

TRANSIMS Version 4 Visualizer: Quick Start Guide

This guide explains how to set up the files for TransimsVIS, the TRANSIMS Visualizer

Ingredients

1. Python Script file, used within TRANSIMS Studio, used to create the compressed Snapshot file.
2. Snapshot control file
3. Input snapshot file, generated by the microsimulator
4. Visualizer control file
5. Network files: Node, Link, Shape, Phasing Plan, Timing Plan
6. Network arcview file: link.shp
7. Vehicle Type file

Examples of the python script and snapshot control files are shown below.

Overall Data Flow

Figure 1 shows the overall data flow. ArcSnapshot and CompressSnapshot are run within TRANSIMS Studio.

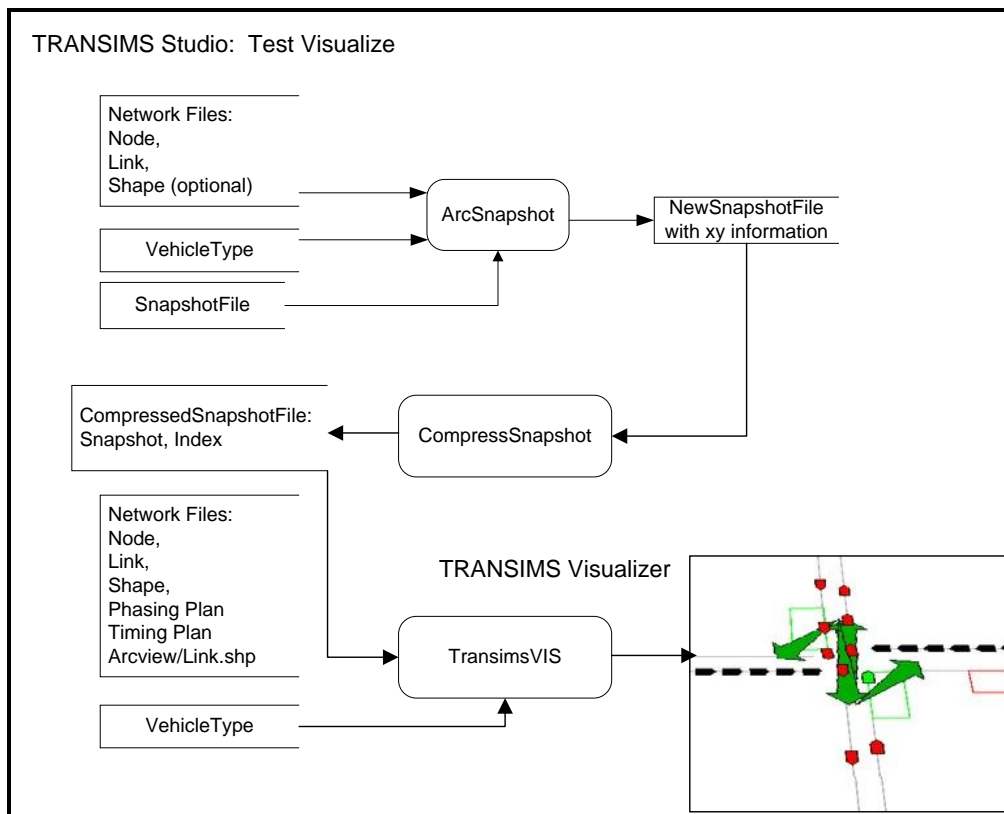


Figure 1 Overall Data Flow

Programs Run Within TRANSIMS Studio

First, a second-by-second snapshot file (SnapshotFile) is generated by the Microsimulator. Below is an example of the appropriate Microsimulator control keys, used to generate Snapshot28800.txt.

```
OUTPUT_SNAPSHOT_FILE_1    Snapshot28800.txt
OUTPUT_SNAPSHOT_FORMAT_1  TAB_DELIMITED
OUTPUT_SNAPSHOT_TIME_FORMAT_1  SECONDS
OUTPUT_SNAPSHOT_INCREMENT_1  1
OUTPUT_SNAPSHOT_TIME_RANGE_1  28800..32400
```

Python Script File

This is the python script, run from within TRANSIMS Studio that generates the compressed snapshot and index file used by the visualizer.

```
# This is the fifth script a user should run. It will take a snapshot file
# created by the Microsimulator and run it through the ArcSnapshot utility
# to create a more fine-grained snapshot file that includes the precise x and y
# coordinates for the individual vehicles. In a second step, the resulting snapshot
# file is compressed into a highly efficient format that is suitable for the visualization
# software. Once this script finishes, the visualization software can be started to
# look at the movements of vehicles and many other details of the model.
#
from TransimsRTE import *

var.BINDIR = 'C:/Program Files/TRANSIMS Studio/Bin32; C:/Program Files (x86)/TRANSIMS Studio/Bin32;
C:/TRANSIMS/Bin'

Event ('Add the XY coordinates to the snapshot file at high precision')
Control = ControlKeys ('ArcSnapshot', 'Visualize.Test.ArcSnapshot.ctl')
Control.Run ('ctl/Visualize.Test.ArcSnapshot.ctl')

Event ('Creating a highly compressed snapshot file for the visualizer')
CompressSnapshot('../results/SnapshotsSeconds_xy','../results/snapshot_compressed','../results/index')
Event ('Done!')
```

ArcSnapshot Control File

This is an example of the control file, Visualize.Test.ArcSnapshot.ctl, that is used to generate the snapshot file with xy information.

TITLE	Generate an Expanded Snapshot File for Test
DEFAULT_FILE_FORMAT	TAB_DELIMITED
PROJECT_DIRECTORY	../
NET_DIRECTORY	../network
NET_NODE_TABLE	Node.txt
NET_LINK_TABLE	Link.txt

```

#NET_SHAPE_TABLE           Shape
VEHICLE_TYPE_FILE          inputs/Vehicle_Type.txt

SNAPSHOT_FILE              results/Snapshot28800.txt
SNAPSHOT_FORMAT            VERSION3
NEW_SNAPSHOT_FILE          results/SnapshotsSeconds_xy
NEW_SNAPSHOT_FORMAT        BINARY

SELECT_TIME_INCREMENT      1

INPUT_COORDINATE_SYSTEM    UTM, 18N, METERS
OUTPUT_COORDINATE_SYSTEM   UTM, 18N, METERS
CENTER_ONWAY_LINKS         TRUE
CREATE_NOTES_AND_NAME_FIELDS TRUE
LANE_WIDTH                 3.5      //--- meters ---
CELL_SIZE                  7.5      //--- meters ---

```

Visualizer Control File

When the visualizer is invoked, the first task is to load the control file for a TransVis project. A screenshot of this process for loading a TransVis project appears below.

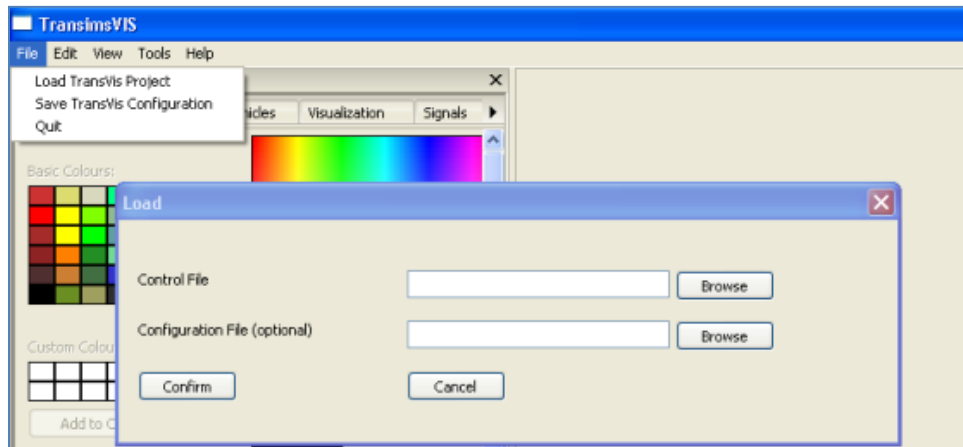


Figure 2 Loading the Visualizer Control File

The content of one control file is as follows:

```

NET_LINK_TABLE      ../network/Link.txt
LINK_SHAPE_FILE     ../network/arcview/Link.shp
NET_NODE_TABLE      ../network/Node.txt
NET_SHAPE_TABLE     ../network/Shape.txt
INDEX               ../results/index
SNAPSHOT_FILE       ../results/snapshot_compressed
VEHICLE_TYPE_FILE   ../inputs/Vehicle_Type.txt

```

The link table, link shape file, node and shape tables are the usual TRANSIMS network inputs. The Index and Snapshot_Files were generated during the snapshot file compression in TRANSIMS Studio. The vehicle_type file contains the following elements:

AECOM HEADER, TAB_DELIMITED, 1
 TYPE, INTEGER, 1, 10
 SUBTYPE, INTEGER, 2, 10
 LENGTH, DOUBLE, 3, 10, 1
 MAX_SPEED, DOUBLE, 4, 10, 1
 MAX_ACCEL, DOUBLE, 5, 10, 1
 MAX_DECEL, DOUBLE, 6, 10, 1
 USE, STRING, 7, 10
 CAPACITY, INTEGER, 8, 10
 LOADING, DOUBLE, 9, 10, 1
 UNLOADING, DOUBLE, 10, 10, 1
 METHOD, STRING, 11, 10
 MIN_DWELL, INTEGER, 12, 10
 MAX_DWELL, INTEGER, 13, 10

An example appears below:

TYPE	SUBTYPE	LENGTH	MAX_SPEED	MAX_ACCEL	MAX_DECEL	USE	CAPACITY	LOADING	UNLOADING	METHOD	MIN_DWELL	MAX_DWELL
1	0	7.5	37.5	7.5	7.5	CAR	11	3	2	PARALLEL	0	0
2	0	22.5	37.5	7.5	7.5	TRUCK	2	3	2	PARALLEL	0	0