**Summary Out**

| **Name** | **Type** | **Description** |
| --- | --- | --- |
| time | (simulation) seconds | The time step described by the entry |
| loaded | # | Number of vehicles that were loaded from input files up to this time step. This can included vehicle with depart times in the future. |
| inserted | # | Number of vehicles inserted so far (including reported time step) |
| running | # | Number of vehicles that were running within the reported time step |
| waiting | # | Number of vehicles which were waiting for insertion (could not be inserted) within the reported time step |
| ended | # | Number of vehicles that have reached their destination so far or that were otherwise removed from the simulation (including reported time step) |
| arrived | # | Number of vehicles that have reached their destination so far |
| halting | # | The number of vehicles in the network with speed below 0.1m/s (which are not waiting at a <stop>). |
| collisions | # | The number of vehicles that were involved in a collision |
| teleports | # | The number of vehicles in the network that were teleported (due to jamming or collisions) |
| meanWaitingTime | s | The mean time all vehicles up to now and within the reported time step had to wait for being inserted; -1 if no vehicle has been inserted, yet |
| meanTravelTime | s | The mean travel time of all vehicles that have left the simulation within the previous and the reported time;-1 if no vehicle has been removed from the simulation, yet |
| meanSpeed | m/s | The mean speed over all vehicles in the network (which are not waiting at a <stop>). |
| meanSpeedRelative |  | The mean speed over all vehicles in the network relative to the speed limit (which are not waiting at a <stop>). |
| duration | ms | The computation time for that simulation step (in milliseconds). |

**BT Out**

| **Name** | **Type** | **Description** |
| --- | --- | --- |
| id@bt | ID | The id of the observing vehicle (receiver) |
| id@seen | ID | The id of the detected vehicle (sender) |
| tBeg | s | The time the sender entered the detection range |
| observerPosBeg | x,y in m | Cartesian coordinates of the observer when the sender entered the range |
| observerSpeedBeg | m/s | Speed of the observer when the sender entered the range |
| observerLaneIDBeg | ID | Lane id of the observer when the sender entered the range |
| observerLanePosBeg | m | Longitudinal position on the lane of the observer when the sender entered the range |
| seenPosBeg | x,y in m | Cartesian coordinates of the sender when it entered the range |
| seenSpeedBeg | m/s | Speed of the sender when it entered the range |
| seenLaneIDBeg | ID | Lane id of the sender when it entered the range |
| seenLanePosBeg | m | Longitudinal position on the lane of the sender when it entered the range |
| tEnd | s | The time the sender left the detection range |
| observerPosEnd | x,y in m | Cartesian coordinates of the observer when the sender left the range |
| observerSpeedEnd | m/s | Speed of the observer when the sender left the range |
| observerLaneIDEnd | ID | Lane id of the observer when the sender left the range |
| observerLanePosEnd | m | Longitudinal position on the lane of the observer when the sender left the range |
| seenPosEnd | x,y in m | Cartesian coordinates of the sender when it left the range |
| seenSpeedEnd | m/s | Speed of the sender when it left the range |
| seenLaneIDEnd | ID | Lane id of the sender when it left the range |
| seenLanePosEnd | m | Longitudinal position on the lane of the sender when it left the range |
| observerRoute | list of IDs | the route of the observing vehicle |
| seenRoute | list of IDs | the route of the sender vehicle |
| t | s | The time the observer detected the sender |
| observerPos | x,y in m | Cartesian coordinates of the observer when it detected the sender |
| observerSpeed | m/s | Speed of the observer when it detected the sender |
| observerLaneID | ID | Lane id of the observer when it detected the sender |
| observerLanePos | m | Longitudinal position on the lane of the observer when it detected the sender |
| seenPos | x,y in m | Cartesian coordinates of the sender when it was detected |
| seenSpeed | m/s | Speed of the sender when it was detected |
| seenLaneID | ID | Lane id of the sender when it left the range |
| seenLanePos | m | Longitudinal position on the lane of the sender when it was detected |

**RawDump Out**

| **Name** | **Type** | **Description** |
| --- | --- | --- |
| time | (simulation) seconds | The time step described by the values within this timestep-element |
| id | id | The id of the edge/lane/vehicle |
| pos | m | The position of the vehicle at the lane within the described time step (distance of the front bumper from the start of the lane) |
| speed | m/s | The speed of the vehicle within the described time step |
| posLat | m | Offset from the center of the lane (only when using the [sublane model](https://sumo.dlr.de/docs/Simulation/SublaneModel.html)) |
| personNumber | # | number of persons in the vehicle (not in [MESO](https://sumo.dlr.de/docs/Simulation/Meso.html)) |
| containerNumber | # | number of containers in the vehicle (not in [MESO](https://sumo.dlr.de/docs/Simulation/Meso.html)) |
| stage | string | description of the current [stage](https://sumo.dlr.de/docs/Specification/Persons.html#simulation_input) (only for persons and containers) |

**Full Out**

| **Name** | **Type** | **Description** |
| --- | --- | --- |
| time\_step | (simulation) seconds | The time step described by the values within this timestep-element |
| id | id | The id of the vehicle/lane/edge/trafficlight |
| eclass | id | The id of the specific emission class of the vehicle |
| co2@vehicle | mg/s | The amount of CO2 emitted by the vehicle in the current simulation step |
| co2@lane | mg/s | The complete amount of CO2 emitted by the vehicles on this lane during the current simulation step |
| co@vehicle | mg/s | The amount of CO emitted by the vehicle in the current simulation step |
| co@lane | mg/s | The complete amount of CO emitted by the vehicles on this lane during the current simulation step |
| hc@vehicle | mg/s | The amount of HC emitted by the vehicle in the current simulation step |
| hc@lane | mg/s | The complete amount of HC emitted by the vehicles on this lane during the current simulation step |
| nox@vehicle | mg/s | The amount of NOX emitted by the vehicle in the current simulation step |
| nox@lane | mg/s | The complete amount of NOX emitted by the vehicles on this lane during the current simulation step |
| pmx@vehicle | mg/s | The amount of PMX emitted by the vehicle in the current simulation step |
| pmx@lane | mg/s | The complete amount of PMX emitted by the vehicles on this lane during the current simulation step |
| noise@vehicle | dB | The noise emitted by the vehicle in the current simulation step |
| noise@lane | dB | The noise emitted by the vehicles on the specific lane |
| fuel@vehicle | mg/s | The fuel consumed by the vehicle in the current simulation step |
| fuel@lane | mg/s | The fuel consumed by the vehicles on the specific lane |
| electricity@vehicle | Wh/s | The electricity consumed by the vehicle in the current simulation step |
| electricity@lane | Wh/s | The electricity consumed by the vehicles on the specific lane |
| route | id | The name of the route |
| type | id | The name of the vehicle type |
| waiting | seconds | The total time a vehicle is waiting |
| lane | id | The name of the lane |
| pos | meters | The position of the vehicle on a specific lane (distance of the front bumper from the start of the lane) |
| speed | m/s | The current speed of the vehicle |
| angle | degree | The angle of the vehicle |
| x | m | The absolute X coordinate of the vehicle (center of front bumper). |
| y | m | The absolute Y coordinate of the vehicle (center of front bumper). |
| z | m | The absolute Z coordinate of the vehicle (center of front bumper, only if the network has elevation data) |
| slope | degrees | The vehicle angle of inclination to the horizontal (only if the network has elevation data) |
| traveltime | seconds | The mean travel time on the specific lane |
| fuel@lane | l/km/h | The fuel consumption on the specific lane |
| maxspeed | m/s | The maximum speed of the vehicles on the specific lane |
| meanspeed | m/s | The mean speed of the vehicles on the specific lane |
| occupancy | % | The occupancy of the lane in % |
| vehicles\_count | #veh | The number of vehicles on the lane |
| state | string | The current [state of a traffic light](https://sumo.dlr.de/docs/Simulation/Traffic_Lights.html) |