

CE 740 – Traffic Engineering

VISSIM Demo Session



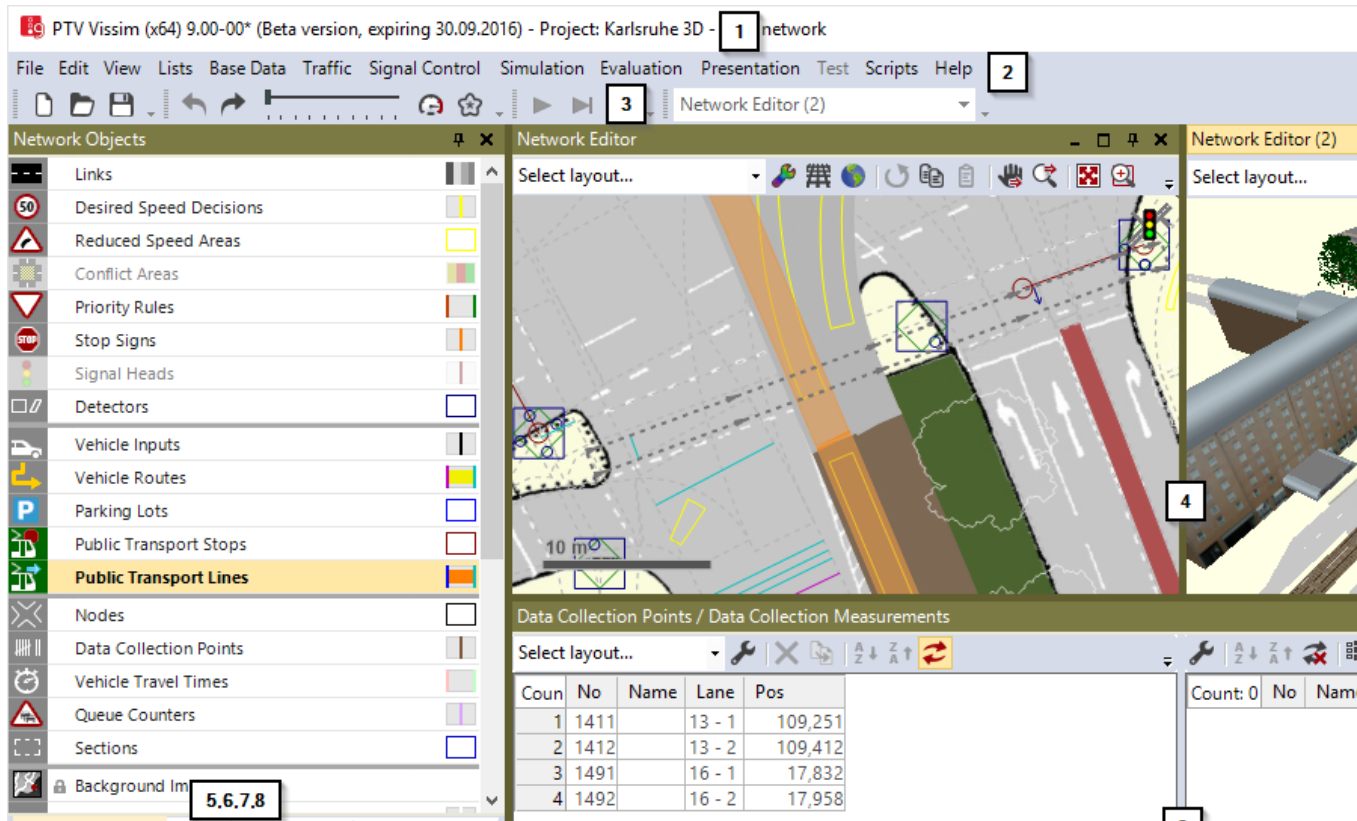
Introduction

- **PTV Vissim** is a microscopic multi-modal traffic flow simulation software package developed by PTV Planung Transport Verkehr AG in Karlsruhe, Germany.
- The name is derived from "**V**erkehr **I**n **S**tädten - **S**IMulationsmodell" (German for "Traffic in cities - simulation model").
- PTV Vissim was first developed in 1992

Input data Required to model in Vissim

- Geometric details
- Inflow in a link
- Free flow speed
- Turning movement in intersection
- Speed limits
- Signal timing
- Pedestrian flow
- Parking data
- Simulation timing

VISSIM window



- (1) Title bar
- (2) Menu bar
- (3) Toolbars
- (4) Network Editors
- (5) Network objects toolbar, level toolbar and background image toolbar are shown together by default in a window on tabs.
- (6) Levels toolbar
- (7) Back-ground tool-bar
- 8) Project explorer

VISSIM window

- (9) Lists
- (10) Quick View
- (11) Smart Map
- 12) Status

The screenshot displays the VISSIM software interface with several panels and data tables. The interface includes a left sidebar with a tree view of project elements, a central map area, and two data tables.

Left Sidebar (5, 6, 7, 8):

- Public Transport Stops
- Public Transport Lines**
- Nodes
- Data Collection Points
- Vehicle Travel Times
- Queue Counters
- Sections
- Background Image

Map Area (10, 11):

The map shows a street network with a highlighted area. A scale bar indicates 10 meters. The status bar at the bottom left shows the ID 897.5:73964.

Data Collection Points / Data Collection Measurements (9):

Coun	No	Name	Lane	Pos
1	1411		13 - 1	109,251
2	1412		13 - 2	109,412
3	1491		16 - 1	17,832
4	1492		16 - 2	17,958

Public Transport Lines / Public Transport Line Stops:

Coun	No	Name	EntryLink	DestLink	DestPos	EntTmOffset	VehType
1	1003		1003	74	31,957	0,0	412: Tra
2	1111		57	74	33,582	0,0	410: Tra
3	2003		2003	63	6,409	0,0	412: Tra
4	2111		62	83	2,489	0,0	410: Tra
5	2211		62	83	2,489	0,0	411: Tra

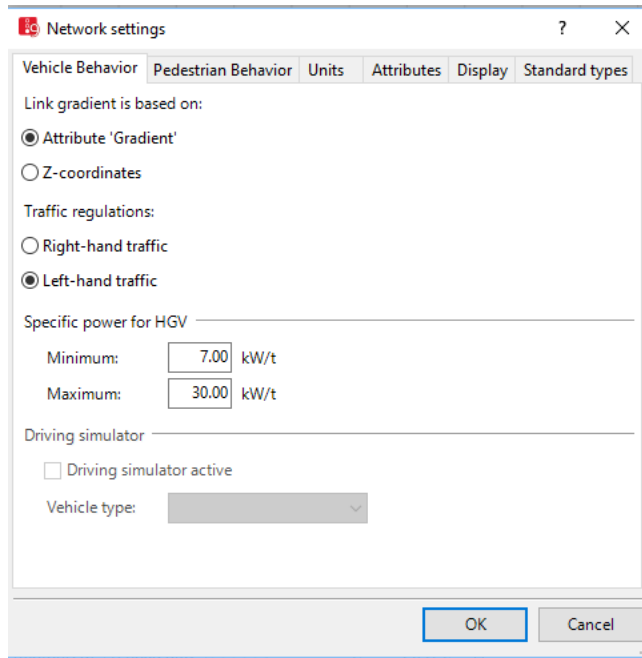
Public Transport Line Stops:

Count	PTLine	PTStop	Active	SkipPoss	DepOffset	PedsAsPass	DwellT
1	1003	1003	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0,0	<input type="checkbox"/>	Distribu
2	1003	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0,0	<input type="checkbox"/>	Distribu

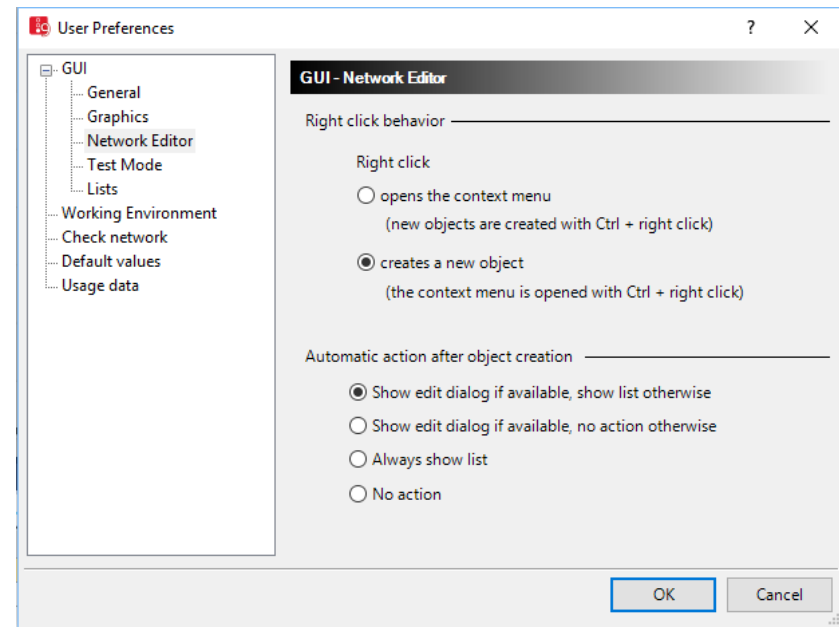
Status Bar (12): System initialized!

Initial settings

Base data----> Network settings

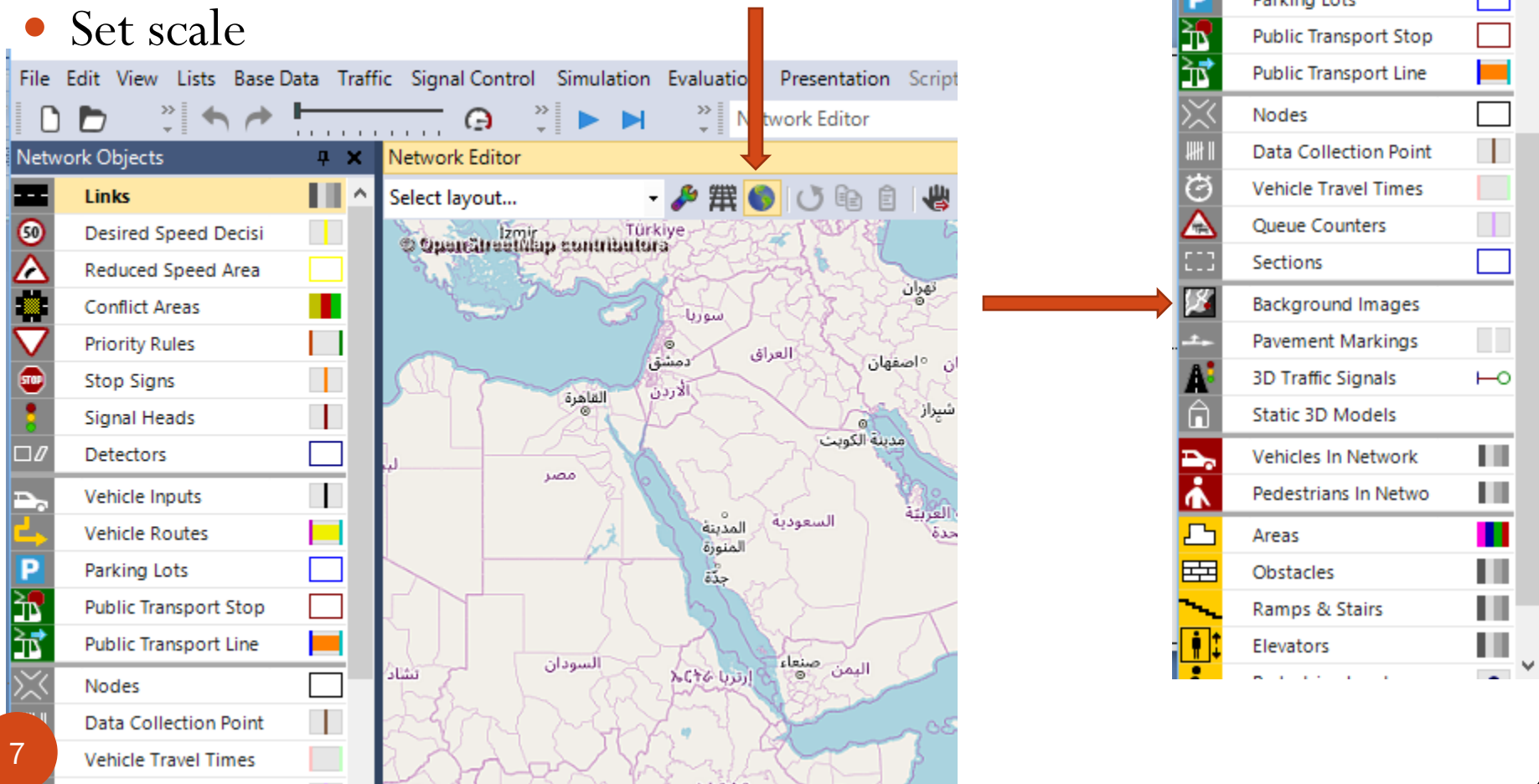


Edit-----> User preference



Background on which network is drawn

- Using map
- Using Background image
- Set scale



Creating links and connectors

- Roads in VISSIM are drawn using the link command
- Connectors are used to connect two link like in intersection to connect North south link to East west link
- Create link (See status bar for length)
- Lane width/No of lanes
- Generate opposite direction
- Invert
- Split link
- Spline
- Z offset
- Connectors

Creating links and connectors

Link ? X

No.: Name:

Num. of lanes: Behavior type: 1: Urban (motorized) v

Link length: 153.325 m Display type: 1: Road gray v

Level: 1: Base v

Use as pedestrian area

Lanes		Meso	Display	Others				
Count	Index	Width	BlockedVehClasses	DisplayType	NoLnChLAIIVehTypes	NoLnChRAIIVehTypes	NoLnChLVehClasses	NoLnChRVehClasses
1	1	3.50			<input type="checkbox"/>	<input type="checkbox"/>		

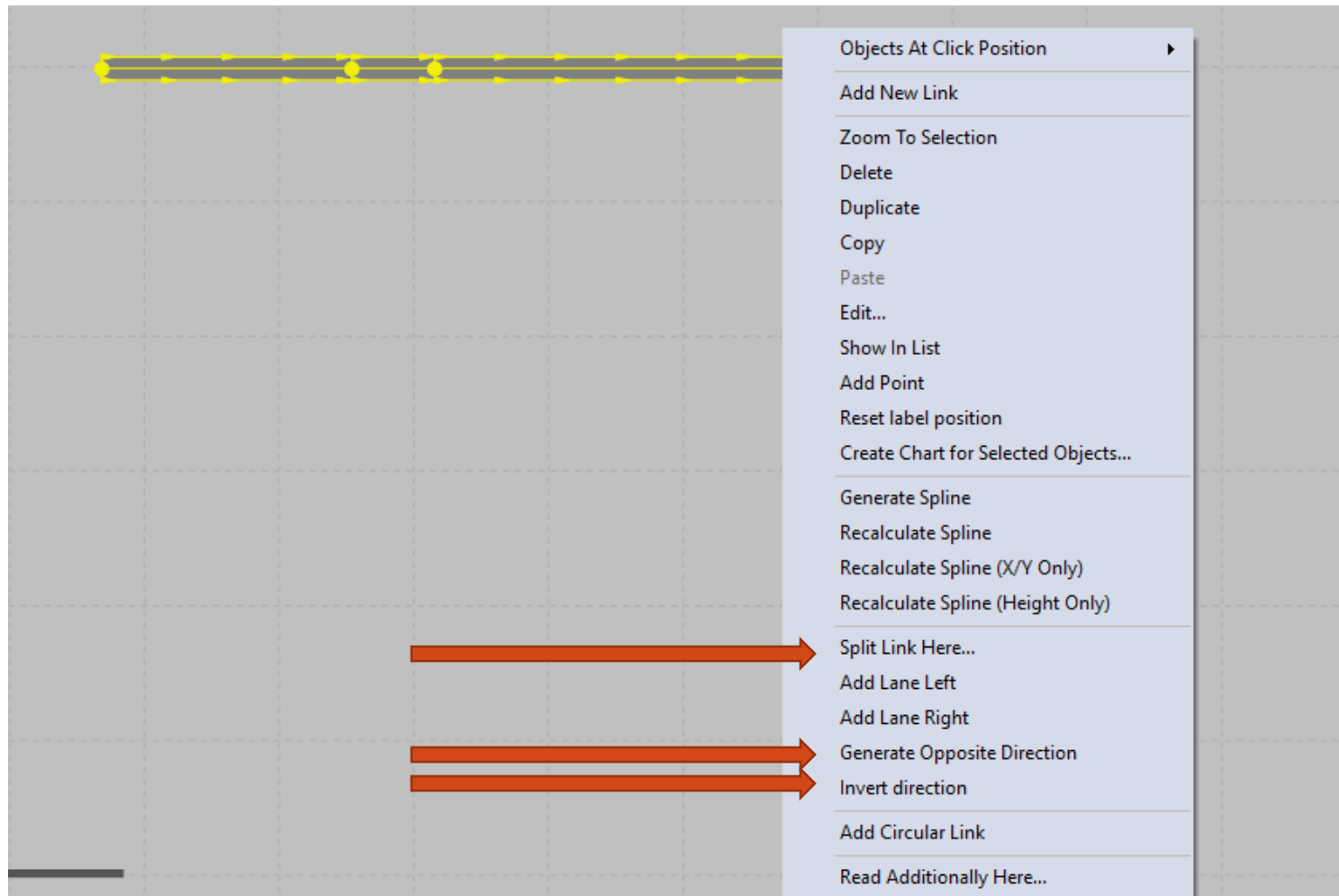
Has overtaking lane

OK Cancel

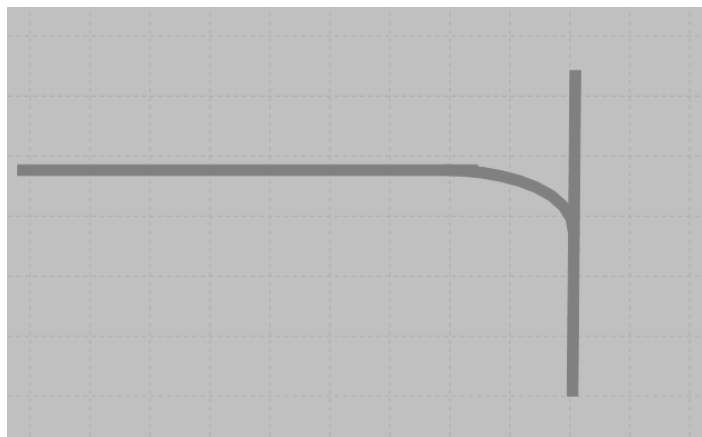
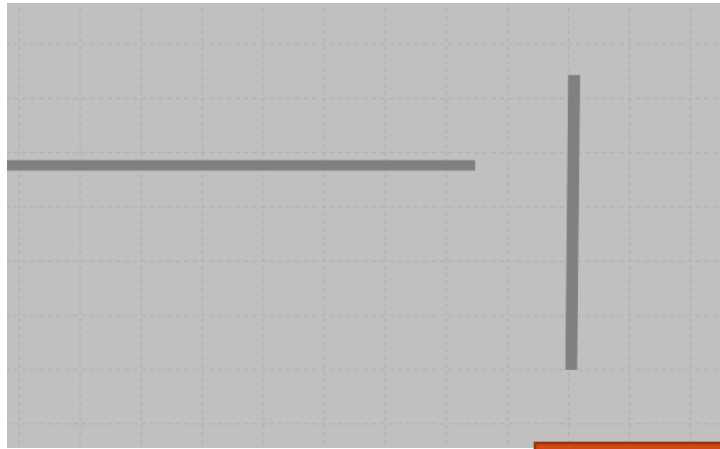


- Links**
- Desired Speed Decisi
- Reduced Speed Area
- Conflict Areas
- Priority Rules
- Stop Signs
- Signal Heads
- Detectors
- Vehicle Inputs
- Vehicle Routes
- Parking Lots
- Public Transport Stop
- Public Transport Line
- Nodes
- Data Collection Point
- Vehicle Travel Times
- Queue Counters
- Sections
- Background Images
- Pavement Markings

Creating links and connectors



Creating links and connectors



Connector

No.: 10000 Name:

Behavior type: 1: Urban (motorized)

Display type: 1: Road gray

from link: No.: 1 At: 142.914 m Lane 1

to link: No.: 2 At: 54.196 m Lane 1

Length: 47.516 m

Spline:

Has overtaking lane

Lane Change Meso Display Dyn. Assignment Others

Count	Index	BlockedVeh	DisplayType	NoLnChLA	NoLnChRA	NoLnChLve	NoLnChRve
1	1			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Route

Emergency Stop: m Before

Lane change: m Before per lane

Desired Direction

All

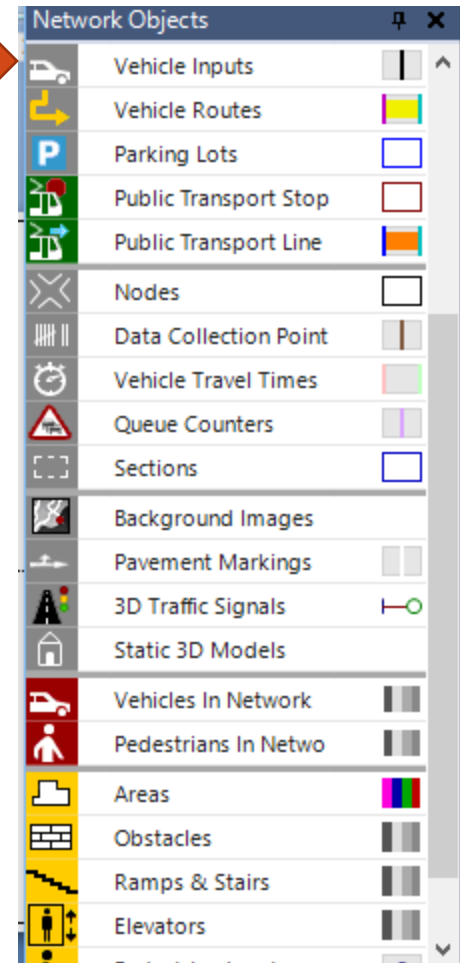
Right

Left

OK Cancel

Vehicle input

- Volume
 - The volume is mentioned in terms of no. of vehicles per hour
- Vehicle composition
 - New vehicle composition
 - Desired speed m/s
 - Relative flow
 - Percentage of car, 2w, bus, heavy vehicle etc
- Time intervals
 - Volume in veh/hr for each time interval



Vehicle input

Vehicle Inputs / Vehicle Volumes by Time Interval

Select layout... Vehicle volumes by tir

Coun	No	Name	Link	Volume(0)	VehComp(0)
1	1		1	400.0	1: Default

Count	Cont	TimeInt	Volume	VehComp	Voltype
1	<input type="checkbox"/>	0-MAX	400.0	1: Default	Stocha

Vehicle Compositions / Relative Flows

Select layout... Relative flows

Coun	No	Name
1	1	Default
2	2	new

Count	VehType	DesSpeedDistr	RelFlow
1	100: Car	5: 5 km/h	50.000
2	200: HGV	5: 5 km/h	40.000
3	300: Bus	5: 5 km/h	10.000

Vehicle input

The screenshot displays a software interface titled "Time Intervals". It features a toolbar with various icons including a wrench, a plus sign, a red X, sorting options (A-Z and Z-A), a refresh icon, and a dropdown menu currently set to "Vehicle inputs". Below the toolbar is a table with the following data:

Count: 4	Start	End
1	50.0	100.0
2	100.0	150.0
3	150.0	200.0
4	200.0	MAX

VISSIM Simulation settings

Amount of time the simulation will run

For every simulation second how many times the position will be calculated

For different random seeds the generation of vehicles will vary

The screenshot shows the 'Simulation parameters' dialog box with the 'General' tab selected. The 'Meso' sub-tab is also visible. The dialog contains the following fields and options:

- Comment: [Empty text box]
- Period: [3600] Simulation seconds
- Start time: [00:00:00] [hh:mm:ss]
- Start date: [Empty] [DD.MM.YYYY]
- Simulation resolution: [1] Time step(s) / Sim. sec.
- Random Seed: [42]
- Number of runs: [1]
- Random seed increment: [1]
- Dynamic assignment volume increment: [0.00] %
- Simulation speed: 10.0 Sim. sec. / s, Maximum, Retrospective synchronization
- Break at: [0] Simulation seconds
- Number of cores: [1 Core] (dropdown menu)

Three orange arrows point from the text on the left to the 'Period', 'Simulation resolution', and 'Random Seed' fields in the dialog box.

Routes

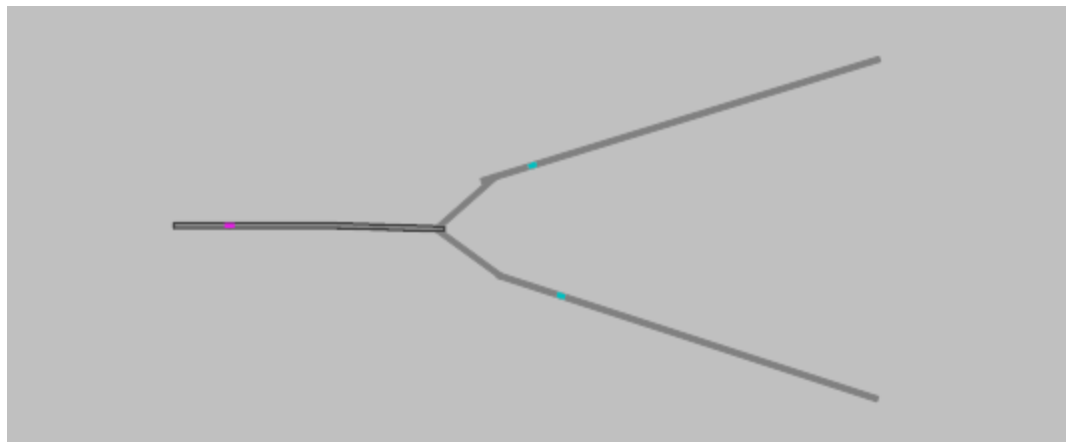

- Each wing
- Relative flow

Static Vehicle Routing Decisions / Static Vehicle Routes

Select layout... Static vehicle routes

Coun	No	Name	Link	Pos	AllVehTypes	VehClasses
1	1		1	39.298	<input checked="" type="checkbox"/>	

Count	VehRoutDec	No	Name	DestLink	DestPos	RelFlow(0)
1	1	1	3		47.120	1.000
2	1	2	2		37.564	1.000

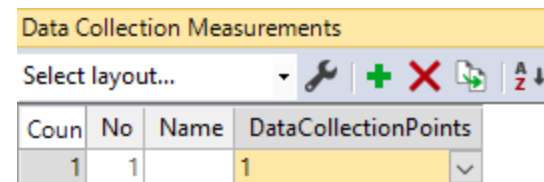
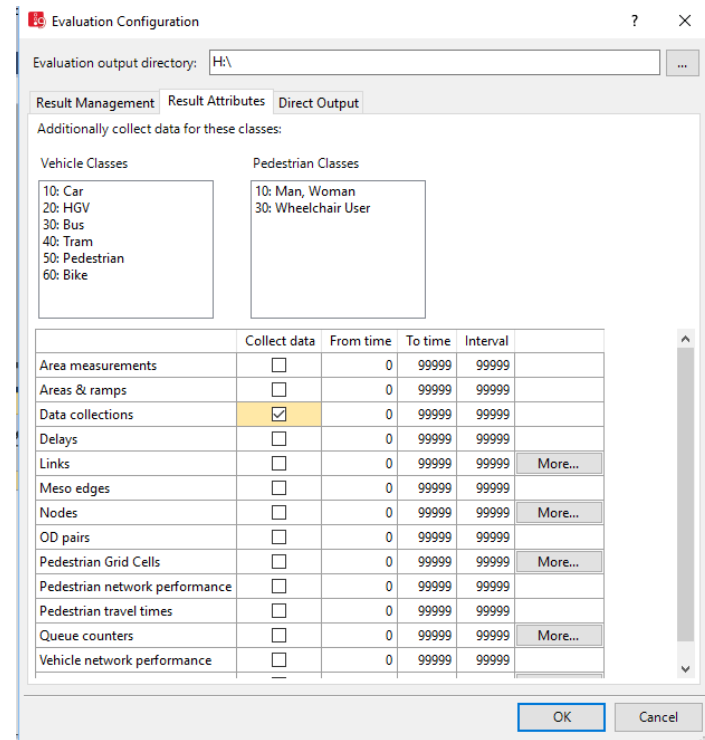
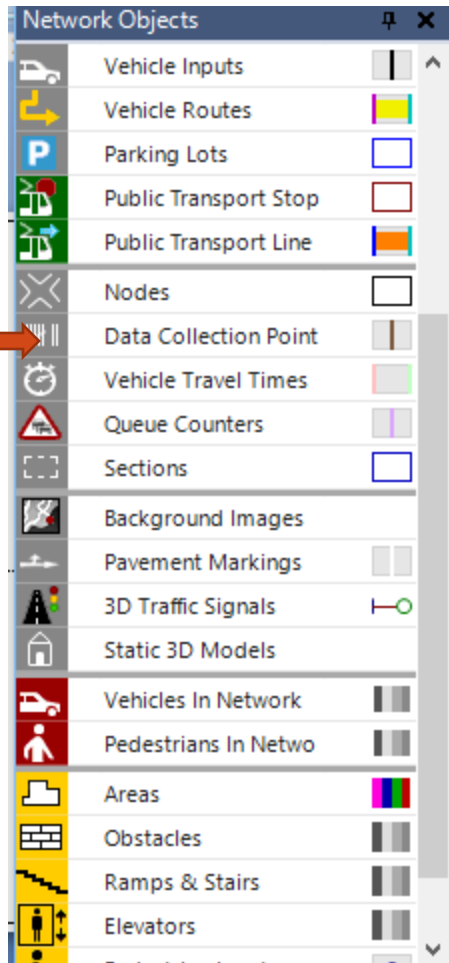


Data output (MoE)

- Traffic performance measures of effectiveness is to quantify the achievement of a project's traffic operations objectives.
- For evaluating the traffic operations performance of highway facilities
- Travel Time
- Speed
- Delay
- Queue
- Flow
- Density

Data output

- Data collection point



Thank you