

Simulator - Quick Reference

Version 5.0.41



Usage

Simulator [-flag] [control_file]

Optional Flags:

- Q[uiet] = execute without screen messages
- H[elp] = show program syntax and control keys
- C[ontrol] = create/update a default control file
- K[eyCheck] = list unrecognized control file keys
- P[ause] = pause before exiting
- N[oPause] = never pause before exiting
- D[etail] = execute with detailed status messages
- X[ML] = write an XML file with control keys

Purpose

1. Simulate the second-by-second movements of vehicles and persons through the network.
2. Generate performance statistics, track individual travelers, and summarize events.

Configuration Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
TITLE	Text		
REPORT_FILE	File		filename[_partition][.prn]
REPORT_FLAG	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
PROJECT_DIRECTORY	Path		
MODEL_START_TIME	Time	0:00	>= 0 [seconds], 0.0 [hours], 0:00
MODEL_END_TIME	Time	24:00	> [model_start_time]
UNITS_OF_MEASURE	Text	METRIC	METRIC, ENGLISH
RANDOM_NUMBER_SEED	Int.	0	0 = computer clock, > 0 = fixed
MAX_WARNING_MESSAGES	Int.	100000	>= 0
MAX_WARNING_EXIT_FLAG	Bool	TRUE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
MAX_PROBLEM_COUNT	Int.	0	>= 0
NUMBER_OF_THREADS	Int.	1	1..24
SIMULATOR_REPORT_*	Text		program report name

System File Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
<input checked="" type="checkbox"/> NODE_FILE	File		[project_directory]filename
<input checked="" type="checkbox"/> LINK_FILE	File		[project_directory]filename
<input checked="" type="checkbox"/> POCKET_FILE	File		[project_directory]filename
<input checked="" type="checkbox"/> CONNECTION_FILE	File		[project_directory]filename
<input checked="" type="checkbox"/> PARKING_FILE	File		[project_directory]filename
<input checked="" type="checkbox"/> LOCATION_FILE	File		[project_directory]filename
<input checked="" type="checkbox"/> VEHICLE_TYPE_FILE	File		[project_directory]filename
<input checked="" type="checkbox"/> VEHICLE_FILE	File		[project_directory]filename.*
<input checked="" type="checkbox"/> PLAN_FILE	File		[project_directory]filename.*
LANE_USE_FILE	File		[project_directory]filename
TURN_PENALTY_FILE	File		[project_directory]filename
ACCESS_FILE	File		[project_directory]filename
SIGN_FILE	File		[project_directory]filename
SIGNAL_FILE	File		[project_directory]filename
PHASING_PLAN_FILE	File		[project_directory]filename
TIMING_PLAN_FILE	File		[project_directory]filename
DETECTOR_FILE	File		[project_directory]filename
TRANSIT_STOP_FILE	File		[project_directory]filename
TRANSIT_FARE_FILE	File		[project_directory]filename
TRANSIT_ROUTE_FILE	File		[project_directory]filename
TRANSIT_SCHEDULE_FILE	File		[project_directory]filename
TRANSIT_DRIVER_FILE	File		[project_directory]filename
HOUSEHOLD_FILE	File		[project_directory]filename.*
NEW_PROBLEM_FILE	File		[project_directory]filename.*

Data Service Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
DAILY_WRAP_FLAG	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
SUMMARY_TIME_RANGES	Text	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00
SUMMARY_TIME_INCREMENT	Time	15 minutes	0, 2..240 minutes

Select Service Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
SELECT_HOUSEHOLDS	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
SELECT_MODES	List	ALL	e.g., ALL or 1, 12..14 or WALK, HOV2..HOV4
SELECT_PURPOSES	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
SELECT_START_TIMES	List	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00
SELECT_END_TIMES	List	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00
SELECT_TRAVELER_TYPES	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
SELECT_VEHICLE_TYPES	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
SELECT_PROBLEM_TYPES	List	ALL	e.g., 1, 2, 4..10, 100..200, 300

Flow, Time Service Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
UPDATE_FLOW_RATES	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
UPDATE_TURNING_MOVEMENTS	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
CLEAR_INPUT_FLOW_RATES	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
UPDATE_TRAVEL_TIMES	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
LINK_DELAY_UPDATE_RATE	Int.	0	-1..5000
LINK_DELAY_FLOW_FACTOR	Dec.	1.0	1..100000
EQUATION_PARAMETERS_*	List	BPR, 0.15, 4.0, 0.75	BPR, 0.15, 4.0, 0.75

Router Service Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
IMPEDANCE_SORT_METHOD	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
SAVE_ONLY_SKIMS	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
WALK_PATH_DETAILS	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
IGNORE_VEHICLE_ID	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
LIMIT_PARKING_ACCESS	Bool	TRUE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
IGNORE_TIME_CONSTRAINTS	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
END_TIME_CONSTRAINT	Time	0 minutes	0..360 minutes
IGNORE_ROUTING_PROBLEMS	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
PERCENT_RANDOM_IMPEDANCE	Dec.	0.0 percent	0.0..100.0 percent
HOUSEHOLD_TYPE_SCRIPT	File		[project_directory]filename
WALK_SPEED	Dec.	1.0 mps	0.5..4.0 mps
BICYCLE_SPEED	Dec.	4.0 mps	1.0..10.0 mps
WALK_TIME_VALUES_*	List	20.0 impedance/second	0..1000.0
BICYCLE_TIME_VALUES_*	List	15.0 impedance/second	0..1000.0
FIRST_WAIT_VALUES_*	List	20.0 impedance/second	0..1000.0
TRANSFER_WAIT_VALUES_*	List	20.0 impedance/second	0..1000.0
PARKING_TIME_VALUES_*	List	0.0 impedance/second	0.0..1000.0
VEHICLE_TIME_VALUES_*	List	10.0 impedance/second	0..1000.0
DISTANCE_VALUES_*	List	0.0 impedance/meter	0.0..1000.0
COST_VALUES_*	List	0.0 impedance/cent	0.0..1000.0
FACILITY_BIAS_FACTORS_*	List	1.0	0.5..2.0
LEFT_TURN_PENALTIES_*	List	0 impedance	0..10000
RIGHT_TURN_PENALTIES_*	List	0 impedance	0..10000
U_TURN_PENALTIES_*	List	0 impedance	0..10000
PARKING_PENALTY_FILE	File		[project_directory]filename
TRANSIT_PENALTY_FILE	File		[project_directory]filename
TRANSFER_PENALTIES_*	List	0 impedance	0..100000

Router Service Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
STOP_WAITING_PENALTIES_*	List	0 impedance	0..100000
STATION_WAITING_PENALTIES_*	List	0 impedance	0..100000
BUS_BIAS_FACTORS_*	List	1.0	1.0..3.0
BUS_BIAS_CONSTANTS_*	List	0 impedance	0..10000
RAIL_BIAS_FACTORS_*	List	1.0	0.1..1.0
RAIL_BIAS_CONSTANTS_*	List	0 impedance	-1000..0
MAX_WALK_DISTANCES_*	List	2000 meters	100..20000 meters
WALK_PENALTY_DISTANCES_*	List	2000 meters	100..10000 meters
WALK_PENALTY_FACTOR	Dec.	0.0	0.0..25.0
MAX_BICYCLE_DISTANCES_*	List	10000 meters	1000..40000 meters
BIKE_PENALTY_DISTANCES_*	List	10000 meters	1000..20000 meters
BIKE_PENALTY_FACTOR	Dec.	0.0	0.0..25.0
MAX_WAIT_TIMES_*	List	60 minutes	5..400 minutes
WAIT_PENALTY_TIMES_*	List	60 minutes	5..200 minutes
WAIT_PENALTY_FACTOR	Dec.	0.0	0.0..25.0
MIN_WAIT_TIMES_*	List	0 seconds	0..3600 seconds
MAX_NUMBER_OF_TRANSFERS_*	Int.	3	0..10
MAX_NUMBER_OF_PATHS_*	Int.	4	1..10
MAX_PARK_RIDE_PERCENTAGE_*	Int.	50 percent	1..100 percent
MAX_KISS_RIDE_PERCENTAGE_*	Int.	35 percent	1..100 percent
KISS_RIDE_TIME_FACTOR_*	Dec.	2.5	1.0..4.4
KISS_RIDE_STOP_TYPES	Text	EXTERNAL	
MAX_KISS_RIDE_DROPOFF_WALK	Dec.	100 meters	10..500 meters
MAX_LEGS_PER_PATH	Int.	1000	10..10000
FARE_CLASS_DISTRIBUTION	List	0	
DEFAULT_PARKING_DURATION	List	0.0 hours	0.0..24.0 hours
LOCAL_ACCESS_DISTANCE	Dec.	2000 meters	100..7500 meters

Router Service Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
LOCAL_FACILITY_TYPE	Text	EXTERNAL	MAJOR..LOCAL, EXTERNAL
LOCAL_IMPEDANCE_FACTOR	Dec.	0.0	0.0..25.0
MAX_CIRCUITY_RATIO	Dec.	0.0	0.0..10.0
MIN_CIRCUITY_DISTANCE	Dec.	2000 meters	0..10000 meters
MAX_CIRCUITY_DISTANCE	Dec.	20000 meters	0..100000 meters
MIN_DURATION_FACTORS	List	0.1, 0.5, 0.8, 1.0	0.0..1.0

Simulation Service Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
SIMULATION_START_TIME	Time	0:00	
SIMULATION_END_TIME	Time	24:00	
TIME_STEPS_PER_SECOND	Int.	1	1..10
CELL_SIZE	Dec.	0.0 meters	0, 3..10 meters
PLAN_FOLLOWING_DISTANCE	Int.	526 meters	0..2000 meters
LOOK_AHEAD_DISTANCE	Int.	260 meters	0..2000 meters
LOOK_AHEAD_LANE_FACTOR	Dec.	4.0	1.0..25.0
LOOK_AHEAD_TIME_FACTOR	Dec.	1.0	0.0..5.0
MAXIMUM_SWAPPING_SPEED	Dec.	40 mps	-1..40 mps
MAXIMUM_SPEED_DIFFERENCE	Dec.	10 mps	0..10 mps
ENFORCE_PARKING_LANES	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
FIX_VEHICLE_LOCATIONS	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
DRIVER_REACTION_TIME_*	List	1.0 seconds	0.0..5.0 seconds
PERMISSION_PROBABILITY_*	List	50 percent	0..100 percent
SLOW_DOWN_PROBABILITY_*	List	0 percent	0..100 percent
SLOW_DOWN_PERCENTAGE_*	List	0 percent	0..50 percent
MAX_COMFORTABLE_SPEED_*	List	37.5 mps	0, 15..40 mps
TRAVELER_TYPE_FACTORS_*	List	1.0	0.5..2.0

Simulation Service Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
PRIORITY_LOADING_TIME	Time	60 seconds	0..6500 seconds
MAXIMUM_LOADING_TIME	Time	120 seconds	0..6500 seconds
PRIORITY_WAITING_TIME	Time	60 seconds	0..6500 seconds
MAXIMUM_WAITING_TIME	Time	120 seconds	0..6500 seconds
MAX_DEPARTURE_TIME_VARIANCE	Time	60 minutes	0..180 minutes
MAX_ARRIVAL_TIME_VARIANCE	Time	60 minutes	0..180 minutes
RELOAD_CAPACITY_PROBLEMS	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
COUNT_PROBLEM_WARNINGS	Bool	TRUE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
PRINT_PROBLEM_MESSAGES	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
UNSIMULATED_SUBAREAS	List	NONE	e.g., 1, 2, 4..10, 100..200, 300
MACROSCOPIC_SUBAREAS	List	NONE	e.g., 1, 2, 4..10, 100..200, 300
MESOSCOPIC_SUBAREAS	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
MICROSCOPIC_SUBAREAS	List	NONE	e.g., 1, 2, 4..10, 100..200, 300
TURN_POCKET_FACTOR	Dec.	0.8	0..1.0
MERGE_POCKET_FACTOR	Dec.	0.6	0..1.0
OTHER_POCKET_FACTOR	Dec.	0.5	0..1.0

Snapshot, Delay, Volume, Ridership Output Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
NEW_SNAPSHOT_FILE_*	File		[project_directory]filename
NEW_SNAPSHOT_INCREMENT_*	Time	900 seconds	0.1..1800 seconds
NEW_SNAPSHOT_TIME_RANGE_*	List	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00
NEW_SNAPSHOT_LINK_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_SNAPSHOT_SUBAREA_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_SNAPSHOT_COORDINATES_*	List	ALL	Min X, Min Y, Max X, Max Y
NEW_SNAPSHOT_MAX_SIZE_*	Int.	0	0..4096
NEW_SNAPSHOT_LOCATION_FLAG_*	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N

Snapshot, Delay, Volume, Ridership Output Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
NEW_SNAPSHOT_CELL_FLAG_*	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
NEW_SNAPSHOT_STATUS_FLAG_*	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
NEW_SNAPSHOT_COMPRESSION_*	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
NEW_LINK_DELAY_FILE_*	File		[project_directory]filename
NEW_LINK_DELAY_INCREMENT_*	Time	15 minutes	0, 2..240 minutes
NEW_LINK_DELAY_TIME_RANGE_*	List	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00
NEW_LINK_DELAY_LINK_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_LINK_DELAY_SUBAREA_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_LINK_DELAY_COORDINATES_*	List	ALL	Min X, Min Y, Max X, Max Y
NEW_LINK_DELAY_VEH_TYPES_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_LINK_DELAY_TURN_FLAG_*	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
NEW_LINK_DELAY_FLOW_TYPE_*	Text	VEHICLES	VEHICLES, CAR_EQUIV/PCE, PERSONS
NEW_PERFORMANCE_FILE_*	File		[project_directory]filename
NEW_PERFORMANCE_INCREMENT_*	Time	15 minutes	0, 2..240 minutes
NEW_PERFORMANCE_TIME_RANGE_*	List	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00
NEW_PERFORMANCE_LINK_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_PERFORMANCE_SUBAREA_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_PERFORMANCE_COORDINATES_*	List	ALL	Min X, Min Y, Max X, Max Y
NEW_PERFORMANCE_VEH_TYPES_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_PERFORMANCE_TURN_FLAG_*	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
NEW_PERFORMANCE_FLOW_TYPE_*	Text	VEHICLES	VEHICLES, CAR_EQUIV/PCE, PERSONS
NEW_TURN_VOLUME_FILE_*	File		[project_directory]filename
NEW_TURN_VOLUME_FILTER_*	Int.	0	>= 0
NEW_TURN_VOLUME_INCREMENT_*	Time	15 minutes	0, 2..240 minutes
NEW_TURN_VOLUME_TIME_RANGE_*	List	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00
NEW_TURN_VOLUME_NODE_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_TURN_VOLUME_SUBAREA_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300

Snapshot, Delay, Volume, Ridership Output Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
NEW_RIDERSHIP_FILE_*	File		[project_directory]filename
NEW_RIDERSHIP_TIME_RANGE_*	List	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00
NEW_RIDERSHIP_ROUTE_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_RIDERSHIP_ALL_STOPS_*	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N

Occupancy, Event, Traveler, Speed Bin Output Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
NEW_OCCUPANCY_FILE_*	File		[project_directory]filename
NEW_OCCUPANCY_INCREMENT_*	Time	900 seconds	1..3600 seconds
NEW_OCCUPANCY_TIME_RANGE_*	List	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00
NEW_OCCUPANCY_LINK_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_OCCUPANCY_SUBAREA_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_OCCUPANCY_COORDINATES_*	List	ALL	Min X, Min Y, Max X, Max Y
NEW_OCCUPANCY_MAX_FLAG_*	Bool	FALSE	TRUE/FALSE, YES/NO, 1/0, T/F, Y/N
NEW_EVENT_FILE_*	File		[project_directory]filename
NEW_EVENT_FILTER_*	Time	0 seconds	>= 0 seconds
NEW_EVENT_TIME_RANGE_*	List	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00
NEW_EVENT_TYPE_RANGE_*	List	ALL	TRIP_START_TIME, TRIP_END_TIME, TRIP_DURATION, VEH_START_TIME, VEH_END_TIME, VEH_LOST_TIME, TRANSIT_WAIT, TRANSIT_BO
NEW_EVENT_MODE_RANGE_*	List	ALL	WALK, BIKE, DRIVE, RIDE, TRANSIT, PNR_OUT, PNR_IN, KNR_OUT, KNR_IN, TAXI, OTHER, HOV2, HOV3, HOV4
NEW_EVENT_LINK_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_EVENT_SUBAREA_RANGE_*	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
NEW_EVENT_COORDINATES_*	List	ALL	Min X, Min Y, Max X, Max Y

Control Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
DEBUG_TIME_RANGE	Time	ALL	e.g., ALL, 0..97200 seconds, 0.0..27.0 hours, 0:00..27:00

Control Keys

REQ? KEY	TYPE	DEFAULT	VALUE RANGES
DEBUG_VEHICLE_LIST	List	ALL	e.g., 1, 2, 4..10, 100..200, 300
DEBUG_LINK_LIST	List	ALL	e.g., 1, 2, 4..10, 100..200, 300

Notes

Each '_FILE' key has a corresponding '_FORMAT' key. The following file formats can be used for input and output files.
 TEXT, BINARY, FIXED_COLUMN, COMMA_DELIMITED, SPACE_DELIMITED, TAB_DELIMITED, CSV_DELIMITED, DBASE, SQLITE3, VERSION3