

TRANSIMS Version 4.0

July 18, 2006 Release

Change Log edited: 7/18/2006

General Notes: The Windows Visual Studio directory structure was rearranged to put the SysLib under the overall Transims40 heading. Only one zip file will be generated for the source code. This also makes the Windows directory structure consistent with the Linux directory structure.

The enhanced string buffer controls were implemented for all programs. The code was updated for FileFormat, ConvertTrips, LinkSum, ListID, PlanPrep, PlanSelect, SubareaPlans, and Validate to enable Windows Visual Studio to compile with buffer protection logic.

SysLib

The User Program logic was converted to the 4.x code base. The "Name" method was added to the Db_File class structure to enhance the script syntax. A default file "Name" was added to each of the network and demand data files. The network link service was modified to permit "Generic" Link file processing. The Compile method was expanded to process script files directly. A few refinements were made to the script and stack printout header interface.

The Db_File classes were expanded to process nested data records (i.e., two records types in a single file). The definition file now includes nested record and field flags. The Shape, Transit Route and Driver files were implemented with the nested field logic. Logic for creating files using the Network and Demand services was added. Definition files are now automatically created when creating most files. Additional integer overflow and null string logic were added to the Db_File field I/O routines. All data fields are initialized to blank or zero. If a CSV file reads a field that is larger than the definition file size parameter, the field size will be increased and the definition file will be updated.

The Activity file class was added. This format automatically constructs a definition file for Version 3 activity files that do not include header records. It also handles file formats with header records or custom definition files. The Version 4 activity file is designed to be more flexible and efficient than the Version 3 format.

Time point processing was added to the Transit Route file and data services. Time points are not included by default or in Version 3 format. The LinkDir_Type method was added to the Transit Driver file. This method identifies the structure of the link direction information. Three options are available in Version 4: +/- link number, link number with direction flag, and link number with to-node number.

An enumeration called Access_Type was used in Db_File to identify the file status and in the Network service to identify lane use restrictions. To avoid confusion, the Access_Type in the Network service was changed to Use_Type. This affected a number of file and data methods and method references within the Network service. Basically all Access related methods were changed to Use. From a physical file perspective, this change affects the 4.x option to label the lane use controls as ACCESS (rather than VEHICLE) in the Link, Lane Use, Parking, and Stop files. The header should be changed to USE. Appropriate changes were made to the Router and Microsimulator code.

The string buffer utilities were expanded to include length controls for string copy, concatenate, and compare functions.

GISNet 4.0.0

The GISNet program was converted to 4.x format and the implementation was significantly changed to provide greater flexibility. It now only requires a GIS Link file. A node file is automatically created from the link end point coordinates. The shape file is created using the new nested Db_File capabilities. Data fields with the same field name are automatically converted. A User Program script is used to convert or manipulate other fields in the GIS Link file to the TRANSIMS Link fields. The user can specify any of the TRANSIMS output formats.

ArcNet 4.0.1

The default Link file processing was modified to permit ArcNet to read and process the “Generic” Link data generated by EMME2Net, TPPlusNet, and GISNet utilities. The “Generic” Transit Route Header and Route Node formats were also added to the ArcNet processing options. Minor refinements were made to the directional link and route procedures to minimize sharp angles when transitioning between one-way and two-way links.

NewFormat 4.0.0

This is a new program designed to convert Version 3 files to Version 4 formats. It currently converts the Transit Driver Plans to the new Transit Driver File nested data structure.

Router 4.0.10

Problems caused by integer overflow of path impedance values were addressed. The MAX_LEGS_PER_PATH key was added to detect infinite loops caused by path building constraints and large transfer penalties. The activity file processing was changed to the new Activity file interface. The Max_Fare field was made optional to avoid zeroing out fare calculations. The HOUSEHOLD_TYPE_FIELD and HOUSEHOLD_TYPE_BREAK_POINTS interface was replaced with a HOUSEHOLD_TYPE_SCRIPT. The script provides greater flexibility and control over the method of defining household types for adjusting the impedance parameters. Two reports, HOUSEHOLD_TYPE_SCRIPT and HOUSEHOLD_TYPE_STACK, were added to the Router. The new approach also changes the way impedance parameters by household type are processed. Null parameters are no longer accepted for intermediate types, but the last type is automatically used for all higher types. While making these changes a bug in the transfer penalty and rail bias parameter interface was identified and fixed. These changes affected the transfer time and cost impedance parameters.

Microsimulator 4.0.11

In addition to cosmetic code changes, the Transit Route time point logic was implemented to minimize the impact of transit schedule adherence on traffic flow. Transit vehicles will no longer wait for their scheduled departure time unless the stop is marked as a time point.

ActGen 4.0.0

A User Program interface was added to process household type (classification) scripts. Household type reports were also included. The Activity file interface was added and the file created. The time of day format key was added to control the time data stored on the Activity file.

SubareaPlans 4.0.9

The program now summarizes trips by internal-external classifications.