

## Network Data Tables

The TRANSIMS Version 4 network may include as many as 23 separate data files. The generic name and purpose of each network file is listed in the following table.

File Type	Description
Node	The coordinate location of network nodes (i.e., intersections)
Link	The two-way attributes of network links (i.e., roadways, walkways, and transit facilities)
Shape	The coordinate points that define the link shape between the nodes at either end
Pocket Lane	The location and length of turn and merge lanes on the left or right side of a link
Lane Use	Restrictions on lane use by time of day and/or vehicle type
Lane Connectivity	Connections between lanes exiting one link and entering the next link
Turn Prohibition	Restrictions on link connections by time of day and/or vehicle type
Parking	Parking lot locations by time of day and/or vehicle type
Activity Location	Locations where trips start and/or end with user-defined attributes and zone equivalencies
Process Link	Access links that connect activity locations to parking lots and transit stops
Unsignalized Node	The location of stop and yield signs
Signalized Node	Intersections with traffic signals with offsets and timing plans by time of day
Timing Plan	The time allocated to each phase within a traffic signal
Phasing Plan	The link connections, detectors, and protections associated with a traffic signal phase
Detector	The location, length, and lanes monitored by a traffic signal detector
Signal Coordinator	Information about a traffic signal coordinator
Transit Stop	The location and characteristics of a transit stop or station
Transit Fare	The boarding and transfer fares based on boarding and alighting location and transit mode
Transit Route	The mode and sequence of stops associated with a transit route
Transit Schedule	The time of day when each run is scheduled to depart each stop on each route
Transit Driver	The vehicle type and sequence of links traversed by each transit route
Toll	The toll charged to vehicles using a link by time of day and vehicle type
Zone	The centroid and attributes associated with traditional traffic analysis zones

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 names and the program is terminated. Optional fields are typically interpreted as zero or null if not provided. The user can include any number of additional fields in a network file. These fields are available to data processing scripts or custom programs.

## Definition File

In order for TRANSIMS to read a network file, it must be able to interpret the field names and data types. In most cases this is accomplished by reading a definition file associated with each data file. Definition files are identified using the same name and location as the data files with an additional extension of \*.def. For example, if a link file is named link.txt, the corresponding definition file would be link.txt.def. The definition file is a comma delimited text file in the format outlined below:

AECOM HEADER, <i>Format, Header Records</i> , [NESTED]	AECOM HEADER, TAB_DELIMITED, 1
<i>Field Name, Type, Location, Size, [Decimals]</i> , [NESTED]	NODE, INTEGER, 1, 10
<i>Field Name, Type, Location, Size, [Decimals]</i> , [NESTED]	X_COORD, DOUBLE, 2, 10, 1
<i>Field Name, Type, Location, Size, [Decimals]</i> , [NESTED]	Y_COORD, DOUBLE, 3, 10, 1
<i>Field Name, Type, Location, Size, [Decimals]</i> , [NESTED]	NOTES, STRING, 4, 40

The example shown above defines a tab-delimited file with one header record that included four data fields. The *Format* code on the first record of the file defines how each record in the file is read and interpreted. The options include:

```

VERSION3
TAB_DELIMITED
COMMA_DELIMITED
SPACE_DELIMITED
FIXED_COLUMN
DBASE
BINARY
SQLITE3

```

VERSION3 is currently the default file format. The user can set the default file format using the DEFAULT\_FILE\_FORMAT key. This will tell the program how to create new files or interpret existing files that don't have an associated definition file. In most cases, a VERSION3 file is a TAB\_DELIMITED file with special naming conventions designed for backward compatibility for TRANSIMS Version 3.x software. If Version 3.x software is to be executed, all of the fields must have a specific name and be provided in a specified order. VERSION3 network files can be used in TRANSIMS Version 4.x software using flexible names and field locations.

The *Header Records* field determines the number of records reserved for header information in the data file. BINARY and DBASE files have zero header records while delimited files typically have one header record that lists the name of the fields contained in the file. Some delimited files also include metadata header records after the field names. In these cases, the definition file includes a copy of the metadata records after the first record in the file and before the field records.

The optional fourth field in the definition file header record flags the file as nested. A nested file is composed of two record types. One record type defines the overall information about a data record plus a field that defines how many nested records follow the data record. The second record type defines the data fields included in each nested record. Nested files are used to define file types that include a variable number of items. For example, a transit route has basic information about the route followed by a variable number of stops that the route visits. The combination of the route information and stop data defines a single route record in the data file. If a file is nested, the nested flag at the end of each data field determines if the field is part of the general record or the nested record. Nested files also typically included two header records – one for each record type. If more than two header records are identified, records greater than two are interpreted as metadata records and copied to the definition file after the file header and before the field records.

A definition file can include any number of field records. All fields do not need to be included in the definition file. On the other hand, data in the file can be associated with more than one data field (e.g., fields can overlap). Each field record starts with a *Field Name*. This is a text string with no spaces. If the field is to be used in a dBase file or an ArcView shapefile, a maximum of 10 characters will be used. Otherwise the field can include up to 127 characters. The field name is followed by the field *Type*. Type options include:

- INTEGER
- UNSIGNED
- DOUBLE
- FIXED
- STRING
- CHAR
- DATE
- TIME
- DATE\_TIME
- DAY\_TIME

*Location* has different meanings for different file formats. For delimited files, the location refers to the field sequence number (i.e., 1, 2, 3, etc.). For a fixed file format (i.e., FIXED\_COLUMN, DBASE, BINARY), the location refers to the character offset from the beginning of the data record where the field starts. (Note: dBase records start at character one because the dBase record structure reserved character zero for a deleted flag).

*Size* is the number of characters reserved for the data field. For fixed file formats this corresponds to the physical size of the field. For delimited formats this is interpreted as the maximum size of the field. For BINARY files the size refers to bytes and will need to relate to standard data types (e.g., 1, 2 or 4 byte integers). In all other cases, the size refers to the number of text characters in the field string.

*Decimals* is an optional field that defines the number of decimal places used to output floating point numbers (i.e., DOUBLE or FIXED). It is also needed for inputting the FIXED data type since this type is stored in the file as an integer and interpreted with an implicit decimal point.

If *NESTED* is included on the field record, the data field is associated with the nested data record and the location refers to the offset from the beginning of the nested record.

## ***Reading and Creating Files***

If a definition file is not found for an existing file or the file is to be newly created, a definition file can normally be generated given the overall file format. By either specifying the default format using the DEFAULT\_FILE\_FORMAT key or the format key associated with a given file (e.g., NET\_NODE\_FORMAT), the user can tell the program how to create the data fields. With the exception of BINARY and FIXED\_COLUMN files and nested files, the program can scan the first 100 records of a file and generate field names, data type, and field size and decimal points from information on the file. It will then create a definition file with this information.

For newly created files, the program has two primary options. If the file format is VERSION3, the fields listed in the following tables under the Version 3 column are created for the file. This is for backward compatibility with the TRANSIMS 3.x software. For any other file format (i.e., TAB\_DELIMITED, COMMA\_DELIMITED, SPACE\_DELIMITED, FIXED\_COLUMN, DBASE, or BINARY), the fields under the Version 4 column are generated. The Version 4 software is able to read a file using any combination of the field labels listed under the Version3, Version4, or Optional Names columns in the following tables.

**Node Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ID	NODE		Node ID number	Key	Integer {1..2,147,483,647}
EASTING	X_COORD	X	X coordinate in UTM meters	Req	Floating point (2 decimals)
NORTHING	Y_COORD	Y	Y coordinate in UTM meters	Req	Floating point (2 decimals)
ELEVATION	Z_COORD	Z	Z coordinate in UTM meters	Opt	Floating point (2 decimals)
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters

**Link Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ID	LINK		Link ID number	Key	Integer {1..1,073,741,823}
NAME	STREET (1)	STREET_NAME, ST_NAME, STNAME	Street name or label	Opt	50 characters
NODEA	ANODE	A	Node number at the beginning of the link	Req	Integer {1..2,147,483,647}
NODEB	BNODE	B	Node number at the end of the link	Req	Integer {1..2,147,483,647}
PERMLANESA	LANES_BA	LANESBA	Number of thru lanes in the B to A direction	Req	Integer {0..99}
PERMLANESB	LANES_AB	LANESAB	Number of thru lanes in the A to B direction	Req	Integer {0..99}
LEFTPCKTSA	LEFT_BA	LEFTBA	Number of left side pocket lanes in the B to A direction	Opt	Integer {0..99}
LEFTPCKTSB	LEFT_AB	LEFTAB	Number of left side pocket lanes in the A to B direction	Opt	Integer {0..99}
RGHTPCKTSA	RIGHT_BA	RIGHTBA	Number of right side pocket lanes in the B to A direction	Opt	Integer {0..99}
RGHTPCKTSB	RIGHT_AB	RIGHTAB	Number of right side pocket lanes in the A to B direction	Opt	Integer {0..99}
TWOWAYTURN			No longer used	Opt	One character: F=no T=yes
LENGTH	LENGTH	DISTANCE, LEN	Length of the link in meters	Req	Floating point {> 0.0}
GRADE			No longer used – percent grade from A to B	Opt	Floating point {-100..100}
SETBACKA	SETBACK_A		Setback distance at A node in meters	Opt	Floating point {>= 0.0}
SETBACKB	SETBACK_B		Setback distance at B node in meters	Opt	Floating point {>= 0.0}
CAPACITYA	CAP_BA	CAPACITY_BA, CAPACITY_B	Total hourly vehicle capacity for the thru lanes in B to A direction	Opt	Integer {0..65,535}
CAPACITYB	CAP_AB	CAPACITY_AB, CAPACITY_A	Total hourly vehicle capacity for the thru lanes in the A to B direction	Opt	Integer {0..65,535}

SPEEDLMTA	SPEED_BA	SPD_BA, SPEEDBA, SPDBA	Speed limit in meters per second in the B to A direction	Opt	Floating point {>= 0.0}
SPEEDLMTB	SPEED_AB	SPD_BA, SPEEDBA, SPDBA	Speed limit in meters per second in the A to B direction	Opt	Floating point {>= 0.0}
FREESPDA	FSPD_BA	FREEspd_BA, FSPDBA	Free flow speed in meters per second in the B to A direction	Opt	Floating point {>= 0.0}
FREESPDB	FSPD_AB	FREEspd_AB, FSPDAB	Free flow speed in meters per second in the A to B direction	Opt	Floating point {>= 0.0}
FUNCTCLASS	TYPE	FUNCL, CLASS	Functional classification or facility type of the link	Req	10-20 characters (3)
THRUA			No longer used. The link ID of the through link connected at node A.	Opt	Integer {0..1,073,741,823}
THRUB			No longer used. The link ID of the through link connected at node B.	Opt	Integer {0..1,073,741,823}
COLOR			No longer used	Opt	
VEHICLE	USE		Vehicle types, modes, or use types permitted on the link	Req	255 character string separated by slashes (4)
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters
	BEARING_A	BEARINGA	Compass bearing in degrees entering the link at the A end	Opt	Integer {-360..360}
	BEARING_B	BEARINGB	Compass bearing in degrees exiting the link at the B end	Opt	Integer {-360..360}

**Shape Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
LINK	LINK		Link ID number	Key	Integer {1..1,073,741,823}
NPOINTS	POINTS	NUM_POINTS	Number of Nested Records	Req	Integer {1..32767}
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters
<i>NESTED FIELDS</i>					
EASTING	X_COORD	X	X coordinate in UTM meters	Req	Floating point (2 decimals)
NORTHING	Y_COORD	Y	Y coordinate in UTM meters	Req	Floating point (2 decimals)



**Pocket Lane Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ID	POCKET		Pocket Lane ID number	Key	Integer {1..2,147,483,647}
NODE	NODE	DIR (2)	Node ID or direction code toward which the pocket lane is headed	Req	Integer {1..2,147,483,647}
LINK	LINK		Link ID on which the pocket lane is located	Req	Integer {1..1,073,741,823}
OFFSET	OFFSET		Starting position in meters measured from Node (pull-out pockets only)	Req	Floating point (1 decimals)
LANE	LANES		Lane number of the pocket lane	Req	Integer {0..99}
STYLE	TYPE		The type of pocket lane	Req	One character T = turn pocket P = pull-out pocket M = merge pocket
LENGTH	LENGTH		The length of the pocket lane in meters. Turn and merge pockets always start or end at the appropriate end of the link	Req	Floating point (1 decimals)
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters

**Lane Use Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
NODE	DIR (2)		Node ID or direction code toward which the use restriction is headed	Opt	Integer {1..2,147,483,647}
LINK	LINK		Link ID on which the use restriction is located	Req	Integer {1..1,073,741,823}
LANE	LANES		Lane number with use restriction. Zero implies all lanes	Req	Integer {0..99}
VEHICLE	USE		Vehicle types to which restriction applies	Req	255 characters of use codes separated by slashes (4)
RESTRICT	TYPE		Type of lane restriction. Defaults to Only	Opt	One character O = only this vehicle type may use lane R = lane required to be used by this vehicle type N = lane not allowed to be used by this vehicle type
STARTTIME	START	START_TIME	Start time for the restriction. Defaults to zero.	Opt	16 characters (5)
ENDTIME	END	END_TIME	End time for the restriction. Defaults to Midnight	Opt	16 characters (5)
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters
	OFFSET		Starting position of the use restriction in meters measured from the beginning of the link	Opt	Floating point (1 decimals)
	LENGTH		The length of the use restriction in meters measured from Offset. Zero implies the whole link	Opt	Floating point (1 decimals)

**Lane Connectivity Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
NODE	NODE		Node ID of the intersection	Req	Integer {1..2,147,483,647}
INLINK	IN_LINK	LINK_IN, LINKIN	Link ID of the incoming link	Req	Integer {1..1,073,741,823}
INLANE	IN_LOW	LOW_IN, LANE_IN, LANEIN	Lane number on the incoming link or the lower lane number in a lane range	Opt	Integer {0..99}
OUTLINK	OUT_LINK	LINK_OUT, LINKOUT	Link ID of the outgoing link	Req	Integer {1..1,073,741,823}
OUTLANE	OUT_LOW	LOW_OUT, LANE_OUT, LANEOUT	Lane number on the outgoing link or the lower lane number in a lane range	Opt	Integer {0..99}
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters
	IN_HIGH	INLANE, HIGH_IN, LANE_IN, LANEIN	Higher lane number in a lane range on the incoming link	Opt	Integer {0..99}
	OUT_HIGH	OUTLANE, HIGH_OUT, LANE_OUT, LANEOUT	Higher lane number in a lane range on the outgoing link	Opt	Integer {0..99}
	TYPE	MOVEMENT, TURN, TURN_TYPE, TURN_TYPE	The type of turn movement. If a value is not provided, the program sets the type based on the two link bearings	Opt	8 characters: THRU, LEFT, RIGHT, UTURN, MERGE, DIVERGE
	PENALTY	DELAY	Turn penalty in seconds	Opt	Integer {0..999999}
	SPEED	MAX_SPD	Maximum turn speed in meters per second	Opt	Floating point (1 decimals)
	CAPACITY	SAT_FLOW	Maximum number of vehicles per hour	Opt	Integer {0..999999}

**Turn Prohibition Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
NODE	NODE	AT, THRU	Node ID of the intersection	Req	Integer {1..2,147,483,647}
INLINK	IN_LINK	LINK_IN, LINKIN	Link ID of the incoming link	Opt	Integer {1..1,073,741,823}
OUTLINK	OUT_LINK	LINK_OUT, LINKOUT	Link ID of the outgoing link	Opt	Integer {1..1,073,741,823}
STARTTIME	START	START_TIME	Start time for the restriction. Defaults to zero.	Opt	16 characters (5)
ENDTIME	END	END_TIME	End time for the restriction. Defaults to Midnight	Opt	16 characters (5)
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters
		FROM, FROM_NODE, FROMNODE	Node ID from which the turning movement is made. Will be used if the In_Link field is not defined.	Opt	Integer {1..2,147,483,647}
		TO, TO_NODE, TONODE	Node ID toward which the turning movement is heading Will be used if the Out_Link field is not defined.	Opt	Integer {1..2,147,483,647}
	USE	VEHICLE	Vehicle types to which turn penalty applies. Defaults to ANY	Opt	255 characters of use codes separated by slashes (4)
	PENALTY	DELAY	Turn penalty in seconds. Zero indicates a turn prohibition.	Opt	Integer {0..999999}

**Parking Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ID	PARKING		Parking Lot ID number	Key	Integer {1..2,147,483,647}
NODE	NODE	DIR (2)	Node ID or direction code toward which the parking lot is headed	Req	Integer {1..2,147,483,647}
LINK	LINK		Link ID on which the parking lot is located	Req	Integer {1..1,073,741,823}
OFFSET	OFFSET		The location of the parking entrance in meters measured from Node	Req	Floating point (1 decimals)
STYLE	TYPE		The type of parking lot	Req	16 character PRSTR, HISTR, DRVWY, LOT, BNDRY, PARKRIDE
CAPACITY	SPACE		The number of vehicles the parking place can accommodate; zero for unlimited capacity.	Opt	Integer {0..65535}
GENERIC			Flag for generic parking (not used in Version 4)	Opt	One character: T = true/yes F = false/no
VEHICLE	USE		Vehicle types that may park at the parking lot. Defaults to ANY	Req	255 characters of use codes separated by slashes (4)
STARTTIME	START	START_TIME	Start time for the restriction. Defaults to zero.	Opt	16 characters (5)
ENDTIME	END	END_TIME	End time for the restriction. Defaults to Midnight	Opt	16 characters (5)
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters
	HOURLY	RATE	The hourly parking cost in cents	Opt	Integer {0..65535}
	DAILY	MAXIMUM	The daily parking cost in cents	Opt	Integer {0..65535}

**Activity Location Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ID	LOCATION		Activity Location ID number	Key	Integer {1..2,147,483,647}
NODE	NODE	DIR (2)	Node ID or direction code toward which the activity location is headed	Req	Integer {1..2,147,483,647}
LINK	LINK		Link ID on which the activity location is located	Req	Integer {1..1,073,741,823}
OFFSET	OFFSET		The location of the activity location in meters measured from Node	Req	Floating point (1 decimals)
LAYER			The layer of the activity location. (Not used in Version 4)	Opt	16 character AUTO, BUS, LIGHTRAIL, WALK
EASTING	X_COORD	X	X coordinate in UTM meters	Req	Floating point (2 decimals)
NORTHING	Y_COORD	Y	Y coordinate in UTM meters	Req	Floating point (2 decimals)
ELEVATION		Z_COORD, Z	Z coordinate in UTM meters	Opt	Floating point (2 decimals)
TAZ	ZONE		Traffic Analysis Zone number is included as optional field #1	Opt	Integer {0..65535}
OPTIONAL FIELDS 2..25	ANY NUMBER OF FIELDS		Optional fields related to land use or other location attributes	Opt	Floating point number
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters

**Process Link Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ID	ACCESS		The ID of the virtual access link	Req	Integer {1..2,147,483,647}
FROMID	FROM_ID		The ID of the accessory from which the access link leaves	Req	Integer {1..2,147,483,647}
FROMTYPE	FROM_TYPE		The type of accessory from which the access link leaves	Req	Character sting ACTIVITY, PARKING, TRANSIT
TOID	TO_ID		The ID of the accessory to which the access link leads	Req	Integer {1..2,147,483,647}
TOTYPE	TO_TYPE		The type of accessory to which the access link leads	Req	Character sting ACTIVITY, PARKING, TRANSIT
DELAY	TIME		The time delay in seconds for traveling on the access link	Opt	Floating point (1 decimals)
COST	COST		The cost in cents for traveling on the access link	Opt	Floating point (1 decimals)
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters

**Unsignalized Node Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
NODE	NODE		Node ID where the sign is located	Req	Integer {1..2,147,483,647}
INLINK	LINK	LINK_IN	ID of the incoming link	Req	Integer {1..1,073,741,823}
SIGN	SIGN		Type of sign control on the link	Req	One character S = Stop, Y = Yield, N = None
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters



**Signalized Node Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
NODE	NODE		Node ID where the signal is located	Req	Integer {1..2,147,483,647}
TYPE	TYPE		Type of signal control	Req	One character T = Timed, A = Actuated
PLAN	TIMING		The ID of the timing plan	Opt	Integer {1..65535}
OFFSET	OFFSET		Relative offset in second for timed signals	Opt	Integer {0..65535}
STARTTIME	START	START_TIME	Start time of the timing plan	Opt	16 characters (5)
COORDINATR	COORDINATOR		ID of the signal coordinator	Opt	Integer {1..2,147,483,647}
RING	RINGS		Number of actuated signal rings	Opt	One character S = single, D = dual, T = triple
ALGORITHM			Control algorithm (Not used in Version 4)	Opt	10 characters
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters

**Timing Plan Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
PLAN	TIMING		ID of the timing plan	Key	Integer {1..65535}
PHASE	PHASE		Phase number	Key	Integer {1..99}
NEXTPHASES	NEXT_PHASE		The phase number(s) of the next phase(s) in sequence. (Version 4 uses the first value)	Opt	16 characters string of phase numbers, separated by slashes
GREENMIN	MIN_GREEN		The minimum green time in seconds	Opt	Integer {1..999}
GREENMAX	MAX_GREEN		The maximum green time in seconds for an actuated signal. Default is minimum green plus one extension.	Opt	Integer {1..999}
GREENEXT	EXT_GREEN		The number of seconds the green time is extended each time vehicles are detected	Opt	Integer {1..999}
YELLOW	YELLOW		The yellow interval in seconds	Opt	Integer {1..99}
REDCLEAR	RED_CLEAR		The all red interval in seconds	Opt	Integer {1..99}
GROUPFIRST	RING		If this phase is the first phase in a ring group, the ring number is coded.	Opt	Integer {1..99}
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters
	GROUP		If this is the first phase in a barrier group, the barrier number is coded to coordinate phase changes for a multi-ring actuated signal.		Integer {1..99}

**Phasing Plan Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
NODE	NODE		Node ID of the intersection	Req	Integer {1..2,147,483,647}
PLAN	TIMING		ID of the timing plan	Req	Integer {1..65535}
PHASE	PHASE		Phase number	Req	Integer {1..99}
INLINK	IN_LINK	LINK_IN, LINKIN	Link ID of the incoming link	Req	Integer {1..1,073,741,823}
OUTLINK	OUT_LINK	LINK_OUT, LINKOUT	Link ID of the outgoing link	Req	Integer {1..1,073,741,823}
PROTECTION	PROTECTION		Movement protection indicator	Opt	One character P = protected U = unprotected S = unprotected after stop
DETECTORS	DETECTORS		The ID number of detectors related to this movement. This is required only for actuated controls.	Opt	string of detector IDs, separated by slashes
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters

**Detector Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ID	DETECTOR		Detector ID number	Key	Integer {1..2,147,483,647}
NODE	NODE	DIR (2)	Node ID or direction code toward which the detector is headed	Req	Integer {1..2,147,483,647}
LINK	LINK		Link ID on which the detector is located	Req	Integer {1..1,073,741,823}
OFFSET	OFFSET		The starting location of the detector in meters measured from Node	Opt	Floating point (1 decimals)
LANEBEGIN	LOW_LANE		The lowest lane number detected	Req	Integer {0..99}
LANEEND	HIGH_LANE		The highest lane number detected	Opt	Integer {0..99}
LENGTH	LENGTH		The length of the detector in meters	Req	Floating point (1 decimals)
STYLE	TYPE		The type of detector (Version 4 senses if a vehicle is on the detector)	Opt	ten characters: PRESENCE = sense vehicles on detector PASSAGE = sense vehicles crossing detector
COORDINATR	COORDINATOR		ID number of coordinators interested in detector output (Not used in Version 4)	Opt	string of coordinator IDs separated by slashes
CATEGORY			The parameters for the defects this type of detector exhibits. (Not used in Version 4)	Opt	Ten characters: must match last characters of NET_DETECTOR_* configuration file keys. A value of 0 may be used to specify no defects.
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters

**Signal Coordinator Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ID	ID	NODE	Signal Coordinator ID number	Key	Integer {1..2,147,483,647}
TYPE			The type of coordinator (Not used in Version 4)	Opt	Ten characters
ALGORITHM			Control algorithm for the coordinator (Not used in Version 4)	Opt	Ten characters
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters

**Transit Stop Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ID	STOP		Transit Stop ID number	Key	Integer {1..2,147,483,647}
NAME	NAME (1)	STOP_NAME, STNAME, DESCRIPTION	The name of the stop	Opt	50 characters
NODE	NODE	DIR (2)	Node ID or direction code toward which the transit stop is headed	Req	Integer {1..2,147,483,647}
LINK	LINK		Link ID on which the transit stop is located	Req	Integer {1..1,073,741,823}
OFFSET	OFFSET		The location of the transit stop in meters measured from Node	Req	Floating point (1 decimals)
VEHICLE	USE		Vehicle types that may stop at the transit stop. Defaults to ANY	Opt	255 characters of transit related use codes separated by slashes (6)
STYLE	TYPE		The type of transit stop	Opt	10 character STOP, STATION
CAPACITY	SPACE		The number of vehicles the transit stop can accommodate; zero for unlimited capacity.	Opt	Integer {0..65535}
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters

**Transit Fare Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
FROMZONE	FROM_ZONE	FROM, BOARD	The transit fare zone ranges of the boarding stop	Req	255 characters
TOZONE	TO_ZONE	TO, ALIGHT	The transit fare zone ranges of the alighting stop	Req	255 characters
	FROM_MODE	FROMMODE	The transit mode ranges from which the trip came	Opt	255 characters transit mode codes (6)
MODE	TO_MODE	TOMODE	The transit mode ranges to which the cost applies	Req	255 characters transit mode codes (6)
	PERIOD	TIME, TIME_PERIOD, TIME_RANGE	Start and end time ranges at the boarding stop. Defaults to ALL	Opt	255 characters range of time codes (5)
	CLASS	TYPE	Traveler or payment classification ranges	Opt	255 characters range of class codes (7)
COST	FARE		The boarding cost in cents	Req	Integer {0..65535}
		TRANSFER XFER_FARE	Transfer fare (for compatibility with the original Version 4 fare table)	Opt	Integer {0..65535}
		MAX_FARE MAXFARE	Maximum fare (for compatibility with the original Version 4 fare table)	Opt	Integer {0..65535}
	NOTES (1)		A character string for user annotations	Opt	255 characters

**Transit Route Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ROUTE	ROUTE	LINE, ROUTE_ID, LINE_ID	Route ID number	Key	Integer {1..2,147,483,647}
NSTOPS	NSTOPS	STOPS, NUM_STOPS	Number of Nested Records	Req	Integer {2..65535}
MODE	MODE	TYPE	The transit mode for the routes	Req	16 characters transit mode codes (6)
	NAME (1)	ROUTE_NAME, RTNAME, DESCRIPTION	The name of the transit route	Opt	255 characters
	NOTES (1)		A character string for user annotations	Opt	255 characters
<b>NESTED FIELDS</b>					
STOP	STOP		Transit stop ID number	Req	Integer {1..2,147,483,647}
LINK			Link ID number where the stop is located (Not used in Version 4)	Opt	Integer {1..1,073,741,823}
NODE			Node ID number toward which the stop is heading (Not used in Version 4)	Opt	Integer {1..2,147,483,647}
ZONE	ZONE	FARE_ZONE, DISTRICT	The ID of the transit fare zone in which the stop is located.	Opt	Integer {0..131071}
	TIMEPT	FLAG	Non-zero marks a required schedule time point	Opt	Integer {0..32767}



***Transit Schedule Table***

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ROUTE	ROUTE	ID	Transit Route ID number	Req	Integer {1..2,147,483,647}
TIME	TIME	DEPART	Departure time in seconds from the stop	Req	Integer {0..999999}
STOP	STOP	STOPID	Transit Stop ID number	Req	Integer {1..2,147,483,647}
		NOTES	A character string for user annotations	Opt	255 characters

**Transit Driver Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ROUTE	ROUTE	LINE, ROUTE_ID, LINE_ID	Route ID number	Key	Integer {1..2,147,483,647}
NLINKS	NLINKS	LINKS, NUM_LINKS	Number of Nested Records	Req	Integer {1..65535}
VEHTYPE	VEHTYPE	TYPE, VEH_TYPE	A vehicle type code found in the vehicle type file	Opt	Integer {1..32767}
SUBTYPE	SUBTYPE	SUB_TYPE	A vehicle subtype code	Opt	Integer {0..99}
NOTES (1)	NOTES (1)		A character string for user annotations	Opt	255 characters
<b>NESTED FIELDS</b>					
LINK	LINK		Link ID number on the driver's path	Req	Integer {1..1,073,741,823}
NODE	DIR (2)		Node ID or direction code toward which the vehicle is headed	Req	Integer {1..2,147,483,647}

**Toll Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
LINK	LINK		Link ID on which the toll is collected	Req	Integer {1..1,073,741,823}
NODE	DIR (2)		Node ID or direction code toward which the toll collection is headed	Opt	Integer {1..2,147,483,647}
STARTTIME	START	START_TIME	Start time for the toll collection. Defaults to zero.	Opt	16 characters (5)
ENDTIME	END	END_TIME	End time for the toll collection. Defaults to Midnight	Opt	16 characters (5)
VEHICLE	USE		Vehicle types that must pay the toll	Opt	255 characters of use codes separated by slashes (4)
TOLL	TOLL	COST, CENTS	The cost of the toll in cents	Req	Integer {0..65535}
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters

**Zone Table**

VERSION 3	VERSION 4	Optional Names	Descriptions	Use	Values
ID	ZONE	ZONE_ID, ZONEID, ZID	Node ID number	Key	Integer {1..2,147,483,647}
EASTING	X_COORD	X	X coordinate in UTM meters	Req	Floating point (2 decimals)
NORTHING	Y_COORD	Y	Y coordinate in UTM meters	Req	Floating point (2 decimals)
ELEVATION		Z_COORD, Z	Z coordinate in UTM meters	Opt	Floating point (2 decimals)
NOTES	NOTES (1)		A character string for user annotations	Opt	255 characters
	AREA_TYPE	AREATYPE, TYPE, AT	The area type of the zone	Opt	Integer {0..99}

## Notes

1	If CREATE_NOTES_AND_NAME_FIELDS is true
2	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.
3	FREEWAY, EXPRESSWAY, PRINCIPAL, MAJOR, MINOR, COLLECTOR, LOCAL, FRONTAGE, RAMP, BRIDGE, EXTERNAL, XPRESSWAY, PRIARTER, SECARTER, ZONECONN, OTHER, WALKWAY, BIKEWAY, BUSWAY, LIGHTRAIL, HEAVYRAIL, FERRY
4	ANY, WALK, BICYCLE, AUTO, TRUCK, BUS, RAIL, SOV, HOV2, HOV3, HOV4, LIGHTTRUCK, HEAVYTRUCK, RESTRICTED, CAR, BIKE, TAXI, TROLLEY, STREETCAR, LIGHTRAIL, RAPIDRAIL, REGIONRAIL
5	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
6	NONE, NO_MODE, N/A, ““, BUS, LOCAL_BUS, EXPRESS, EXPRESS_BUS, TROLLEY, STREETCAR, LIGHTRAIL, RAPIDRAIL, REGIONRAIL, ANY, ANY_MODE
7	CASH, CARD, SPECIAL