TRANSIMS Version 4.0.4

Software differences between 4.0.3 and 4.0.4

Change Log edited: 1/7/2009

SysLib

Extended header file class was added and used for trip and activity file types. The demand control service was modified to detect partitioned applications and open or create the trip and activity files accordingly. Extended file class was modified to include enhanced partitioning logic.

A Location_Flag method was added to the snapshot file class to include X_COORD, Y_COORD, Z_COORD, and BEARING fields in Version 4.0 file formats. The OUTPUT_SNAPSHOT_LOCATION_FLAG key was added to the snapshot generation class used in the Microsimulator to include location data (x, y, z, and bearing) in the Version 4.0 file formats. The azimuth field is now calculated for the VERSION3 format.

SQLITE3 database software was added to SysLib and edited so it compiles in 32bit and 64bit versions without warning messages. Basic SQLITE3 database reads/writes were added to the standard Db_File logic. This interface does not work for nested files. _unlink was replaced with remove for Linux compatibility in Db_File. A few changes to the sqlite3 interface were required to compile under Linux. The SQLITE3 SQL logic was modified to use single quotes rather than double quotes to identify string fields. This eliminated the need to add and subtract the double quotes from the strings on input and output. Corrections were made to the way SQLITE3 text fields were written. Nested file types were implemented as two linked tables within an SQLITE3 database. An error message was added when attempting to open an SQLITE3 database as a text file. The Num_Records method for SQLITE3 was modified to account for the actual number of records in the table rather than the maximum record number. The SQLITE3 code was updated to version 3.6.6.2.

Exit_Stat was modified to delete the execution object on normal exits. Additional destructor logic was added to several low level objects to smooth the destruction of the execution object. The most important change was to automatically close open files – particularly databases. Bugs were fixed in virtual object destructors that called virtual clear methods. The transit ridership data array class where the issue was discovered. The Exit_Stat method was adjusted to always call the class destructor. The DONEX enumeration value was added to the exit_stat options to override the automatic program destructor call. This was used in PopSyn to avoid potential destructor errors that could not be tracked down at this time.

The pointer array classes were restructured and renamed. A potential crash during destruction of the time equivalence class was corrected. The new data pointer array was integrated into the time equivalence class methods.

The user program logic was enhanced to detect a syntax error in if statements that can result in a program crash. A potential bug was fixed in the user program random function.

A return code was added to the projection service class to tell the calling program that projection keys were provided by the user.

Expansion weights were added to the trip length summary class.

Destination field method was added to the problem file interface.

Protection was added to the trip length data array to avoid problems caused by negative travel times or distances.

The process link processing method was modified to keep transit stop connections when value checks are not requested.

The zone file interface was modified to include the option for minimum and maximum coordinate ranges.

Vehicle file processing was changed to report a warning message and skip the record rather than an error message when a vehicle parking lot was not found.

The data reading methods were modified to move the required file checks into the read methods and out of the record processing methods.

A new problem type related to household person matches was added to the problem service interface.

Several data classes and arrays previously included in the ActGen data directory were moved to the SysLib directories for use by other problems.

The connection types for merge and diverge were subdivided into left and right merges and splits.

A warning message was added for transit routes with fare zones outside the range specified in the transit fare file.

The field processing for Link_Dir_Files and Link_Data_Files was modified to be more flexible for ArcDelay types of applications. These files no longer require fields by time period. A bug was fixed in the link data file class.

The data range class was modified to accept negative values (i.e., directional links) in the range list.

The related file logic was modified to only check for optional files when check data and renumbering flags are set. It no longer requires that data records exist for these files.

The Plan file class was expanded to read and write a one line *.def file containing the Plan file format (BINARY or VERSION3), the traveler scaling factor (2 to 100), and flag for node or link based paths (NODE_BASED or LINK_BASED).

Allocated memory was deleted by destructors for Execution Service and Control List.

SF3Prep 4.0.1

Logic to read the SF3_SUMMARY_LEVEL key was added.

PopSyn 4.0.7

The supporting data structures were converted to pointer arrays in order to minimize problems with the program destructors. Unfortunately these changes did not completely resolve the problem, so the DONEX exit_stat option was used to skip the destructor call at this point in time.

ActGen 4.0.32

The input and output activity files now include partitioning logic. MIN_FAC1, MAX_FAC1, MIN_FAC2, and MAX_FAC2 fields were added to the tour data to enable the script writer to include the range of activity location distances within the target zone in the zone utility calculation. The zone processing was modified to read the optional minimum and maximum coordinate ranges from the zone file. The minimum and maximum factor calculations were changed to represent the ratio of the minimum and maximum straight-line distance to the four corners of the zone coordinate range or the zone centroid to the straight-line distance between the origin and destination zone centroids. The dump report now includes the minimum and maximum adjustment factors for each zone interchange. A bug was fixed in the maximum adjustment factors for the return trip for anchor activities. The household, person, and vehicle file processing was modified to reduce memory requirements. The input processing performance for zone skim files was improved by as much as a factor of 20 by pre-allocating the maximum memory. The SKIM_MEMORY_FACTOR_x key was added to refine the maximum memory allocation for zone skim files. NEW_ACTIVITY_PATTERN_FILE and NEW_ACTIVITY_PATTERN_FORMAT keys were added to generate an activity pattern file for input to the new LocationChoice program or manipulation by the new ActivityPattern program. Household person match problems were included in the household match report and output file and added to the problem summary and problem file. Improvements were made for tours that do not return home at the end of the day. The zone number, activity location, and purpose of the two anchor points for the location choice rubber banding were added to the tour information record passed to the location choice script. For the option where a zone skim travel time field is used to define the travel time between two activity locations, the skim time is adjusted based on the relative distances between the two activity locations and the two zone centroids. For intrazonal trips, the intrazonal distance is based on half of the maximum and minimum X and Y coordinates assigned to the zone.

ActivityPattern 4.0.0

The household matching to survey households, persons, and activities from ActGen was extracted into a new program. This program outputs an activity pattern file.

LocationChoice 4.0.2

The location choice and scheduling components of ActGen was extracted into a new program. This program reads an activity pattern file and creates an activity file. Improvements were made for tours that do not return home at the end of the day. The zone number, activity location, and purpose of the two anchor points for the location choice rubber banding were added to the tour information record passed to the location choice script. For the option where a zone skim travel time field is used to define the travel time between two activity locations, the skim time is adjusted based on the relative distances between the two activity locations and the two zone centroids. For intrazonal trips, the intrazonal distance is based on half of the maximum and minimum X and Y coordinates assigned to the zone.

CheckSurvey 4.0.3

Additional logic was added to check for and repair sequential activities that share the same location code.

ModeChoice 4.0.3

Converted the Version 3.x ModeChoice program to Version 4.0 code. The time equivalence class was updated to avoid a termination crash. DISTANCE_CALCULATION key was added to control the method of calculating the distance between activity locations. The logic was modified to work with trip purpose zero. MODE_SHARE_DETAILS, MODE_SHARE_FORMAT, and TIME_OF_DAY_FORMAT keys and MODE_SHARE_DETAILS report were added. The trip method for activity files was implemented. The input processing performance for zone skim files was improved by as much as a factor of 20 by pre-allocating the maximum memory. The SKIM_MEMORY_FACTOR_x key was added to refine the maximum memory allocation for zone skim files.

TripSum 4.0.12

The input and output trip or activity files now include partitioning logic. TripSum can now process a partitioned set of trip or activity files. The files and reports identified using "VOLUME" were renamed to "TRIP_END" for improved clarity. NEW_TRIP and NEW_ACTIVITY keys were added to enable output of selected or combined trip or activity files. HOUSEHOLD_LIST key was added to enable summary reports or output of selected households. The NEW_TRIP_TIME_FILE key was changed to NEW_TIME_DISTRIBUTION to facilitate key compatibility with ActGen. New ActGen compatibility includes NEW_TRIP_TIME_FILE and NEW_TRIP_DISTANCE_FILE keys and TRIP_LENGTH_SUMMARY, TRIP_PURPOSE_SUMMARY, MODE_LENGTH_SUMMARY, and MODE_PURPOSE_SUMMARY reports. The household list file was implemented with the enhanced extended file logic to permit partitioned household lists to be used to partition an input activity or trip file. Partitioned household list files can also be used to select a subset of records from a set of partitioned input activity or trip files. Several error messages were changed to warning messages to make the program more useful for processing dirty activity survey files. HOUSEHOLD_WEIGHT_FILE key was added to weight the trip length summaries. TIME_OF_DAY_FORMAT key was added to specify the time format for the input trip or activity file. The extra protection in the trip length data array was included to avoid problems caused by negative travel times or distances.

SELECT_ORIGIN_POLYGON and SELECT_DESTINATION_POLYGON keys were added to select trips based on the coordinates of the origin and/or destination activity locations. The selection criteria (household list, modes, purposes, origins, and destinations) now control the records output to the new trip or activity file as well as the data used in the summary reports. The select modes key was modified to accept range codes. SELECT_ORIGIN_ZONES, SELECT_DESTINATION_ZONES, VEHICLE_FILE, and NEW_VEHICLE_FILE keys were added to enable select logic that includes the origin and destination zone numbers. The vehicles associated with the selected trips or activities can now be written to an output vehicle file. The logic was modified to only save the trip record if the trip start, end, or mid-time is within range. Additional conditional processing checks were included. SELECT_PROBABILITY_FILE, SELECT_PROBABILITY_FORMAT, TIME_PERIOD_EQUIVALENCE, and RANDOM_NUMBER_SEEK keys were added to select a sample of trip records based on probabilities specified by origin-destination zone and time period.

LocationData 4.0.9

WALK_ACCESS_TIME_RANGE and TIME_OF_DAY_FORMAT keys were added to included time of day restrictions for the transit walk access weight calculations. Error messages were replaced by warning messages when new transit or use fields already exist in the file.

Router 4.0.52

The input trip and activity files now include partitioning logic.
ROUTE_SELECTED_PURPOSES key was added to enable routing trips with selected trip purpose codes. VEHICLE_TYPE_FILE key was added to enable Version 4.0 vehicle type use codes to be used to control path building permissions. The ROUTE_SELECTED_MODES key was modified to accept range codes. One meter was added to walks between activity locations on the same link to minimize round-off error and encourage walk paths to use the network links rather than direct movements between activity locations. IGNORE_VEHICLE_ID key was added to enable path building without a vehicle file. The resulting paths can be used for summary applications. Plan file *.def file logic was integrated.

PlanSum 4.0.42

TRANSIT_TRANSFER_DETAILS report was added to report the number of bus and rail boardings by time period and access mode. A fix was made to the drive path-based data summaries when less than 24 hours are specified and turn movements are not requested. Traveler IDs were added to transit-related warning messages.
NEAREST_NEIGHBOR_FACTOR was added to skim processing to calculate intrazonal travel characteristics. Plan file *.def file logic was integrated.

PlanPrep 4.0.9

Plan file *.def file logic was integrated. NODE_LIST_PATHS key was added to define the list format for input files without *.def components. The list types for the input, merge and subarea files are checked for consistency.

PlanTrips 4.0.7

The program was updated to process transit trips as well as drive trips. It also processes multi-leg plans and outputs the plan records for each leg of trips with travel schedule adjustments. Plan file *.def file logic was integrated. NODE_LIST_PATHS key was added to define the list format for input files without *.def components.

PlanSelect 4.0.25

A bug was fixed in processing select nodes when certain reports or other selection options were not requested. SELECT_LINKS_# and SELECT_TRAVEL_MODES keys were added to select highway and transit trips based on links and/or mode codes. The SELECT_NODES_# behavior was enhanced to mimic the link selection logic that enables transit passengers to be selected based on the driver paths of the transit vehicles. A bug was fixed related to the mode selection flag to permit mode zero (drive) to be selected by default. Plan file *.def file logic was integrated.

PlanCompare 4.0.23

The plan comparison is now based on total travel time rather than just the drive portion of the trip. This enables the program to compare transit trips as well as auto trips. Match problems caused by plans with missing legs were fixed. Plan file *.def file logic was integrated. NODE_LIST_PATHS key was added to define the list format for input files without *.def components. The list types for the input and compare files are checked for consistency. A bug was fixed comparing plan files with equal records.

Microsimulator 4.0.53

The OUTPUT_SNAPSHOT_LOCATION_FLAG key was added to include location data (x, y, z, and bearing) in the Version 4.0 file formats. Protection was added in the problem file processing for plans from/to parking lots that are not included in the network. Conflicts between transit vehicle priority and wait time priority were eliminated. Warning messages were added to list the lanes approaching an actuated signal that do not have a detector. Plan file *.def file logic was integrated.

NewFormat 4.0.5

The option to do coordinate projections and activity location selection was added to the conversion logic for Version 3 activity surveys. This enables the program to create a TRANSIMS activity file using the survey data that can be routed or summarized to generated average trip lengths and trip length distributions by trip purpose and mode.

TransimsNet 4.0.20

The coordinate calculations for the activity location file were corrected. A bug was fixed in the way lane connections were constructed for multi-lane arterials with pocket lanes. Improved the lane connectivity logic for multi-lane T intersections. Improvements were made to the lane connectivity logic for multi-lane diverges on the left or right side. The program was restructured to work in update mode. UPDATE_NODE_RANGE and UPDATE_LINK_RANGE keys were added to enable the user to select specific nodes and links to re-calculate. Data for the records not updated are copied from input network files. The NET_ACTIVITY_LOCATION_TABLE,

NET_PARKING_TABLE, NET_PROCESS_LINK_TABLE, NET_POCKET_LANE_TABLE, NET_UNSIGNALISED_NODE_TABLE, and NET_SIGNALIZED_NODE_TABLE keys were activated to provide the input data for update applications. Input records for the updated nodes or links are deleted by the copy process and the updated data are added to the end of the output files. The merge and diverged connection types were subdivided into left and right merges and splits. The lane connectivity logic was enhanced to accommodate merges and diverges better. A bug was fixed in the bearing calculations for links with lanes only in the BA direction. The update logic was corrected to read existing pocket lane information when only the nodes are updated. Logic improvements were made to avoid problems caused by link edits that invalidate pocket lanes and activity locations. UPDATE_NODE_FILE, UPDATE_LINK_FILE, DELETE_NODE_RANGE, DELETE_LINK_RANGE, DELETE_NODE_FILE, and DELETE_LINK_FILE keys were added to enhance editing flexibility. Update ranges can now be provided in a file as well as the UPDATE_*_RANGE control key. Delete ranges and files were provided to remove links or nodes and all of their associated components from the network files. A bug generated by the update/delete logic was fixed. The link processing logic was enhanced to pass the NOTES field from the input link file to the output link file. Checks were added to ensure that the delete node list does not includes node numbers required for any of the links written to the output link file.

IntControl 4.0.12

Corrections were made to the detector logic for links with no thru lanes. Detectors are now added to right turn lanes as well to avoid warning messages in the Microsimulator.

Progression 4.0.2

Protection against circular thru movements was added (e.g., traffic circles). The program was restructured to set progression offsets for multiple time periods. Two control keys were renamed to facilitate multi-time period processing: PROGRESSION_TIME_PERIODS and PROGRESSION_PERIOD_SPEED. In addition to the user specified travel speed and free flow travel speed, the option to include a Link Delay file was added to set the travel speed for each time period based on the link delay time at the mid-point of the time period. Three new keys were added to control the optimization method and generated an ArcView shape file for the progression groups: OPTIMIZATION_METHOD, ARCVIEW_PROGRESSION_FILE, and LINK_DIRECTION_OFFSET. The optimization options include PERCENT_THRU, NETWORK_SPEED, and VEHICLE_HOURS. The volumes at the mid-period time point in the Link Delay file are used for vehicle hours calculations. The ArcView file summarizes the cumulative travel time, length, speed, and vehicle hours and the percent thru for each group and time period. The logic was enhanced to exclude restricted links and freeways and expressways from the signal groups.

TransitNet 4.0.16

The logic was changed to avoid inserting a stop on a short link when the previous link has a facility type (freeway or other) warning, but the stop was inserted anyway.

ArcProblem 4.0.3

DRAW_TRIP_OD_LINKS key was added to draw the problem records as a link between the origin and destination activity locations.

ArcTraveler 4.0.0

New program to draw the origin-destination connections of traveler trips or activity patterns.

ArcSnapshot 4.0.8

NEW_SNAPSHOT_FILE, NEW_SNAPSHOT_FORMAT, SNAPSHOT_FORMAT, and OCCUPANCY_FORMAT keys were added. The new snapshot file can be generated with or without ArcView snapshot files. The X and Y coordinates and Bearing fields included in the output snapshot file are based on the link shape and lane offset of the vehicle.

ArcPlan 4.0.20

The selection logic was enhanced to permit a non-partitioned household list file to be used with partitioned plan file. Plan file *.def file logic was integrated.

ArcDelay 4.0.15

SYSTEM_EVENT_FILE key was added in order to calculate green, yellow and red time splits for the ArcView turn file. A bug was fixed for applications where a turning movement summary is the only output shape file.

ArcRider 4.0.5

The number of transit runs and load factor fields were added to the segment data generated for the ridership summary. SET_WIDTH_USING_RUNS and SET_WIDTH_USING_LOAD_FACTOR keys were added to enable ridership bandwidth plots to be generated based on the number of transit runs on the link or the number of riders per run.

ArcDiff 4.0.5

The program was expanded to generate difference files for ArcView link direction and ridership files as well as link delay files. New keys include ARCVIEW_LINK_DIR_FILE_1, ARCVIEW_LINK_DIR_FILE_2, ARCVIEW_RIDERSHIP_FILE_1, ARCVIEW_RIDERSHIP_FILE_2, ARCVIEW_LINK_DIR_FILE_1_*, ARCVIEW_LINK_DIR_FILE_2_*, ARCVIEW_RIDERSHIP_FILE_1_*, and ARCVIEW_RIDERSHIP_FILE_2_*.

SubareaPlans 4.0.28

A minor incompatibility between SubareaNet and SubareaPlans in processing transit paths at subarea boundaries was corrected. Logic was added to properly handle the trip and leg number for travelers with multiple input trips. Refinements were included to avoid loading transit trips on boundary links that are leaving the subarea when the boarding stop is outside of the subarea boundary. The fare zone for the external stops was set based on the fare zone assigned to the closest internal stop. A bug was fixed for trips that only utilize stops on the new transit route that is generated when a regional route enters and exits the subarea twice. EXTERNAL_OFFSET_LENGTH key was added to enable the user to control the distance away

from the external node where external station activity locations, parking lots, and transit stops are inserted. Internal-External summary statistics for transit legs were added. Error messages about vehicle location problems were changed to warning messages. Plan file *.def file logic was integrated. A bug was fixed for link-based plans that end on a subarea boundary.

SubareaNet 4.0.7

The fare zone for the external stops was set based on the fare zone assigned to the closest internal stop. EXTERNAL_OFFSET_LENGTH key was added to enable the user to control the distance away from the external node where external station activity locations, parking lots, and transit stops are inserted.

ExportTransit 4.0.4

WRITE_DWELL_FIELD, WRITE_TIME_FIELD, WRITE_SPEED_FIELD, MINIMUM_DWELL_TIME, and MAXIMUM_DWELL_TIME keys were added to enable the program to estimate the dwell time, travel time, and speed for each link in the output route nodes file.

LineSum 4.0.8

LINK_EQUIVALENCE_FILE key and TRANSIT_LINK_GROUP_SUMMARY and PRINT_LINK_EQUIVALENCIES reports were added. The selection set data class was changed to avoid multiple deletes of data pointers while closing the program.

LinkSum 4.0.20

A bug was fixed in the link data file interface.

Relocate 4.0.3

New program to update activity locations and parking lots in trip, activity, and vehicle files that are removed or renumbers as a result of TransimsNet (or manual) network edits. PLAN_FILE, PLAN_FORMAT, NEW_PLAN_FILE, and NEW_PLAN_FORMAT keys were added to implement plan file processing as well. The logic was also modified to permit the processing of trip and activity files (along with plan and vehicle files) at the same time. Modifications were made to improve the way the household list partitioning is done when trip and activity files are processed simultaneously or in combination with plan files. A minor change was made in the way the number of households in the output household list file is reported.

AdjustPlans 4.0.9

Plan file *.def file logic was integrated.

SmoothPlans 4.0.4

Plan file *.def file logic was integrated.