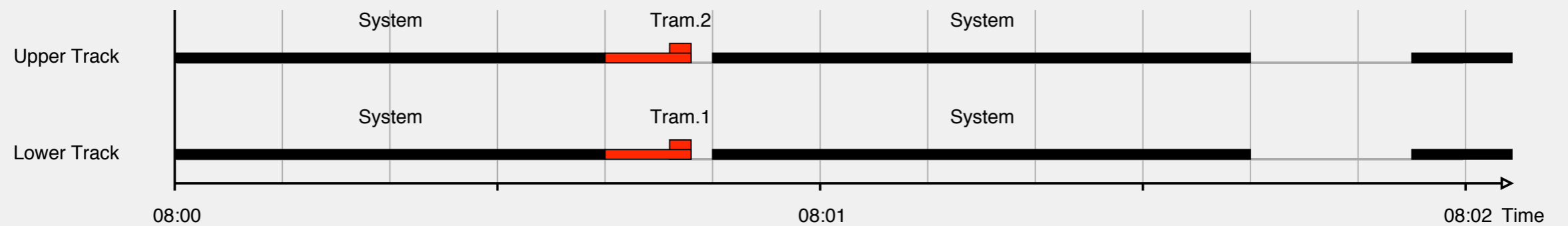
Route: Discrete for Mov. Block Operations

# Periodic incident: Output speed/distance

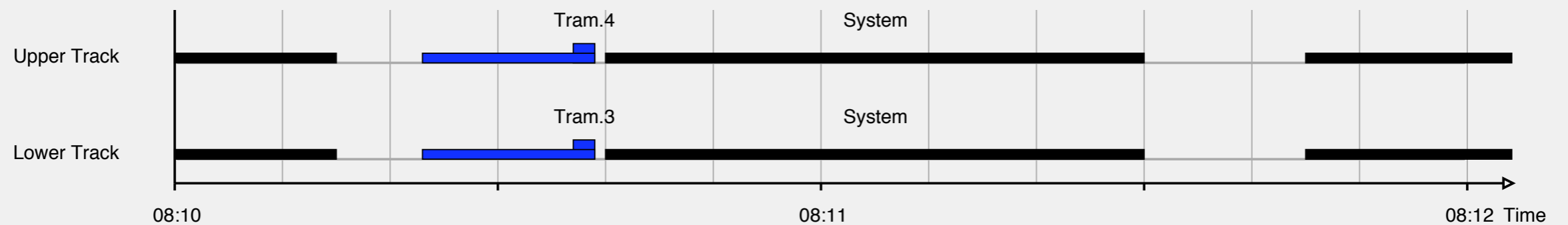


# Periodic incident: Output occupations

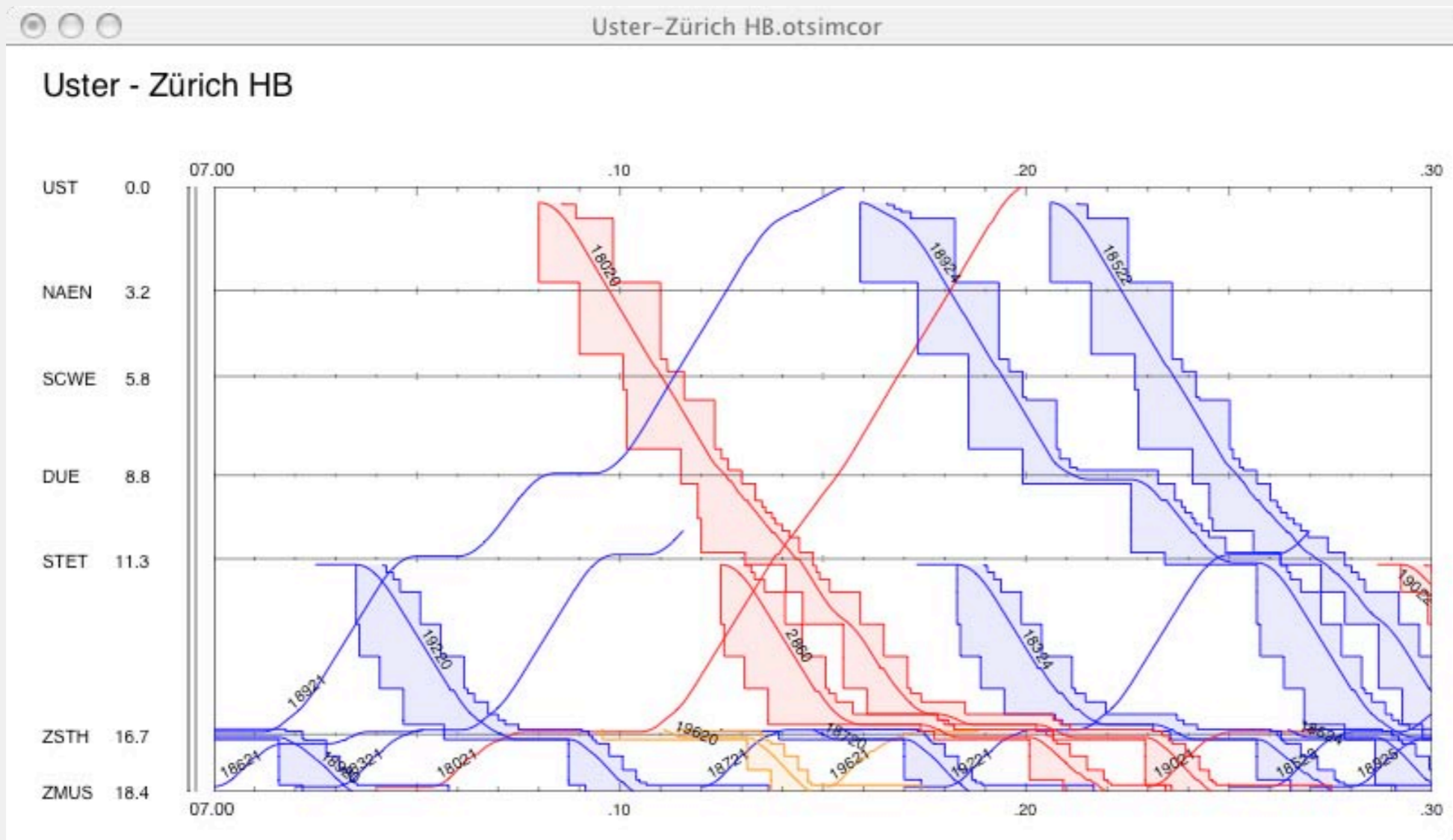
Braking / reacceleration



No disturbance



# Blocking-time stairways (per direction)





# RailML timetable import and export

Timetable Import RailML-Format

Loaded File:

Please select the timetable to

Source	Type	Date
Viriato	planned	

Remove existing Entries  
 Keep existing Entries  
 Merge existing Entries

Keep Arrival Time  
 Keep Departure Time  
 Keep Connections  
 Keep min. Wait Time  
 Keep Stops

Import initial Delay only

For existing but not imported Stations:

Keep Data of first Station  
 Keep Data of further Stations

Time  -

Filter for Station ID (RailML: posID)

Replace first  Characters with String:

Replace last  Characters with String:

Course ID is taken from:

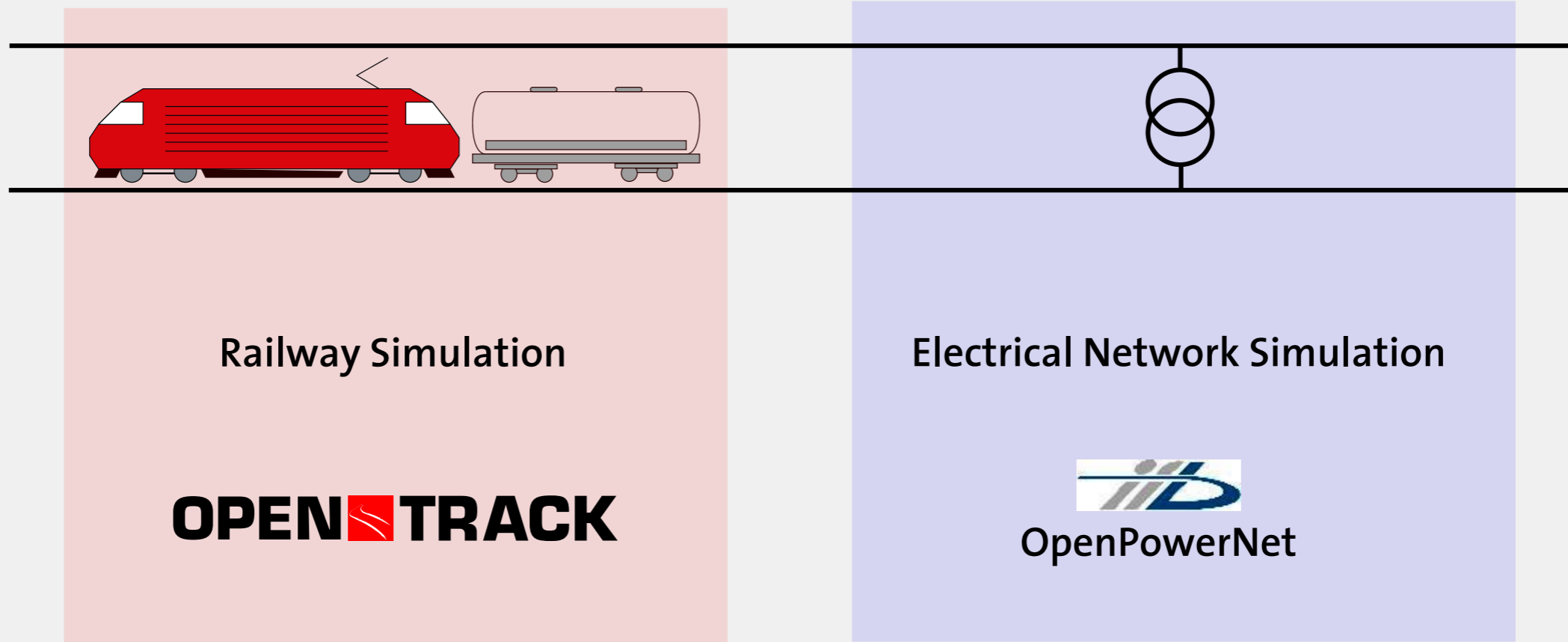
Create new Courses  
 Use Ref. Course ID (RailML: intervalGroupID)

Time filter

Station ID converter

# OpenPowerNet - Electrical network simulation

Interprocess Communication  
 (TCP/IP, SOAP, RailML)



# OpenPowerNet - Electrical network simulation

- Precise railway operation simulation
- Co-simulation with electrical network calculation
- Online-communication between operation and electrical network simulation
- Retroaction of electrical network calculation to train driving dynamic
- Comprehensive analyzing and interpreting tools (energy, load flows, currents, voltages)

---

# Questions and Answers

# Demo