



CAMBRIDGE
SYSTEMATICS

Think  Forward

Aimsun Model Review Training

Day 2: Running Replications & Visual Checks

Caltrans On-Call Traffic Simulation Training

presented to

Caltrans District 7



presented by

Cambridge Systematics & Aimsun

Keir Opie

Laura Torres

Running a Simulation

➤ Inputs Files:

- » ANG
- » Path Files (if used)
- » Matrices (if external)
- » APIs (if used)
- » Real Data Sets (if used)

➤ Update filename folder settings if needed

- » If model run on another machine, folder location may need updated

Running a Simulation

- Check the Log Window !!
- Make sure no errors or warnings presented
- Make sure paths loaded

Log File Example

9:52:10 PM	RPL	Replication 10090522	Microscopic simulation will start for Experiment Micro SRC Experiment 10090519 .
9:52:10 PM	RPL	Replication 10090522	Simulator extension Detection Pattern loaded.
9:52:10 PM	RPL	Replication 10090522	Simulator extension Recorder Extension loaded.
9:52:13 PM	RPL	Replication 10090522	Number of generated trips: 287476.
⚠ 9:52:13 PM	RPL	Replication 10090522	Some sections have values for the User-Defined Cost but the experiment User-Defined Cost Weight is set to 0.
9:52:13 PM	RPL	Replication 10090522	Vehicle types are grouped using the following configuration to calculate the paths:
9:52:13 PM	RPL	Replication 10090522	Group 1: 56
9:52:13 PM	RPL	Replication 10090522	Group 2: 685442
9:52:13 PM	RPL	Replication 10090522	Group 3: 10030821
9:52:13 PM	RPL	Replication 10090522	Group 4: 10087497
9:52:13 PM	RPL	Replication 10090522	Group 5: 10090758
9:52:13 PM	RPL	Replication 10090522	Path Assignment results have been retrieved from file C:/Projects/170083 Caltrans TST/Task 10 D7 Aimsun/Day2/SR91 Air
9:52:14 PM	RPL	Replication 10090522	Microscopic simulation ready for Experiment Micro SRC Experiment 10090519 .
9:52:14 PM / 2:00:00.000 PM	★	MergeIncidents	Traffic Condition activated, Reason: Static.
9:52:14 PM / 2:00:00.000 PM	⚠	605S fr 91W	⊕ Action executed.
9:52:14 PM / 2:00:00.000 PM	⚠	605N fr 91E	⊕ Action executed.
9:52:14 PM / 2:00:00.000 PM	⚠	91E fr 605N	⊕ Action executed.
9:52:14 PM / 2:00:00.000 PM	⚠	91W fr OrangeThrope	⊕ Action executed.
9:52:14 PM / 2:00:00.000 PM	⚠	91W fr Artesia	⊕ Action executed.
9:52:14 PM / 2:00:00.000 PM	⚠	91W fr Pioneer N	⊕ Action executed.
9:52:14 PM / 2:00:00.000 PM	⚠	91W fr Norwalk N	⊕ Action executed.
9:52:14 PM / 2:00:00.000 PM	⚠	91E fr Studebaker	⊕ Action executed.
9:52:14 PM / 2:00:00.000 PM	⚠	I605 Sb fr Alondra	⊕ Action executed.
9:52:14 PM / 2:00:00.000 PM	⚠	SR91 & I605 ramp	⊕ Action executed.
10:09:36 PM	RPL	Replication 10090522	Microscopic simulation ended for Experiment Micro SRC Experiment 10090519 .

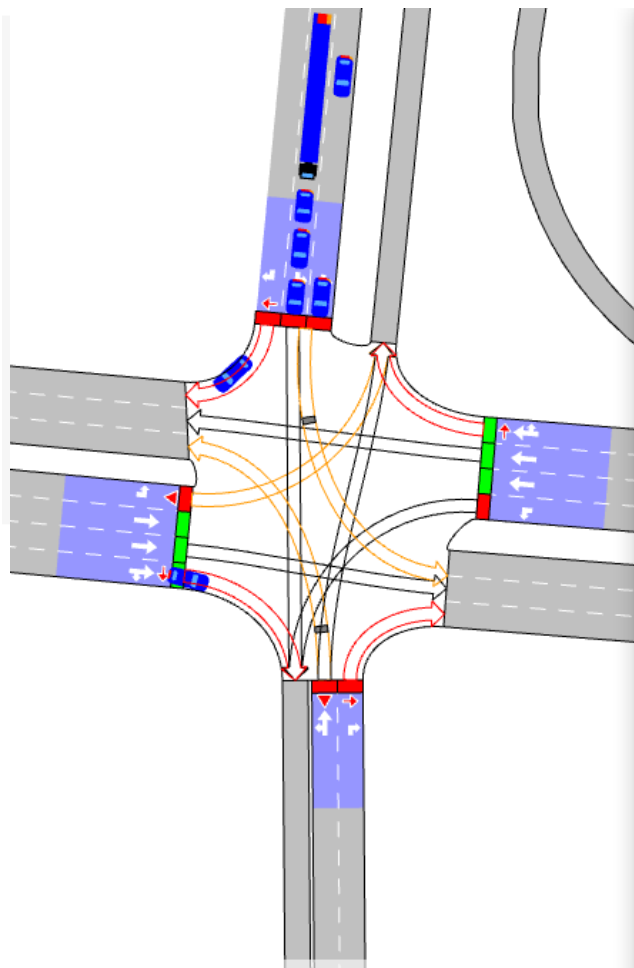
Visual Checks - Demands

- Congestions at loading points
 - » Waiting to Enter / Virtual Queues
- At end of simulation, should be minimal
 - » Rule of thumb $< 1\%$ of total demand
 - » Not clustered at 1 or 2 centroids

Visual Checks - Signals

- Check for signals not work properly
 - » Phases not called / stuck on one phase
 - » Actuated signals not responding to vehicle presence
 - » Conflict movements operating concurrently

Signals – Simulation Control



Node: 33275, External ID: 104119 (Layer: Arterials) {9e997e1c-cd5c-4fe0-a262-3ed372cc0794}

Show Active Signals in 2D Views

Current Control Plan: 2016 AM

Phase	Type	Time	Min	Max-Out	Recall	Gap	Max Gap	First C.Call	Max-Out Tim	Force-Off	Time in Cyc	Cycle
5	Phase	41.60	10	50	Coord	0.30	3	No Call	8.40	0	85.3	120
11	Phase	41.60	10	50	Coord	0.30	3	No Call	8.40	0	85.3	120

Help OK Cancel

Visual Checks - Paths

- Inspect vehicle paths
- Track Missed Turns by Node
- Route choice vs real world

Visual Checks – Missed Turns

- ➔ Significant numbers of missed turns *may* indicate a problem
- ➔ If significant numbers, investigations warranted

The screenshot shows the 'CALIBRATION: Missed Turns' settings panel. It includes a 'Size Multipliers' section with 'Width', 'Label', and 'Diagram' all set to 100%. Below that is an 'Object Visibility' section with four icons. The main calibration settings are:

- CALIBRATION: Vehicle Lost (Color)**: A red bar followed by 'Yes'.
- CALIBRATION: Vehicle Missed Turning (Color)**: An orange bar followed by '>= 1'.
- CALIBRATION: Vehicle Missed Turning (Label)**: 'First Missed Turn Location'.
- CALIBRATION: Node Missed Turning (Color) (veh)**: A color scale with five categories: 0 to 10 (grey), 10 to 30 (green), 30 to 60 (yellow), 60 to 100 (orange), and >= 100 (red).
- CALIBRATION: Node Missed Turning (Label) (veh)**: 'Missed Turnings SI'.

Visual Checks

- Vehicle behaviors that don't reflect field conditions
 - » Car following / lane changing
 - » Overly aggressive or conservative
 - » 'Stuck vehicles'