Microsimulator Output Files

The TRANSIMS Version 4 Microsimulator may include as many as 11 separate output data files. The generic name and purpose of each network file is listed in the following table.

File Type	Description
Summary	Aggregates volumes and performance statistics (e.g., travel time) for each link direction and turning movement by time increment (e.g., 15 minutes). Turning movement volumes and delays are optional.
Snapshot	Lists the link direction, offset, lane, and speed of each vehicle at specified time points (e.g., every 5 minutes).
Occupancy	Lists the link direction, offset, lane, and cumulative occupancy of each cell by time increment (e.g., 15 minutes). May list the cells occupied at the maximum load point during the time increment or the total occupancy of each cell during the time increment.
Ridership	Summarizes the boardings and alightings at each stop on each route based on the scheduled and actual departure time for each run.
Event	Lists the scheduled and actual time and link direction and offset for each traveler and trip event (i.e., start time and end time).
System Event	Lists the time, node, and phasing information for each phase or timing plan change event at a traffic signal
Problem Link	Aggregates the number of problems by problem type (e.g., wait time) for each link direction by time increment (e.g., 15 minutes).
Traveler	Lists the link direction, offset, lane, and speed for each selected traveler by time step (e.g., second)
Turn	Aggregates the number of turning movements at a node by input and output link and time increment (e.g., 15 minute)
Speed Bin	Aggregates the number of vehicles of a specified vehicle type by speed bin traveling on link segments at specified time increments
Problem	Lists time, link direction, offset, and lane where trips experience problems in the Microsimulator. The output includes data about the trip (e.g., household, person, trip, mode, origin, destination, and start and end times).

The Version 4 software is able to process data files in different formats and data fields within these files in any order. It also can interpret standard field names using several naming options. Some of the standard fields are required while others are optional. If the program is unable to identify a required field, an error message lists the field name options and the program is terminated. Optional fields are typically interpreted as zero or null if not provided. The user can included any number of additional fields in a data file. These fields are available to data processing scripts or custom programs. A TRANSIMS definition file is created with an additional extension of *.def to define the file format, field names, and data types for each output file.

Summary Files

MICROSIMULATOR CONTROL KEY	Descriptions	Use	Values
OUTPUT_SUMMARY_FILE_#	File name to be created within the project directory	Req	255 characters
OUTPUT_SUMMARY_FORMAT_#	File format to be created (default Version3)	Opt	Format code (1)
OUTPUT_SUMMARY_TIME_FORMAT_#	Output time format (default seconds)	Opt	Time code (2)
OUTPUT_SUMMARY_INCREMENT_#	Time increment duration (default 15 minutes)	Opt	16 characters (4)
OUTPUT_SUMMARY_TIME_RANGE_#	Time period range (default ALL)	Opt	Time range (5)
OUTPUT_SUMMARY_LINK_RANGE_#	Link number range (default ALL)	Opt	ID range (6)
OUTPUT_SUMMARY_TURN_FLAG_#	True flag creates a nested file with turning movement volumes and delays (default false)	Opt	True/False (7)
OUTPUT_SUMMARY_PCE_FLAG_#	True flag applies the passenger car equivalence to volume data based on the vehicle type length	Opt	True/False (7)
OUTPUT_SUMMARY_PERSON_FLAG_#	If true, the output values will be weighted by vehicle occupancy (included transit vehicle riders). This changes all of the statistics from vehicle volumes/speeds/etc to person volumes/speeds/etc.	Opt	True/False (7)
OUTPUT_SUMMARY_COORDINATES_#	Link selection coordinate range (default All)	Opt	x1, y1, x2, y2

Summary File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
COUNT		AVG_VOLUME, VOLUME	Number of vehicles leaving the link	Opt	Integer {0..2,147,483,647}
LANE			The lane number (always the first non-pocket lanes in version 4)	Opt	Integer {1..99}
LINK	LINK		Link ID number	Req	Integer {1..1,073,741,823}
NODE	DIR (3)	NODE	Node ID or direction code from which the link	Req	Integer {0..2,147,483,647}

			is headed		
SUM		TTIME, AVG_TIME	The sum of the vehicle travel times (in seconds) for vehicles leaving the link.	Opt	Floating point
SUMSQUARES		TTIME2	The sum of the vehicle travel time squares (in seconds squared) for vehicles leaving the link.	Opt	Floating point
TIME		PERIOD	Current time in seconds from midnight	Opt	Integer {1..2,147,483,647}
TURN			The type of turn the vehicle made when leaving the link. (always 0 in Version 4)	Opt	0 = no turn 1 = right turn -1 = left turn 2 = hard right turn -2 = hard left turn 3 to 6 = extreme right turns -3 to -6 extreme left turns -7 = U-turn
VCOUNT		VEHICLES	Number of vehicles on the link		Integer {0..2,147,483,647}
VSUM		SPEED, AVG_SPEED	The sum of vehicle velocities (in meters per second) on the link.	Opt	Floating point
VSUMSQUARES		SPEED2	The sum of the squares of the vehicle velocities (in meters squared per second squared).	Opt	Floating point
	START_TIME	START, STARTTIME	Start time for the time increment	Opt	16 characters (4)
	END_TIME	END, ENDTIME	End time for the time increment	Opt	16 characters (4)
	AVG_VOLUME	VOLUME, COUNT	The average of the number of vehicles entering and exiting the link during the time increment	Opt	Integer {0..2,147,483,647}
	IN_VOLUME	ENTER	Number of vehicles entering the link during the time increment	Opt	Integer {0..2,147,483,647}
	OUT_VOLUME	EXIT	Number of vehicles exiting the link during the time increment	Opt	Integer {0..2,147,483,647}
	AVG_SPEED	SPEED, VSUM	Average speed in meters per second of the vehicles using the link during the time increment (i.e., veh. meters / veh. seconds)	Opt	Floating point (2 decimals)
	AVG_TIME	TTIME, SUM	Average travel time in seconds to traverse the	Opt	Floating point (2 decimals)

			link during the time increment (i.e., link length / average speed)		
	AVG_DELAY	DELAY	Averge travel time during the time increment minus the free flow travel time	Opt	Floating point (2 decimals)
	AVG_DENSITY	DENSITY	The average number of vehicles occupying the link during each second of the time increment divided by the number of lane meters (i.e., vehicles / (length * lanes))	Opt	Floating point (2 decimals)
	MAX_DENSITY	MAX_DEN	The maximum number of vehicles that occupied the link during the time increment divided by the number of lane meters (i.e., max vehicles / (length * lanes))	Opt	Floating point (2 decimals)
	TIME_RATIO	RATIO	Average travel time during the time increment divided by the free flow time	Opt	Floating point (2 decimals)
	AVG_QUEUE	QUEUE	Sum of the number of seconds each vehicle is stopped on the link during the time increment divided by the length of the time increment (i.e., average number of stopped vehicles)	Opt	Floating point (2 decimals)
	MAX_QUEUE	MAX_QUE	The maximum number of stopped vehicles on the link during the time increment	Opt	Integer {0..2,147,483,647}
	NUM_FAIL	CYCLE_FAIL, FAILURE	Number of vehicles that occupied the link when the signal phase turned green and were still on the link when the signal phase turned red (i.e., cycle failures)	Opt	Integer {0..2,147,483,647}
	VMT	VEH_DIST	The total number of meters vehicles traveled on the link during the time increment	Opt	Floating point (1 decimal)
	VHT	VEH_TIME	The total number of seconds vehicles traveled on the link during the time increment	Opt	Floating point (1 decimal)
	NCONNECT	NUM_CONNECT, NUM_TURNS, NUM_MOVES	The number of nested records that follow	Opt	Integer {1..99}
NESTED FIELDS					
	OUT_LINK	OUTLINK	The Link ID leaving the end of the link	Opt	Integer {1..1,073,741,823}

	OUT_DIR	OUTDIR	The link direction code leaving the link	Opt	Integer {0..1}
	OUT_TURN	OUTTURN, TURN, MOVEMENT	Number of vehicles turning onto the departure link during the time increment	Opt	Integer {0..2,147,483,647}
	OUT_TIME	OUTTIME, OUT_DELAY, PENALTY	The average travel time on the link for vehicles making the turning movement (i.e., link length / (turn meters / turn seconds))	Opt	Floating point (2 decimals)

Note: The Version 3 format includes a METADATA records after the field names. This record has the following syntax:
METADATA [creation date/time] TIME_STEP [number of seconds]

Snapshot Files

MICROSIMULATOR CONTROL KEY	Descriptions	Use	Values
OUTPUT_SNAPSHOT_FILE_#	File name to be created within the project directory	Req	255 characters
OUTPUT_SNAPSHOT_FORMAT_#	File format to be created (default Version3)	Opt	Format code (1)
OUTPUT_SNAPSHOT_TIME_FORMAT_#	Output time format (default seconds)	Opt	Time code (2)
OUTPUT_SNAPSHOT_INCREMENT_#	Time increment duration (default 15 minutes)	Opt	16 characters (4)
OUTPUT_SNAPSHOT_TIME_RANGE_#	Time period range (default ALL)	Opt	Time range (5)
OUTPUT_SNAPSHOT_LINK_RANGE_#	Link number range (default ALL)	Opt	ID range (6)
OUTPUT_SNAPSHOT_COORDINATES_#	Link selection coordinate range (default All)	Opt	x1, y1, x2, y2
OUTPUT_SNAPSHOT_MAX_SIZE_#	Maximum size of the snapshot file in megabytes (default = 0 = unlimited)	Opt	Integer {0..2048}
OUTPUT_SNAPSHOT_LOCATION_FLAG_#	Add X, Y, and Bearing fields to the output file (10)	Opt	True/False (7)

Snapshot File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
VEHICLE	VEHICLE		Vehicle ID	Req	Integer {0..2,147,483,647}
TIME	TIME		Time in seconds from midnight	Req	16 characters (4)
LINK	LINK		Link ID number	Req	Integer {1..1,073,741,823}
NODE	DIR (3)	NODE	Node ID or direction code from which the link is headed	Opt	Integer {0..2,147,483,647}
LANE	LANE		Lane number on which the vehicle is traveling	Req	Integer {1..99}
DISTANCE	OFFSET		The distance (in meters) the front of the vehicle is away from the beginning of the link	Req	Floating point (1 decimal)
VELOCITY	SPEED		The velocity (in meters per second) of the vehicle.	Req	Floating point (1 decimal)
VEHTYPE	VEH_TYPE		The vehicle type	Opt	0 = walk 6 = trolley

					1 = auto 7 = streetcar 2 = truck 8 = light rail 3 = bicycle 9 = rapid rail 4 = taxi 10 = regional rail 5 = bus
ACCELER	ACCEL		The acceleration (in meters per second) the vehicle had in the current time step.	Opt	Floating point (1 decimal)
DRIVER	DRIVER		The driver's traveler ID	Opt	Integer {1..2,147,483,647}
PASSENGERS	PASSENGERS		The count of passengers in vehicle.	Opt	Integer {1..9999}
EASTING		X, X_COORD	The vehicle's x-coordinate (in meters).	Opt	Floating point (1 decimal)
NORTHING		Y, Y_COORD	The vehicle's y-coordinate (in meters).	Opt	Floating point (1 decimal)
ELEVATION		Z, Z_COORD	The vehicle's z-coordinate (in meters).	Opt	Floating point (1 decimal)
AZIMUTH		BEARING	The vehicle's orientation angle (degrees from east in the counterclockwise direction).	Opt	Floating point (1 decimal)
USER		OTHER	The user-defined field that can be set on a per-vehicle basis.	Opt	Integer {0..2,147,483,647}

Occupancy Files

MICROSIMULATOR CONTROL KEY	Descriptions	Use	Values
OUTPUT_OCCUPANCY_FILE_#	File name to be created within the project directory	Req	255 characters
OUTPUT_OCCUPANCY_FORMAT_#	File format to be created (default Version3)	Opt	Format code (1)
OUTPUT_OCCUPANCY_TIME_FORMAT_#	Output time format (default seconds)	Opt	Time code (2)
OUTPUT_OCCUPANCY_INCREMENT_#	Time increment duration (default 15 minutes)	Opt	16 characters (4)
OUTPUT_OCCUPANCY_TIME_RANGE_#	Time period range (default ALL)	Opt	Time range (5)
OUTPUT_OCCUPANCY_LINK_RANGE_#	Link number range (default ALL)	Opt	ID range (6)
OUTPUT_OCCUPANCY_MAX_FLAG_#	True creates a file with vehicle locations when the link contains the highest number of vehicles during the increment. False totals the number of seconds each cell on the link is occupied. (default false)	Opt	True/False (7)
OUTPUT_OCCUPANCY_COORDINATES_#	Link selection coordinate range (default All)	Opt	x1, y1, x2, y2

Occupancy File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
	LINK		Link ID number	Req	Integer {1..1,073,741,823}
	DIR (3)	NODE	Node or direction from which the link is headed	Opt	Integer {0..2,147,483,647}
	START	START_TIME, STARTTIME	Start time for the time increment	Opt	16 characters (4)
	END	END_TIME, ENDTIME	End time for the time increment	Req	16 characters (4)
	LANE		Lane number on which the cell is located	Req	Integer {1..99}
	OFFSET	DISTANCE	Offset in meters of the cell along the link	Req	Floating point (1 decimal)
	OCCUPANCY	COUNT	Number of seconds vehicles occupy the cell	Opt	Integer {0..2,147,483,647}

Ridership Files

MICROSIMULATOR CONTROL KEY	Descriptions	Use	Values
OUTPUT_RIDERSHIP_FILE_#	File name to be created within the project directory	Req	255 characters
OUTPUT_RIDERSHIP_FORMAT_#	File format to be created (default Version3)	Opt	Format code (1)
OUTPUT_RIDERSHIP_TIME_FORMAT_#	Output time format (default seconds)	Opt	Time code (2)
OUTPUT_RIDERSHIP_TIME_RANGE_#	Time period range (default ALL)	Opt	Time range (5)
OUTPUT_RIDERSHIP_ROUTE_RANGE_#	Route number range (default ALL)	Opt	ID range (6)

Ridership File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
	MODE	TYPE	Mode string	Opt	16 characters (9)
	ROUTE	LINE, ROUTE_ID, LINE_ID	Route number	Req	Integer {1..2,147,483,647}
	RUN	TRIP	Run number	Req	Integer {1..2,147,483,647}
	STOP	STOP_ID	Stop number	Req	Integer {1..2,147,483,647}
	SCHEDULE	DEPART	Scheduled departure time	Opt	16 characters (4)
	TIME	ARRIVE, ACTUAL	Actual departure time	Opt	16 characters (4)
	BOARD	ON, GET_ON	Number of persons boarding at the stop	Req	Integer {0..2,147,483,647}
	ALIGHT	OFF, GET_OFF	Number of persons alighting at the stop	Req	Integer {0..2,147,483,647}
	LOAD	RIDERS, IN, PASSENGERS,	Number of persons in the vehicle leaving the stop	Opt	Integer {0..2,147,483,647}
	FACTOR	LOAD_FACTOR, VC	Ratio of the number of people in the vehicle to the vehicle capacity	Opt	Floating point (2 decimal)

Event Files

MICROSIMULATOR CONTROL KEY	Descriptions	Use	Values
OUTPUT_EVENT_TYPE_#	Comma separated list of event type codes	Req	START_TIME, END_TIME, RUN_TIME
OUTPUT_EVENT_FILE_#	File name to be created within the project directory	Req	255 characters
OUTPUT_EVENT_FORMAT_#	File format to be created (default Version3)	Opt	Format code (1)
OUTPUT_EVENT_FILTER_#	Number of seconds difference criteria (default 0)	Opt	Integer {0..2,147,483,647}
OUTPUT_EVENT_TIME_FORMAT_#	Output time format (default seconds)	Opt	Time code (2)
OUTPUT_EVENT_TIME_RANGE_#	Time period range (default ALL)	Opt	Time range (5)
OUTPUT_EVENT_MODE_RANGE_#	Link number range (default ALL)	Opt	ID range (6)

Event File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
	HOUSEHOLD		The traveler's household ID	Req	Integer {1..1,073,741,823}
	PERSON		The traveler's person number	Req	Integer {1..99999}
	MODE		The traveler's mode code	Opt	Integer {1..99}
	TRIP		The traveler's trip number	Req	Integer {1..999}
	EVENT		The event code number	Req	Integer {1..99999}
	SCHEDULE		The time of day when the event was scheduled to take place.	Req	16 characters (4)
	ACTUAL		The time of day when the event actually took place.	Req	16 characters (4)
	DIFFERENCE		The difference between the schedule time and the actual time	Opt	16 characters (4)
	LINK		Link ID number	Opt	Integer {1..1,073,741,823}
	NODE		Node ID or direction code from which the link	Opt	Integer {1..2,147,483,647}

			is headed		
	OFFSET		The distance (in meters) the front of the vehicle is away from the beginning of the link	Opt	Floating point (2 decimal)

System Event Files

MICROSIMULATOR CONTROL KEY	Descriptions	Use	Values
OUTPUT_SYSTEM_EVENT_TYPE_#	Comma separated list of event type codes	Req	PHASE_CHANGE, TIMING_CHANGE
OUTPUT_SYSTEM_EVENT_FILE_#	File name to be created within the project directory	Req	255 characters
OUTPUT_SYSTEM_EVENT_FORMAT_#	File format to be created (default Version3)	Opt	Format code (1)
OUTPUT_SYSTEM_EVENT_TIME_FORMAT_#	Output time format (default seconds)	Opt	Time code (2)
OUTPUT_SYSTEM_EVENT_TIME_RANGE_#	Time period range (default ALL)	Opt	Time range (5)
OUTPUT_SYSTEM_EVENT_NODE_RANGE_#	Node number range (default ALL)	Opt	ID range (6)

System Event File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
	TIME		The time of day when the event took place	Req	16 characters (4)
	EVENT	TYPE	The event code number	Req	Integer {1..99999}
	NODE		The Node ID of the intersection	Req	Integer {1..2,147,483,647}
	PLAN	TIMING	The Timing Plan ID for the event	Opt	Integer {1..2,147,483,647}
	PHASE		The Phasing Plan number for the event	Opt	Integer {1..2,147,483,647}
	RING		The Ring number for the event	Opt	Integer {0..99}
	GROUP		The Ring group or barrier number of the event	Opt	Integer {0..99}
	STATUS	MESSAGE	The status of the signal at the time of the event	Opt	16 characters: Red, Yellow, Green

Problem Link Files

MICROSIMULATOR CONTROL KEY	Descriptions	Use	Values
OUTPUT_PROBLEM_TYPE_#	Comma separated list of problem type codes	Req	255 characters (9)
OUTPUT_PROBLEM_FILE_#	File name to be created within the project directory	Req	255 characters
OUTPUT_PROBLEM_FORMAT_#	File format to be created (default Version3)	Opt	Format code (1)
OUTPUT_PROBLEM_FILTER_#	Minimum problems per time increment (default 0)	Opt	Integer {0..2,147,483,647}
OUTPUT_PROBLEM_TIME_FORMAT_#	Output time format (default seconds)	Opt	Time code (2)
OUTPUT_PROBLEM_INCREMENT_#	Time increment duration (default 24 hours)	Opt	16 characters (4)
OUTPUT_PROBLEM_TIME_RANGE_#	Time period range (default ALL)	Opt	Time range (5)
OUTPUT_PROBLEM_LINK_RANGE_#	Link number range (default ALL)	Opt	ID range (6)

Problem Link File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
	LINK		The Link ID number	Req	Integer {1..1,073,741,823}
	DIR (3)	NODE	The Node ID or direction code from which the link is headed	Req	Integer {0..2,147,483,647}
	START_TIME	START, STARTTIME	Start time for the time increment	Opt	16 characters (4)
	END_TIME	END, ENDTIME	End time for the time increment	Opt	16 characters (4)
	PROBLEM		Problem code number	Req	Integer {0..99}
	COUNT		Number of problems during the time increment	Req	Integer {0..2,147,483,647}

Traveler Files

MICROSIMULATOR CONTROL KEY	Descriptions	Use	Values
OUTPUT_TRAVELER_FILE_#	File name to be created within the project directory	Req	255 characters
OUTPUT_TRAVELER_FORMAT_#	File format to be created (default Version3)	Opt	Format code (1)
OUTPUT_TRAVELER_TIME_FORMAT_#	Output time format (default seconds)	Opt	Time code (2)
OUTPUT_TRAVELER_TIME_RANGE_#	Time period range (default ALL)	Opt	Time range (5)
OUTPUT_TRAVELER_LINK_RANGE_#	Link number range (default ALL)	Opt	ID range (6)

Traveler File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
	VEHICLE		Vehicle ID	Req	Integer {0..2,147,483,647}
	TIME		Time in seconds from midnight	Req	16 characters (4)
	DISTANCE		The distance (in meters) from the beginning of the trip	Opt	Floating point (1 decimal)
	LINK		Link ID number	Req	Integer {1..1,073,741,823}
	DIR	BA	Direction code for which the link is headed	Opt	Integer {0..1}
	OFFSET		The distance (in meters) the front of the vehicle is away from the beginning of the link	Opt	Floating point (1 decimal)
	LANE		Lane number on which the vehicle is traveling	Req	Integer {1..99}
	SPEED		The velocity (in meters per second) of the vehicle.	Req	Floating point (1 decimal)

Turn Files

MICROSIMULATOR CONTROL KEY	Descriptions	Use	Values
OUTPUT_TURN_FILE_#	File name to be created within the project directory	Req	255 characters
OUTPUT_TURN_FORMAT_#	File format to be created (default Version3)	Opt	Format code (1)
OUTPUT_TURN_FILTER_#	Minimum turns per time increment (default 0)	Opt	Integer {0..2,147,483,647}
OUTPUT_TURN_TIME_FORMAT_#	Output time format (default seconds)	Opt	Time code (2)
OUTPUT_TURN_INCREMENT_#	Time increment duration (default 24 hours)	Opt	16 characters (4)
OUTPUT_TURN_TIME_RANGE_#	Time period range (default ALL)	Opt	Time range (5)
OUTPUT_TURN_NODE_RANGE_#	Node number range (default ALL)	Opt	ID range (6)

Turn File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
	NODE		The intersection Node ID number	Req	Integer {1..2,147,483,647}
	IN_LINK	INLINK, LINK_IN, LINKIN	The link ID number entering the intersection	Req	Integer {1..1,073,741,823}
	OUT_LINK	OUTLINK, LINK_OUT, LINKOUT	The link ID number exiting the intersection	Req	Integer {1..1,073,741,823}
	START	START_TIME, STARTTIME	Start time for the time increment	Opt	16 characters (4)
	END	END_TIME, ENDTIME	End time for the time increment	Opt	16 characters (4)
	VOLUME	MOVEMENT, TURN, COUNT	Number of vehicles turning during the time increment	Req	Integer {0..2,147,483,647}

Speed Bin Files

MICROSIMULATOR CONTROL KEY	Descriptions	Use	Values
OUTPUT_SPEED_FILE_#	File name to be created within the project directory	Req	255 characters
OUTPUT_SPEED_FORMAT_#	File format to be created (default Version3)	Opt	Format code (1)
OUTPUT_SPEED_VEHICLE_TYPE_#	A vehicle type code number (default 0 = ALL)	Opt	Integer {0..99}
OUTPUT_SPEED_FILTER_#	Minimum number of vehicles per time increment (default 1)	Opt	Integer {1..2,147,483,647}
OUTPUT_SPEED_TIME_FORMAT_#	Output time format (default seconds)	Opt	Time code (2)
OUTPUT_SPEED_INCREMENT_#	Time increment duration (default 24 hours)	Opt	16 characters (4)
OUTPUT_SPEED_TIME_RANGE_#	Time period range (default ALL)	Opt	Time range (5)
OUTPUT_SPEED_LINK_RANGE_#	Link number range (default ALL)	Opt	ID range (6)
OUTPUT_SPEED_SAMPLE_TIME_#	The time frequency in seconds at which the speed bins will be summarized (default 1 second)	Opt	Integer {>= 1}
OUTPUT_SPEED_BOX_LENGTH_#	The length in meters of the link segments for which speed bins are summarized (default = 0 = full link length)	Opt	Floating point (1 decimal)
OUTPUT_SPEED_NUM_BINS_#	The number of speed bins that are summarized (default = 6)	Opt	Integer {>= 1}

Speed Bin File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
COUNT0	SPEED0	BIN0	Number of vehicles in speed bin 0 during the time increment	Req	Integer {0..999999}
COUNT1	SPEED1	BIN1	Number of vehicles in speed bin 1 during the time increment	Req	Integer {0..999999}
COUNT2	SPEED2	BIN2	Number of vehicles in speed bin 2 during the	Opt	Integer {0..999999}

			time increment		
COUNT3	SPEED3	BIN3	Number of vehicles in speed bin 3 during the time increment	Opt	Integer {0..999999}
COUNT4	SPEED4	BIN4	Number of vehicles in speed bin 4 during the time increment	Opt	Integer {0..999999}
COUNT5	SPEED5	BIN5	Number of vehicles in speed bin 5 during the time increment	Opt	Integer {0..999999}
DISTANCE	OFFSET		The ending distance of the box (in meters) from the setback of the node from which the vehicles were traveling away.	Req	Floating point (2 decimal)
LINK	LINK		Link ID number	Req	Integer {1..1,073,741,823}
NODE	DIR (3)		Node ID or direction code from which the link is headed	Opt	Integer {0..2,147,483,647}
TIME	TIME		End time for the time increment	Opt	16 characters (4)

Problem File Fields

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
	HHOLD	HOUSEHOLD, HH_ID, HHID, HH	The household ID number for the travelers	Req	Integer {1..2,147,483,647}
	PERSON	PER	The person number within the household	Opt	Integer {1..1,073,741,823}
	TRIP	TRP, ACT, ACTIVITY	The trip number	Opt	Integer {1..1,073,741,823}
	MODE	MOD	The travel mode for the trip	Reg	
	PROBLEM	STATUS	The problem code number	Reg	Integer {1..99} (8)
	START	START_TIME	The scheduled start time for the trip	Opt	16 characters (4)
	ORIGIN	ORG, LOC, LOCATION	The ID of the origin activity location	Opt	Integer {1..2,147,483,647}
	ARRIVAL	END_TIME, END	The schedule arrival time for the trip	Opt	16 characters (4)
	DESTINATION	DES	The ID of the destination activity location		Integer {1..2,147,483,647}
	TIME	TOD	The time of day when the problem occurred	Opt	Integer {0..2,147,483,647}
	LINK		Link ID number where the problem occurred	Opt	Integer {1..1,073,741,823}
	DIR (3)	NODE	Node ID or direction code toward which the link is headed	Opt	Integer {0..2,147,483,647}
	LANE		Lane in which the problem occurred	Opt	Integer {1..99}
	OFFSET		Distance in meters from the beginning of the link where the problem occurred	Opt	Floating point (2 decimal)

Notes

1	VERSION3, TAB_DELIMITED, COMMA_DELIMITED, SPACE_DELIMITED, FIXED_COLUMN, DBASE, BINARY, SQLITE3
2	HOURS, 24_HOUR_CLOCK, 12_HOUR_CLOCK, SECONDS, TIME_CODE
3	There are three ways link direction can be defined. The method used in Version 3 software includes a Link ID and the Node ID toward which the link direction is pointing. Version 4 programs interpret link direction in this way when the field header includes LINK and NODE. If the field header includes LINK and DIR, the program interprets the DIR field as the direction code for the link: 0 = A→B and 1 = B→A. If the DIR field is not present, the program determines the link direction based on the sign of the LINK value. If the link value is positive, the link is processed in the A→B direction and if the link value is negative, the link is processed in the B→A direction.
4	NOON, MIDNIGHT, d@hh:mm:ss.xAM/PM, d@hh:mm:ss.x, d@hh:mm, d@hh:mmAM/PM, d@hh.xxx, d@ssssss, hh:mm:ss, hh:mm:ss_AM/PM, hh:mm, hh:mm.x , hh.xxx, ssssss, wwwhh:mm where www = SUN, MON, TUE, WED, THU, FRI, SAT, WKE, WKD, ALL
5	One or more comma separated time ranges (start_time..end_time) of standard time codes (4) (e.g., 0:00..6:00, 18:00..23:00)
6	One or more combinations of comma separated ID numbers or ID ranges (ID..ID)
7	True/False values: T, TRUE, Y, YES, 1 or F, FALSE, N, NO, 0
8	1 = Path Building, 2 = Time Schedule, 3 = Zero Node, 4 = Vehicle Type, 5 = Path Circuity, 6 = Travel Mode, 7 = Vehicle Access, 8 = Walk Distance, 9 = Wait Time, 10 = Walk Access, 11 = Path Size, 12 = Park-&-Ride Lot, 13 = Bike Distance, 14 = Departure Time, 15 = Arrival Time, 16 = Link Access, 17 = Lane Connectivity, 18 = Parking Access, 19 = Lane Merging, 20 = Lane Changing, 21 = Turning Speed, 22 = Pocket Merge, 23 = Vehicle Spacing, 24 = Traffic Control, 25 = Access Restriction, 26 = Transit Stop, 27 = Activity Location, 28 = Vehicle Passenger, 29 = Vehicle Location, 30 = Kiss & Ride Lot, 31 = Vehicle ID, 32 = Data Sort, 33 = Walk Location, 34 = Bike Location, 35 = Transit Location, 36 = Person Match

9	`TOTAL, PATH_BUILDING, TIME_SCHEDULE, ZERO_NODE, VEHICLE_TYPE,`
	`PATH_CIRCUITY, TRAVEL_MODE, VEHICLE_ACCESS, WALK_DISTANCE,`
	`WAIT_TIME, WALK_ACCESS, PATH_SIZE, PARK-&-RIDE_LOT, BIKE_DISTANCE,`
	`DEPARTURE_TIME, ARRIVAL_TIME, LINK_ACCESS, LANE_CONNECTIVITY,`
	`PARKING_ACCESS, LANE_MERGING, LANE_CHANGING, TURNING_SPEED,`
	`POCKET_MERGE, VEHICLE_SPACING, TRAFFIC_CONTROL, ACCESS_RESTRICTION, TRANSIT_STOP, ACTIVITY_LOCATION,`
	`VEHICLE_PASSENGER, VEHICLE_LOCATION, KISS_&_RIDE_LOT, VEHICLE_ID, DATA_SORT, WALK_LOCATION,`
	`BIKE_LOCATION, TRANSIT_LOCATION, PERSON_MATCH`

10	Since the link shape file is not processed by the Microsimulator, the X, Y, and bearing data is based on the straight line centerline location of the vehicle. Typically these values are updated by ArcSnapshot to generated the correct X, Y, and bearing values based on link shapes and lane offsets.