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14.00-04 [90340]

2014-09-03

+ New Features and Changes

Dialogs

- + Classification according to type number and the like: When setting a new attribute of the type 'type number', 'operator', 'valid day', 'vehicle combination', 'vehicle unit', 'parameter set' and 'fare system' on the classification pages of the graphic parameters dialog, you can now specify if you want to create a new class for each existing value. **(14046)**

Miscellaneous

- + Modified mode: When executing a procedure sequence with 'Save version file' as last procedure, the network was no longer classified as modified any more (i.e. no asterisk after the file name in the title bar, no prompt to save the version file when closing the network). **(13656)**

Timetable Editor

- + Access to the filter dialog: In both timetables (tabular/graphical), you can now access the filter dialog of the line filter again with a right-click on the filter icon in the tool bar of the timetable. **(14146)**

✓ Fixed Bugs

Data Model

- ✓ Access to list of all matrices: Listing all matrices no longer triggers a crash if external matrices exist, for example when adding procedure 'Edit matrix' and subsequently selecting the reference object. **(14154)**

Dialogs

- ✓ Inserting bars in graphic parameters: Visum does not crash anymore if you try to insert a bar anywhere but in the last position which uses auto scaling and displays an attribute which is also displayed by another bar. **(14132)**

Filters

- ✓ Infinite loop caused by filter on node topology attributes: If a version file contained a filter with a condition that used attributes which enforced the existence of node topologies for nodes (for example 'Number legs'), an infinite loop occurred when opening the version file. This error has been fixed. **(14031)**

Formulas

- ✓ Rounding of floating-point number target attributes: When reading in version files or procedure parameter files from Visum version 12.5 or older which contain the procedure step 'Edit attribute' and for which the 'Round' option has been activated despite a target attribute of the type floating-point (this will have no effect in Visum 12.5 or older), the round operator is falsely included in the formula so that the execution of the procedure generates different values than in Visum 12.5. This error has been fixed. **(14144)**

Graphics

- ✓ Dashed boundary of polygonal objects of the type point: If you specified a dashed boundary for a polygonal object of the type point and later on a continuous display, the (continuous) lines were joined incorrectly. This error has been fixed. **(14119)**
- ✓ Legend and line bars: Drawing the legend no longer causes a crash after rearranging network objects in the graphic parameters for the filling of line bars. **(14165)**
- ✓ Slow image buildup: Even if the display of turn volumes was deactivated in the graphic parameters, the program used to calculate the minimum and the maximum of the turn attributes used in bars if the automatic scaling was switched on for these bars. This slowed the drawing of the network window down. This error has been fixed. **(14120)**

Main window

- ✔ Crash due to undocked window: Reading a version file with the user preference 'Window configuration: Apply from version file, otherwise reset.' no longer causes a crash if the focus lies on a previously undocked window (e.g. a list). **(14116)**

Network Editor

- ✔ Removing profile points after re-routing: Profile points could no longer be deleted after re-routing a line route. The error message 'Vehicle journey does not traverse time profile item' was issued instead. This error has been fixed. **(14108)**

Other Procedures

- ✔ Intersect: Executing the 'Intersect' procedure or intersecting within the framework of Multi-edit in the network editor no longer causes a crash if the source attribute of the source object has an empty value. **(14151)**

PuT assignment

- ✔ Editing of fares: If you edit the fares of a ticket type by changing the number of fare points for an entry, the fares of existing PuT paths are not updated. Even after a new assignment, the values are now refreshed. This does not apply when editing the fare for a number of fare points. This error has been fixed. **(14054)**
- ✔ Slowdown of assignment with matrix time series: So far, the timetable-based assignment was 2-4 times slower in Visum 14 than the same assignment in Visum 13 when using matrix time series with a large number of matrices or very refined time series intervals. **(14143)**
- ✔ Timetable-based assignment with shortest path search: In connection with shortened vehicle journeys, in particular cases, the shortest path variant of the timetable-based assignment could generate invalid connections, namely such that used shortened vehicle journeys beyond their own extend. This could lead to a crash in the impedance calculation of the assignment or when accessing such invalid paths later on. **(14014)**

Schematic line diagram

- ✔ Deleting labeling forms: If you deleted labeling forms in the graphic parameters of the schematic line diagram and subsequently selected a new labeling form for the display of an edge, the display did not always use the settings of this labeling form but the default labeling form. This error has been fixed. **(14150)**

Timetable Editor

- ✔ Displaying user-defined attributes: If you displayed user-defined attributes of vehicle journey items, calling the tabular timetable could cause a crash after terminating and restarting Visum. This error has been fixed. **(14134)**
- ✔ Hidden starts/ends of vehicle journeys: The arrows for hidden starts/ends of vehicle journeys now also point in the right direction if they start at segments which are wrapped beyond the time axis. **(14113)**
- ✔ Hiding stops without stop events: If the 'Hide stops without stop event' option of a stop sequence was active, the set of displayed members of the stop sequence was not refreshed when changing the visible selection in the line selection. This error has been fixed. **(14101)**

VISUM Files

- ✔ Reading of matrix time series: Matrix time series with a lot of entries are now read in much faster from the demand file (*.dmd). **(14155)**
- ✔ Time series of matrix numbers within demand files: Demand files (*.dmd) containing time series of matrix number which were created using Visum 13 or earlier versions lost all the matrix numbers when reading with Visum 14. This bug has been fixed. **(14172)**

14.00-03 [90172]

2014-08-21

+ New Features and Changes

COM

- + Executing procedures: A procedure sequence started from a VBS script file via Procedures.Execute is no longer cancelled if it contains Python scripts or Add-ins which use wxPython. **(13638)**

Demand Procedures

- + Tour-based model distribution/mode choice: For demand strata with no home trips, the calculation is terminated early in order to save computation time. **(13988)**

Foreign Formats

- + OpenStreetMap import: The importer now also reads faces if their edges are not listed in the right order in the source file. **(14028)**

PrT Assignment

- + Blocking back calculation: The blocking back calculation on the basis of LUCE assignments has been accelerated and now has the same computation time as on the basis of other assignment variants. **(14088)**
- + LUCE: For the internal calculation, nodes are now only "exploded" where absolutely necessary. This reduces the computation time of the procedure, in some networks by half. **(14078 🚫)**

Timetable Editor

- + By default, the layout of the tabular timetable now contains editable attributes for dimension, vehicle combination, operator and valid day. These attributes are displayed in drop-down lists which contain both number and code or name. **(14075)**
- + Separation of the tables in the tabular timetable: The visual separation of the three different tables in the tabular timetable has been softened by placing the toggles 'Show vehicle journey sections' (for the table in the middle) and 'Vehicle journeys/Vehicle journey sections' (for the lower table) in the tool bar of the tabular timetable. In return, the row headers in the vehicle section table are displayed slightly darker. **(13910)**
- + User-defined attributes for vehicle journey items: In the stop sequence, you can now also edit user-defined attributes for vehicle journey items. **(6238)**

VISUM Files

- + Graphic parameters file: A new XML-based file format (*.gpa) is now available besides the familiar *.gpa file. It can be opened or saved directly in the graphic parameters dialog and up to now contains exactly the graphic settings provided in this dialog. Specific graphic network objects (for example backgrounds) and parameters of graphic tools (e.g. flow bundle, isochrones etc.) are not included. However, there will be an XML format for those tools at a later point in time. **(9709)**

✔ Fixed Bugs

Add-Ins

- ✔ Add-In 'Import Google Transit Feed': When using Add-In 'Import Google Transit Feed', a warning is now issued if no license exists for a calendar. All vehicle journeys are imported as daily in this case. **(14053)**
- ✔ Matrix Convolution: The procedure is now faster if one of the input matrices is constantly = 0. **(13951)**
- ✔ Run VBA: This Add-in can now also handle relative paths in the input attributes. **(14083)**

COM

- ✔ Access to matrix values: The IMatrix.SetValuesDouble method now also accepts the return values of IMatrix.GetValuesDouble as argument when called from VBA. **(14033)**
- ✔ Editing filter conditions: If a filter condition referred to an attribute with a subattribute, a false error message was issued when accessing the attributes LOWERBOUND, UPPERBOUND or FILTEROPERATOR at the IFilterCondition object via AttValue, stating that the filter attribute was not found. This error has been fixed. **(14066)**
- ✔ IExportANMPara: Invalid attribute IDs are now rejected with an error message. **(12161)**
- ✔ Setting the text sizing factor: A change of the text sizing factor via INetworkBaseGPA::SetTextSizingFactorForScreen now takes immediate effect in the graphic display. **(14073)**
- ✔ Timetable editor: COM methods for reading the tabular timetable now always deliver length attributes contained in the table in the specified unit (e.g. km or mi), and not automatically in meters. **(14007)**

Data Model

- ✔ Block items at modified vehicle journey sections: If you extended or shortened a vehicle journey section via the dialog, block items defined on this section were not adjusted. This error has been fixed. **(13749)**
- ✔ User-defined attributes: By mistake, the names of user-defined attributes were translated on the user interface when Visum accessed them via relations. This error has been fixed. **(14093)**

Demand Procedures

- ✔ Creating a procedure sequence for a demand model: If you created a procedure sequence for a demand model in the Demand models dialog using the 'Create procedure sequence' button, incorrect formulas were generated in the procedure steps of the group 'Matrix aggregation'. These steps could not be executed. The error has been fixed. **(14063)**
- ✔ Kalibri: Since "matrix references" are flexible in Visum 14 and no longer permanently allocated in the data model, the Kalibri option "Save the calculated matrix as distribution matrix of the demand stratum" has become redundant. It has been removed from the surface. **(14107)**

Dialogs

- ✔ Classification by enumeration type: No more crash when selecting an attribute which is an enumeration type with named values as classification attribute in the graphic parameters dialog. **(14137)**
- ✔ Copying values to the clipboard: When copying length attributes from a dialog table (e.g. for user-defined attributes) to the clipboard, it now contains the original values from the view and no longer the lengths converted into meters. **(14103)**
- ✔ Line route dialog: Warnings issued while using the line route dialog are no longer displayed in a separate floating dialog but, as usual, in a dialog that has to be confirmed in order to continue working. **(13600)**
- ✔ Modal dialogs and progress dialogs: In several situations, a process is started with a progress dialog out of a modal dialog (e.g. additive reading of network files, multi-editing links / deleting collinear points, import of PuT supply from Visum). In all of these cases, the dialog became non-modal afterwards, i.e. other actions could, for example, be triggered via the menu while the dialog was open before the initially started process ended. This led to possible malfunctions or even a crash. This error has been fixed. **(11557)**

Foreign Formats

- ✔ Import of PuT supply from Visum: The parameters detour factor and supplement are now considered correctly during the import. A warning is issued if the specified attributes do not exist in the source network. **(13927)**
- ✔ Import PuT supply from Visum: In the parameters dialog for the import of the PuT supply from Visum, the program used to display the attribute selection of the target network for both networks when selecting attributes for the comparison attribute of stop points. This error has been corrected, i.e. the attribute selection of the source network is displayed for the stop points in the source network, so that even user-defined attributes, which are defined only in the source network, can be used as comparison attributes. **(13976)**
- ✔ Shapefile export: Texts are now cut off at 255 characters when exporting string attributes in order to fulfill the format specifications and to ensure the error-free import of such files. **(14112)**

Formulas

- ✔ Crash caused by deep nesting: Formula attributes with particularly deep nesting (about 25 brackets) could trigger a crash. This error has been fixed. **(14080)**
- ✔ IF function: Inside the IF function, only the expression that applies according to the IF condition is now evaluated. Depending on the complexity of the contained expressions, this can save a lot of computation time. **(14117)**

Graphics

- ✔ Background maps: If no internet connection exists while starting Visum, yet later on a connection exists, Bing maps are automatically available again from this point in time. **(13619)**
- ✔ Background maps: On some computers, the display of background maps (Bing maps or similar) used to fail because of the proxy authentication. This error has been fixed. **(14100)**
- ✔ Boundaries of polygons: The boundaries of polygons (e.g. for zones or territories) are now displayed as in Visum 13, without disruptive "jags". **(14110)**
- ✔ Line bar display: The visibility of the label of a line bar no longer depends on the standard bar parameters of the same bar. **(14071)**

Listings

- ✔ Node list: The calculation of analysis rows no longer leads to a crash if node geometries are generated as a result. **(14044)**

Network comparisons

- ✔ Network merge mode: On some computer, the program used to crash at the beginning of the network merge mode. This error has been fixed. **(14089)**
- ✔ Version comparisons: The project directory specified for version files now applies to files used in version comparisons. Relative paths can thus also be used. **(14076)**

Network Editor

- ✓ Editing the shape of links and polygons: The dialogs which are used to edit the shape of links and polygons now also open inside the Visum main window if Visum runs on the second screen. **(12224)**
- ✓ Tabular editing of line route: If you edited a new line route only tabularly and the run times of the used system routes matched the PuT run times of the used links, you could not exit the floating dialog with OK and had to cancel the action. This error has been fixed. **(14036)**
- ✓ Undo: In the "Insert" mode for links and screenlines, you can use the Undo functionality again via the shortcut Ctrl+Z. **(14074)**

Other Procedures

- ✓ "Edit attribute" procedure: *.ver or *.par files created with Visum 12.5 in which the "Edit attribute" procedure set a length attribute to a constant (e.g. "2 km") were not imported correctly into Visum 13 or 14. The constant was set to the internal meter value in this case. This conversion error has been fixed. **(14111)**

PuT Assignment

- ✓ Parameter 'Consider connections with DeltaT > 0, if connections with DeltaT = 0 exists': If the parameter 'Consider connections with DeltaT > 0, if connections with DeltaT = 0 exists' is deactivated and if there are no connections with DeltaT = 0 for some given time interval, every connection was assigned the volume $10^{(-n)}$, where n is the number of decimal places defined as 'Precision of computation' by the general procedure settings. If volume data is not rounded at all, no connection would be assigned any volume in that case. This bug has been fixed. **(14138)**

Schematic Line Diagram

- ✓ Shifting centered labels: Shifting centered labels no longer leads to a crash. **(14106)**

! Breaking Changes

PrT Assignment

- ! LUCE: For the internal calculation, nodes are now only "exploded" where absolutely necessary. This reduces the computation time of the procedure, in some networks by half. This change can lead to different assignment results in the context of the accuracy of convergence. **(14078 +)**

14.00-02 [89482]

2014-08-01

+ New Features and Changes

Add-Ins

- + Add-In 'Import Google Transit Supply': So far, all stop points were opened for all transport systems when importing data using the Add-In 'Import Google Transit Supply'. Now they are opened only for those transport systems that are actually required. **(13939)**
- + Add-in 'Import Google Transit Supply': So far, the 'Import Google Transit Supply' Add-In did not handle umlauts in identifiers correctly. This error has been fixed. **(14002)**
- + Add-In 'Import Google Transit Supply': The 'Import Google Transit Supply' Add-In has been accelerated significantly. **(11681)**

COM

- + Access to 'Read filter': You can now access the parameters of the 'Read filter' procedure in COM. For this purpose, the new COM object IReadFilterPara has been introduced, which can be reached from IOperation via the access method ReadFilterParameters ([out, retval] IReadFilterPara ** readFilterParameters). **(14020)**
- + Access to mode choice matrices: In COM, you can now access the mode choice matrices of the 'Mode choice' (4-step) procedure. For this purpose, the COM object IModeChoiceDStratModePara has been introduced, which can be reached from IModeChoiceDStratPara via the access mode ModeChoiceDStratModeParameters ([in] VARIANT Mode, [out, retval] IModeChoiceDStratModePara ** dStratModeParameters). **(13956)**
- + Getting or setting single matrix values: The new methods GetValue / SetValue and GetRow / SetRow to get and set single matrix values or entire rows have been implemented at the object IMatrix. **(13977)**

- ⊕ Reading filters: You can now read the current filter conditions. To do so, you can iterate over the currently defined filter conditions at each I...filter object and read them via AttValue at the new ICondition objects. Brackets are now placed afterwards around the existing filter conditions and not inserted as terms in brackets. **(12499 🚫)**

Foreign Formats

- ⊕ Reading a database or shapefile additively: The 'Read additively' option is now activated by default when reading a database or shapefile, if the current network is not empty, analogous to reading network files. **(13973)**

Schematic line diagram

- ⊕ Vehicle journey selection on the basis of line routes: In the schematic line diagram, apart from selecting vehicle journeys, you can now also specify combinations of lines and directions for the displayed supply. The line diagram is then based on all vehicle journeys, which belong to a selected line and direction. In particular vehicle journeys, which have been newly created, do not have to be selected explicitly to be displayed in the schematic line diagram. **(13816)**

Timetable Editor

- ⊕ Functionalities of the context menu in line selection: The line selection tree of the tool window Timetable lines provides additional context menu functionalities:
 - Copy line route (on line routes)
 - Create opposite direction (on line routes)
 - Remove line routes without allocations to stop sequence (applies to the selected partial tree)
 - Remove line routes with less than two allocations to stop sequence (applies to the selected partial tree)
 - Include missing time profiles in basic line selection (applies to the selected partial tree)
 - Remove from basic line selection (applies to the selected partial tree) **(14012)**
- ⊕ Header rows in the tabular timetable: In the lower section of the tabular timetable, the header rows visible in the 'Vehicle journeys' view were simplified. In particular, the view no longer jumps when switching between the 'Vehicle journeys' view and the 'Vehicle journey sections' view. **(13913)**
- ⊕ Tabular timetable: The 'Vehicle journey sections' view in the lower section of the tabular timetable now displays the arrival and departure times of the vehicle journey in addition to the spatial expansion of the vehicle journey section. **(13907)**

🟢 Fixed Bugs

Add-Ins

- 🟢 Add-In 'Matrix Convolution': A version file saved with Visum 12 or earlier versions which contained parameters for the 'Matrix Convolution' Add-In could not be run with Visum 12.5 or later versions. This error has been fixed. **(13981)**

COM

- 🟢 Adding and removing procedures: Using 'Undo' and 'Redo' or removing a procedure interactively from the procedure sequence no longer causes a crash, if a procedure step has been inserted or deleted previously via COM (methods 'AddOperation' or 'RemoveOperation'). **(13982)**
- 🟢 Messages during start of program as COM server: When starting Visum as COM server, modal message windows could pop up and prevent the start of the program. This error has been fixed. Messages from this phase can be found in the usual places, e.g. the log file or the message file. **(13992)**
- 🟢 Modifying block items: So far, the status of the block was not adjusted properly when editing block items via COM (e.g. by setting attribute values using AttValue). This error has been fixed. **(13297)**
- 🟢 Setting filter conditions: If you specified a string which contained multiple numerical values separated by a comma as value for an attribute with an enumeration type when setting a filter condition via 'AddCondition', first, the program would convert the value into a number and then round it, instead of interpreting each number separately as a variant of the enumeration type. Example: If value "3,6" has been specified for an attribute of type 'Control type', this value was interpreted as 4 according to the variant 'NODECONTROLALLWAYSTOP' and not as 'NODECONTROLPRIORULESSTOP or NODECONTROLPRIORULESYIELD'. This error has been fixed. **(12252)**

Data Model

- 🟢 Depot reference at block: If a block existed in the network with an explicit reference to a depot (i.e. a stop point has been entered for attribute Depot number) and you deleted this stop point, the version file could not be saved any more. This error has been fixed. **(14025)**
- 🟢 Multi-deleting couplings: Multi-deleting large numbers of couplings has been accelerated. **(14016)**
- 🟢 Relative position of stop points: Changing the relative position of a stop point (e.g. in the list or using COM) no longer leads to a crash, if the stop point is located on a node. In this case, the relative position is not relevant anyway. **(13969)**

Dialogs

- ✔ Formula dialog: The highlighting of errors in color works again in the different dialogs for formulas. **(13840)**
- ✔ Matrix reference in dialog 'OD demand data': On the 'Demand segments' tab of the 'OD demand data' dialog, selecting a matrix by properties for a demand segment while using the 'DSegSet' attribute no longer causes a crash. The value of this attribute of a matrix results from the use for one or more demand segments, which are specified in this dialog. This led to a recursive definition. This recursion is now intercepted. **(13863)**
- ✔ Object selection in the graphic parameters dialog: In the graphic parameters dialog, controls no longer overlap on the object selection page of the different bars, if the 'Draw bars only on selected <object name>' option is selected and the dialog is resized. **(13862)**

Filters

- ✔ Filter for OD pairs on PuT paths: Visum no longer crashes when evaluating the filter for OD pairs with filter conditions on PuT paths which have fares. **(13997)**

Foreign Formats

- ✔ Import of PuT supply from Visum: A crash does not occur any more during the import of PuT supply from Visum, if the target network is empty (no nodes and/or no links). Furthermore, nodes, links, and stop points are created only once in the target network, if line routes of different transport systems require the creation of new infrastructure. Instead, the newly created stop points and links are opened for the additional transport systems. **(13933)**
- ✔ Import of PuT supply from Visum: When importing PuT supply from Visum, for stop points imported into the target network, you can copy the stop point number of the source network into a user-defined attribute in the target network. If multiple stop points were created in the target network for the same stop point of the source network, so far, the number of the source stop point was not used for all new target stop points. This error has been corrected. **(13961)**
- ✔ Import of the PuT supply from Visum: Editing a stop no longer leads to a crash if it was created during the import of a PuT supply from Visum. **(13930)**

Formulas

- ✔ Editing text attributes: Editing a string value target attribute (e.g. 'Name' at links) or a multi-enum target attribute (e.g. 'TSysSet' at links) with the 'Edit attribute' procedure or Multi-edit in the network editor no longer causes a crash, if the used formula is empty. **(14005)**

Graphics

- ✔ Drawing bars: Visum does not crash any more when drawing the network if bars are drawn for an attribute which requires data of the node geometries. **(13052)**
- ✔ Scrolling in empty network: The scroll bars did not work correctly in an empty network with just a background map. This error has been fixed. **(13574)**
- ✔ Turn volumes of main nodes: Turn volumes of main nodes are now also displayed if a turn attribute, which does not exist for main turns, is selected for an inactive bar. So far, the attributes of all bars, even the inactive ones, had to exist for main turns, too. Moreover, the dialog now displays a message if this requirement for attributes is not met. **(13810)**

Listings

- ✔ Saving attribute files from the PuT path list: Saving an attribute file from the PuT path list or PuT path leg list no longer causes a crash when using more than one core. **(13970)**

Main Window

- ✔ 'Graphics tools' window and tabular timetable: The program no longer crashes when opening the tabular timetable while the 'Graphics tools (Flow bundle, isochrones, ...)' window is open. **(13964)**

Matrix Editor

- ✔ Data loss when saving a version file: An open matrix histogram lost its reference matrix when saving the version file. The data were empty and the window title changed to 'Matrix histogram ()'. This error has been fixed. **(13604)**

Procedure Sequence

- ✔ Saving procedure parameters: If you opened a procedure parameters file in the procedure sequence window, saved this file under a different name and then saved the procedure parameters once more, Visum suggested the name of the originally opened procedure parameters file and not the one of the most recently saved file. This error has been fixed. **(13346)**

PrT Assignment

- ✔ Tribut assignment with VOT per OD pair: The program could crash or deliver wrong assignment results when defining the value of time (VOT) per OD pair in one of the two Tribut assignments. This error has been fixed. **(14006)**

PuT Assignment

- ✔ PuT path lists with fares: The program does not crash any more when displaying PuT path lists (PuT paths, PuT path legs), if fares are displayed as attributes and analysis rows are inserted. **(14013)**

PuT Line Blocking

- ✔ Forced chainings during marginal hours: Forced chainings of vehicle journey sections starting after 24h were not regarded correctly in the line blocking calculation. This error has been fixed. **(13991)**

Schematic line diagram, Timetable Editor

- ✔ Calculating the stop sequence based on marked edges: Time profiles of marked edges were not always inserted in consistent direction into the line selection, when opening the timetable editor in the schematic line diagram based on the undirected edges marked and adjusting the line selection and the stop sequence. When calculating the stop sequence, this led to the display of line routes in forward direction instead of reverse direction when inserting additional stops. This error has been fixed. **(13955)**

Timetable Editor

- ✔ Line selection in the 'Timetable lines' tool window: The 'Line selection' dialog opens much faster when opened in the 'Timetable lines' tool window. **(13918)**

❗ Breaking Changes

COM

- ❗ Reading filters: You can now read the current filter conditions. To do so, you can iterate over the currently defined filter conditions at each I...filter object and read them via AttValue at the new ICondition objects. Brackets are now placed around the existing filter conditions afterwards and not inserted as terms in brackets with the method 'AddBracketedCondition'. Scripts, which used the 'AddBracketedCondition' so far, need to be adjusted. **(12499 +)**

14.00-01 [88975]

2014-07-14

+ New Features and Changes

Add-Ins

- + Add-In 'Create Regular Timetable': The 'Create Regular Timetable' Add-In, which can be used to create an exclusive regular timetable for PuT lines, has been accelerated. **(13889)**

Data Model

- + Attributes for number and name: Additional attributes have been created for the objects vehicle journey and vehicle journey section, which display both the number and the code or name of the object (in case of time profile items number and code of the stop point where the time profile item is located) for reference objects (operator, valid day, vehicle combination, From time profile item and To time profile item). These attributes can be used in the tabular timetable to display both values in the same, editable cell. They have been added to the default attribute selection of the tabular timetable as well as to that of the vehicle journeys and vehicle journey sections list. **(13929 ❗)**

Dialogs

- + Procedure parameters dialog 'EVA distribution/mode choice': You can now group and sort the parameters dialog of the procedure 'EVA distribution/mode choice' by column. Moreover, the program provides better support of copy and paste for the matrix reference. **(13847)**

Graphical Procedures

- + Display of modified flow bundle terms: The values of a flow bundle term, e.g. the choice of demand segments or of the demand (in case of public transport) are now selected in a list. This way, the differences between the current settings and the settings valid during the last calculation of the flow bundle are now all highlighted in color. **(13748)**

Listings

- + Opening PuT path lists: Opening the lists 'PuT path', 'PuT path legs', and 'PuT OD pairs' in large networks has been accelerated. **(13711)**

Other Procedures

- + 'Intersect' procedure: The 'Intersect' procedure as well as the correspondent Multi-edit functionality are now faster when intersecting source objects that have polygons. **(13893)**

Schematic line diagram

- + Bundle edges by regular service patterns: Edges are now bundled more often when bundling edges by regular service patterns. More precisely, edges are now also bundled, if one of the edges contains not only vehicle journeys of a service trip pattern but also vehicle journeys that do not belong to any service trip pattern (thus 'outliers'), however not if the contained vehicle journeys belong to different service trip patterns. Moreover, when calculating the service trip patterns, you can now select whether you want to maximize the frequency or the temporal dimensions of the service trip patterns, analogous to the procedure 'Calculate service trip patterns'. **(13945)**

Timetable Editor

- + Allocations of line routes to stop sequence items: Existing allocations of line routes to items of the stop sequence are now copied when copying line routes (in the context of the operations 'Copy line route', 'Shift vehicle journeys to a different line', 'Edit vehicle journey items' and 'Disaggregate line routes'). Consequently, the new line route is allocated to the same stops as the original. **(13860)**
- + Graphical timetable: In the graphical timetable, you can now also edit vehicle journey sections using the context-sensitive menu of a marked vehicle journey. **(13905)**
- + Marking in the tabular timetable: The logic of the marking in the tabular timetable has been simplified. Now, either vehicle journeys or vehicle journey sections are marked. When marking a vehicle journey section, the column header of the corresponding vehicle journey is highlighted and included in the global marking (and thus displayed in the network editor and the quick view), if synchronisation has been activated. Double-clicking cells which cannot be edited opens the respective Edit dialog of the vehicle journey or vehicle journey section, the 'Del' button deletes it. **(13904)**
- + Opening both timetable views: In the context of lines, line routes, when marking links, stops or stop points in the network editor, and in the schematic line diagram, you can now open both timetables (graphical and tabular) at once. Queries regarding the adjustment of the stop sequence will only be issued once in this case. **(13914)**
- + Vehicle journey sections in the tabular timetable: In the tabular timetable, the context-sensitive menu of the vehicle journey sections now also provides entries, if multiple vehicle journey sections are marked. **(13909)**

✓ Fixed Bugs

Add-Ins


- ✓ Add-in 'Matrix Convolution': Running the 'Matrix Convolution' add-in used to produce an error message when using the 'Use via zone given in matrix' option. This error has been fixed. **(13888)**

COM

- ✓ 'Run script' procedure: If the python script code is contained directly in the procedure parameters rather than in a script file during a procedure step 'Run script', the 'import VisumPy.helpers' directive fails when running the procedure. This error has been fixed. **(13940)**
- ✓ Clear the stop sequence: The information whether the stop sequence is reversed or not survives a call to the ClearStopSequence(False) method on an object of type ILineSelectionAndStopSequence. This error has been fixed. **(13971)**
- ✓ Methods with a return value of type VARIANT_BOOL: Most of the COM methods and properties that have a return value or output parameter of the type 'VARIANT_BOOL' falsely return value 1 instead of VARIANT_TRUE (-1). This regards:
 - * Active for objects
 - * AttState for containers
 - * IsColumnEditable for lists

- * IsSortable for lists
- * IAddInParameter::ok
- * IAddNetRead::NumericOffsetUseCompression
- * IAddNetRead::OfferAlphaPrefix
- * IAddNetRead::OfferNumericOffset
- * IAddNetRead::UseAlphaPrefix
- * IAddNetRead::UseNumericOffset
- * IAttribute::Editable
- * IAttribute::Scaled
- * IBackground::Draw
- * IBackground::Transparent
- * IBlock::Check
- * IBlockVersion::CheckBlocks
- * IBlockVersion::CheckCoverage
- * ICategoryFilter::Complement
- * ICategoryFilter::IncludeSubCategories
- * ICategoryFilter::UseFilter
- * IConditions::UseFilter
- * IConnectors::ExistsByKey
- * IDirectedFilter::Complement
- * IDirectedFilter::Undirected
- * IDirectedFilter::UseFilter
- * IFlowBundle::ConditionDefined
- * IGetNearestLinkResult::Success
- * IGetNearestNodeResult::Success
- * IGraphic::StopDrawing
- * IGraphicalTimetable::ShowOnlyActiveVehJourneys
- * IGroupElementFilter::UseFilter
- * IGroupElementFilter::UseSelection
- * IImportShapefilePara::CreateUserDefinedAttributes
- * IImportShapefilePara::SetAttributeAllocationsByIDs
- * IIterator::Active
- * IIterator::Valid
- * ILineGroupFilter::UseFilterForLineRouteItems
- * ILineGroupFilter::UseFilterForLineRoutes
- * ILineGroupFilter::UseFilterForLines
- * ILineGroupFilter::UseFilterForTimeProfileItems
- * ILineGroupFilter::UseFilterForTimeProfiles
- * ILineGroupFilter::UseFilterForVehJourneyItems
- * ILineGroupFilter::UseFilterForVehJourneySections
- * ILineGroupFilter::UseFilterForVehJourneys
- * ILineRouteItemList::SectionViewMode
- * ILineSelectionAndStopSequence::HideUnservedStops
- * ILineSelectionAndStopSequence::StopSequenceIsEditable
- * ILinks::LinkExistsByKey
- * IMainTurns::MainTurnExistsByKey
- * IMarking::Changed
- * IMarking::IncludePOISubCategories
- * INet::AllCouplingsConsistent
- * INet::AllLinksUniqueOnLineRoutes
- * INet::GetNearestLink
- * INet::GetNearestLinkCacheActive
- * INet::GetNearestNode
- * INetObjGroupGPA::Draw
- * INodes::NodeExistsByKey
- * IODPairFilter::Complement
- * IODPairFilter::FilterNetworkVolumes
- * IODPairFilter::UseFilter
- * IOperationExecutor::IsExecuting
- * IOperationExecutor::ProcedureFlowFinished
- * IPathGroupFilter::UseFilterForPathItems
- * IPathGroupFilter::UseFilterForPathSets
- * IPathGroupFilter::UseFilterForPaths
- * IProcedures::AssignmentCalculated
- * IProcedures::IsExecuting
- * IProcedures::OperationCalculated
- * IPropagationLinkInfos::PropagationLinkInfoExistsByKey

- * ISingleFilter::Complement
- * ISingleFilter::UseFilter
- * IStopGroupFilter::UseFilterForStopAreas
- * IStopGroupFilter::UseFilterForStopPoints
- * IStopGroupFilter::UseFilterForStops
- * ISysRouteItemList::SectionViewMode
- * ITabularTimetable::ShowOnlyActiveVehJourneys
- * ITabularTimetable::ShowVehicleJourneySectionCourse
- * ITimeProfileItemList::SectionViewMode
- * ITurns::TurnExistsByKey
- * IUserPreferences::AdoptFileName
- * IUserPreferences::SaveUserPreferencesToRegistryOnClose
- * IVehJourneyItemList::SectionViewMode
- * IVisum::AcceptIncomingDuringOutgoingCalls
- * IVisum::Embedded
- * IVisum::ExportAllNumbersAsDoubles
- * IVisum::GetModule
- * IVisum::IsJunctionEditorRunning
- * IWorkbench::IsBlockDisplayRunning
- * IWorkbench::IsGraphicalTimetableRunning
- * IWorkbench::IsJunctionEditorRunning
- * IWorkbench::IsTabularTimetableRunning

This error has been corrected. The standard method AttValue is not affected. **(13949)** 

Dialogs

- ✔ Edit line route dialog: Specific error messages, e.g. one stating that the assignment result will be discarded, were issued twice, when making changes in the 'Edit line route' dialog. This error has been fixed. **(13900)**
- ✔ Finding network objects in the network merge mode: An error message used to be issued when opening the attribute selection in the network object search while in network merge mode. This error has been fixed. **(13790)**
- ✔ Finding network objects: The network object search did not find matching network objects if the matching data were contained in attributes with subattributes. This error has been fixed. **(13890)**
- ✔ Matrix selection by property: On the 'Select matrix by properties' tab in the matrix selection dialog, you can now mark rows by clicking the respective headers. **(13866)**
- ✔ Operand selection in the Matrix editor: In the dialog 'Select the operand for ... on the total matrix' that allows you to select an operand for multiplication, addition, etc., in the Matrix editor, the decimal separator selected under User Preferences was not activated. In addition, the error message regarding wrong entries was displayed twice. Both errors have been fixed. **(13771)**
- ✔ Parameters dialog of the 'EVA weighting' procedure: In the procedure parameters dialog of the 'EVA weighting' procedure, switching the 'Generalized cost' option causes a change of the control element for the specification of these costs. However, this only happened when activating the option, not when deactivating it. This error has been fixed. **(13941)**
- ✔ Procedure parameters 'Tour-based model - combined distribution/mode choice': In the procedure parameters dialog of the 'Tour-based model - combined distribution/mode choice' procedure, the unjustified error message 'Assignment operator ':' expected' used to be issued when closing the subdialog for the utility function in the Mode choice tab and modified values were not saved. This error has been fixed. **(13855)**

Foreign Formats

- ✔ Import of OpenStreetMap, SATURN and VDV452: Cancelling the reading process of the network file in the progress dialog while importing the formats OpenStreetMap, SATURN and VDV452 no longer causes a crash. **(13932)**
- ✔ OpenStreetMap import, VDV452 import: The import of OpenStreetMap data and VDV452 data is now successful even if the string of a name contains a dollar sign ('\$'). During the import, it will be replaced by the paragraph sign ('¶'). **(13861)**
- ✔ VDV452 export of blocks: When exporting blocks into the VDV452 format, to avoid gaps in the blocks, inactive vehicle journey sections are now exported as empty trips, if the 'Export only active vehicle journey sections' option is activated. **(13880)**
- ✔ VDV452 export: During a VDV452 export, only numerical attributes can now be selected from the Visum data model for the VDV key columns (the export failed when selecting strings). In return, the block ID is no longer saved in the block attribute 'code' during the VDV452 import, but in a numerical user-defined attribute, so that it can be reused from there during the export. **(13883)**

Graphical Procedures

- ✔ Modification of flow bundle conditions: When comparing the flow bundle conditions with the conditions used during the last execution, PrT conditions could be falsely compared with PuT conditions resulting in an incorrect display of deviating conditions. This error has been fixed. **(13872)**

Graphics

- ✔ Legend for line bars: For line bars of main lines, so far, the legend used to display the graphic parameters for transport systems if the order of the objects had been changed. Nothing was displayed for transport systems in this case. The error has been fixed. **(13884)**

Installation

- ✔ /SILENT setup: When running multiple automated installations (option /SILENT) on the same computer, the second setup used to delete the start menu entry of the first installation. This error has been fixed. **(13281)**

Listings

- ✔ Analysis rows in the PrT path list: Visum no longer crashes when you activate an analysis row (sum, minimum, maximum, average) in the PrT path list or the PrT path leg list. **(13965)**

Main Window

- ✔ Quick view: When changing the network object type of the marking, the quick view displayed the data of the new network object (in the layout specified for this network object type). However, the name of the network object type in the title bar was not updated. This error has been fixed. **(13908)**

Miscellaneous

- ✔ Log files: When for the Visum log files 'Protocol.txt' and 'Messages.txt', you specified different paths than the default ones, using the cfg file during program start, these two files were not created. This error has been fixed. **(11643)**
- ✔ Matrix swap file: Visum did not start, if the directory specified for the matrix swap file was not writable or did not exist. Subsequently, the directory could not be edited either, unless the respective entries were deleted in the registry. This error has been fixed. The program now attempts to use the default path. If the matrix swap file cannot be created here, the program starts without the matrix swap file. **(13770)**
- ✔ User settings for log file: So far, the program used to ignore the settings for the log file on how to behave during the start of Visum and used the setting specified for the message file for both files instead. This error has been fixed. **(13942)**

Network Editor

- ✔ Multi-deleting nodes (with two legs): Memory consumption went up when deleting multiple nodes with two legs using the option that connects the links in case of a great number of nodes to be deleted despite using the 'Clear Undo stack to save RAM' option. This error has been fixed. At the same time, the run time has been accelerated and misleading messages regarding the positioning of stop points are suppressed if stop points are not involved. **(13851)**

Other Procedures

- ✔ 'Intersect' procedure: The progress indicator of the 'Intersect' procedure has been improved. **(13856)**

PrT assignment

- ✔ Multiple assignments with MPA and blocking back calculations: Visum no longer crashes when successively calculating multiple PrT assignments for different demand segments in a procedure sequence while both MPA and the blocking back calculation are active. **(13885)**
- ✔ Closures of connectors: In case a connector was not permitted for a PrT transport system, this closure was ignored if the 't_cur' attribute was not part of the volume delay function for connectors. This error occurred since ID 13204 (contained in Visum 13.00-12 and Visum 14.00-00) and has now been fixed. **(13899 🚫)**
- ✔ ICA calculation for signalized nodes: The ICA calculation for signalized nodes could result in false allocations of the volume to the individual lanes in case of lane allocations with shared lanes. This error has been fixed. **(13820 🚫)**

PuT Assignment

- ✔ Reading a connection file: Reading a connection file (*.con) which did not contain any connections led to an infinite loop. This error has been fixed. **(13896)**

PuT Line Blocking

- ✔ Line blocking with vehicle interchange: The program no longer crashes during line blocking with vehicle interchange, if the 'Same operator for next vehicle journey' option is selected for succeeding vehicle journeys, yet there are vehicle journeys with and without operators. **(13919)**

Timetable Editor

- ✔ Scrolling in the tabular timetable: The program no longer crashes when scrolling in the tabular timetable if not all of the vehicle journey sections fit the screen. **(13917)**

Timetable Editor, Network Editor

- ✔ Deleting multiple lines: When deleting multiple lines, stop sequences could still contain references to the deleted lines. Subsequent operations, particularly saving a version file or the layout file of the timetable lines, then led to a crash. This error has been fixed. **(13898)**

VISUM Files

- ✔ References to sig files: If a version file contains signal controls with external controls (VISSIG) but no VISSIG license exists, the program no longer issues messages when reading the version file. The signal control then acts like a signal group based internal fixed time control and uses the green times provided by the Visum data model. Then, however, it is not possible to switch between different signal programs. The reference to the *.sig file is yet maintained. **(13783)**

❗ Breaking Changes



COM

- ❗ Methods with a return value of type VARIANT_BOOL: Most of the COM methods and properties that have a return value or output parameter of the type 'VARIANT_BOOL' falsely return value 1 instead of VARIANT_TRUE (-1). This regards:
 - * Active for objects
 - * AttState for containers
 - * IsColumnEditable for lists
 - * IsSortable for lists
 - * IAddInParameter::ok
 - * IAddNetRead::NumericOffsetUseCompression
 - * IAddNetRead::OfferAlphaPrefix
 - * IAddNetRead::OfferNumericOffset
 - * IAddNetRead::UseAlphaPrefix
 - * IAddNetRead::UseNumericOffset
 - * IAttribute::Editable
 - * IAttribute::Scaled
 - * IBackground::Draw
 - * IBackground::Transparent
 - * IBlock::Check
 - * IBlockVersion::CheckBlocks
 - * IBlockVersion::CheckCoverage
 - * ICategoryFilter::Complement
 - * ICategoryFilter::IncludeSubCategories
 - * ICategoryFilter::UseFilter
 - * IConditions::UseFilter
 - * IConnectors::ExistsByKey
 - * IDirectedFilter::Complement
 - * IDirectedFilter::Undirected
 - * IDirectedFilter::UseFilter
 - * IFlowBundle::ConditionDefined
 - * IGetNearestLinkResult::Success
 - * IGetNearestNodeResult::Success
 - * IGraphic::StopDrawing
 - * IGraphicalTimetable::ShowOnlyActiveVehJourneys
 - * IGroupElementFilter::UseFilter
 - * IGroupElementFilter::UseSelection
 - * IImportShapefilePara::CreateUserDefinedAttributes
 - * IImportShapefilePara::SetAttributeAllocationsByIDs
 - * IIterator::Active
 - * IIterator::Valid
 - * ILineGroupFilter::UseFilterForLineRouteItems
 - * ILineGroupFilter::UseFilterForLineRoutes
 - * ILineGroupFilter::UseFilterForLines
 - * ILineGroupFilter::UseFilterForTimeProfileItems
 - * ILineGroupFilter::UseFilterForTimeProfiles



- * ILineGroupFilter::UseFilterForVehJourneyItems
- * ILineGroupFilter::UseFilterForVehJourneySections
- * ILineGroupFilter::UseFilterForVehJourneys
- * ILineRouteItemList::SectionViewMode
- * ILineSelectionAndStopSequence::HideUnservicedStops
- * ILineSelectionAndStopSequence::StopSequenceIsEditable
- * ILinks::LinkExistsByKey
- * IMainTurns::MainTurnExistsByKey
- * IMarking::Changed
- * IMarking::IncludePOISubCategories
- * INet::AllCouplingsConsistent
- * INet::AllLinksUniqueOnLineRoutes
- * INet::GetNearestLink
- * INet::GetNearestLinkCacheActive
- * INet::GetNearestNode
- * INetObjGroupGPA::Draw
- * INodes::NodeExistsByKey
- * IODPairFilter::Complement
- * IODPairFilter::FilterNetworkVolumes
- * IODPairFilter::UseFilter
- * IOperationExecutor::IsExecuting
- * IOperationExecutor::ProcedureFlowFinished
- * IPathGroupFilter::UseFilterForPathItems
- * IPathGroupFilter::UseFilterForPathSets
- * IPathGroupFilter::UseFilterForPaths
- * IProcedures::AssignmentCalculated
- * IProcedures::IsExecuting
- * IProcedures::OperationCalculated
- * IPropagationLinkInfos::PropagationLinkInfoExistsByKey
- * ISingleFilter::Complement
- * ISingleFilter::UseFilter
- * IStopGroupFilter::UseFilterForStopAreas
- * IStopGroupFilter::UseFilterForStopPoints
- * IStopGroupFilter::UseFilterForStops
- * ISysRouteItemList::SectionViewMode
- * ITabularTimetable::ShowOnlyActiveVehJourneys
- * ITabularTimetable::ShowVehicleJourneySectionCourse
- * ITimeProfileItemList::SectionViewMode
- * ITurns::TurnExistsByKey
- * IUserPreferences::AdoptFileName
- * IUserPreferences::SaveUserPreferencesToRegistryOnClose
- * IVehJourneyItemList::SectionViewMode
- * IVisum::AcceptIncomingDuringOutgoingCalls
- * IVisum::Embedded
- * IVisum::ExportAllNumbersAsDoubles
- * IVisum::GetModule
- * IVisum::IsJunctionEditorRunning
- * IWorkbench::IsBlockDisplayRunning
- * IWorkbench::IsGraphicalTimetableRunning
- * IWorkbench::IsJunctionEditorRunning
- * IWorkbench::IsTabularTimetableRunning

This error has been corrected. The standard method AttValue is not affected. (13949 )

Data Model

-  Attributes for number and name: Additional attributes have been created for the objects vehicle journey and vehicle journey section, which display both the number and the code or name of the object (in case of time profile items number and code of the stop point where the time profile item is located) for reference objects (operator, valid day, vehicle combination, From time profile item and To time profile item). These attributes can be used in the tabular timetable to display both values in the same, editable cell. They have been added to the default attribute selection of the tabular timetable as well as to that of the vehicle journeys and vehicle journey sections list. (13929 )

PrT Assignment

-  Closures of connectors: In case a connector was not permitted for a PrT transport system, this closure was ignored if the 't_cur' attribute was not part of the volume delay function for connectors. This error occurred since ID 13204 (contained in Visum 13.00-12 and Visum 14.00-00) and has now been fixed. As a result, assignment results of the affected transport systems change in the networks concerned. (13899 )

- ❗ ICA calculation for signalized nodes: The ICA calculation for signalized nodes could result in false allocations of the volume to the individual lanes in case of lane allocations with shared lanes. This error has been fixed. This leads to different assignment results of assignments with ICA. **(13820)** ✅

14.00-00 [88329]

2014-06-12

+ New Features and Changes

Add-Ins

- + Buffers Around PuT Lines: Add-In 'Buffers Around PuT Lines' now has the option to create buffers only based on stop points with active time profile items. **(11682)**
- + Import of DIVAGeo network files: A new Add-In for the import of DIVAGeo network files is available. **(13291)**

ANM

- + ANM export: The number of decimal places for coordinates can now be set in the ANM export parameters. By default the maximum number of decimal places are written to the .anm file. **(13557)**
- + Settings for other objects in the ANM export: Optionally, it is possible to select user-defined attributes for the saturation flow rates of links and turns and the SC coordination group. If selected, the values will be saved in the ANM file. **(11654)**
- + Upward compatibility of ANM files: ANM files can now also be opened in older release versions of Visum. The upward compatibility applies to release version from Visum 14 onwards. **(11863)**

COM

- + Access to Scenario management: The COM interface has been extended to enable access to the scenario management. It allows access to the most important objects and functions within the scenario management. **(4926)**
- + Add main zone matrices: Main zone matrices can now be added via the COM interface. **(12434)**
- + Convenience functionality for formulas: New COM functionality is offered to facilitate the creation of correct strings for formulas. **(12532)**
- + Export to VDV452 through COM: The export of Public Transport data to the VDV452 format can now be initiated through the COM function `Visum.ExportVDV452Data`. **(12831)**
- + Extension of shortest path search for PuT: The extension periods can now be accessed via the COM interface. **(13429)** ❗
- + Filtering in Path lists: The enumeration `routeFilter_filterFromZoneFilter` of `routeFilterT` is now always active, i.e. is also effective in combination with other members of `routeFilterT` enumeration. If no origin zone is given, the origin zone filter does not take effect. **(13710)** ❗
- + JPG-Export by coordinates: Via COM screenshots cannot only be created as a whole view, but also as an image section by defining coordinates. **(12658)**
- + MapMatcher default algorithm: The default matching algorithm of the MapMatcher has been changed from 'Incremental' to 'Global'. **(13150)** ❗
- + MapMatcher: The evaluation of detours of an edge has been modified. The value used for the evaluation is calculated using the formula $(\text{TypicalCostPer1000Meters} / 1000) * (\text{direct distance of the match points}) / (\text{cost of the edge})$. For that reason the method 'EstimateTypicalCostPer1000Meters' of the `IMapMatchingParameters` has been added. **(13750)** ❗
- + MapMatcher: The `IMapMatcher`-object now gets initialized on creation and does no longer require an explicit call of the `Initialize()`-method. The method has therefore been removed. All changes to nodes and links of the network are now automatically reflected in the mapmatching process. **(12177)** ❗
- + Net parameters: An `AskAttribute` method for net parameters has been added. **(10511)**
- + Refactoring and Speedup of `GetNearestLink` / `GetNearestNode`: The methods `Visum.Net.GetNearestLink` and `Visum.Net.GetNearestNode` have been moved from `Visum.Net` to the `IMapMatcher`-object. `GetNearestNode` now operates much faster when called frequently, and `GetNearestLinks` can now optionally consider both directions of links to also match oneway roads independent from the direction of traffic. Both methods have been refactored and now return the results as output objects with properties providing the details, instead of using multiple output arguments which were difficult to handle by scripting languages. The old methods will be removed in one of the next releases. **(3636)** ❗
- + Schematic line diagram: A new COM class for the schematic line diagram is available. **(13519)**

- + SVG-Export by coordinates: SVG files can be exported via COM for a section by defining parameters for coordinates. **(13035)**
- + Time-varying attributes: Time-varying attributes can now be accessed via COM. **(7025)**
- + Timetable editor: The COM interface for the timetable editor has been changed as a consequence of the redesign. **(13151)**

Data model

- + Aggregation function 'Compare': A new aggregation function 'Compare' is available for indirect attributes. If all related objects share the same value for an attribute, the function returns this value. If the values are not all equal, '*' is returned. **(13195)**
- + Create matrices: The dialog 'Create matrices' has been modified. Besides the option to define a fixed number of matrices with pre-defined properties also matrix references can now be used to create matrices. External matrices can now be created via the menu 'Edit + Matrix editor + Generate external matrices...' or via the context menu of the tool window Matrices. **(13106)**
- + Formular matrices as demand matrices: Formular matrices can now be assigned as demand matrices for demand segments. Thereby, they can e.g. be used as demand matrices in assignments. **(12709)**
- + Matrix references: Matrices can either be defined using their unique matrix number or their properties. Properties are combinations of attribute values which identify one or several matrices. The second option is now available in various dialogs of the program. **(11314)**
- + Additional relations and userdefined attributes: For matrices additional relations to other network objects are provided. These include especially network objects of the demand model. Also, there are new relations for demand strata to person groups and activity pairs. For network objects such as person group, activity and activity pair userdefined attributes can be defined. **(13097)**
- + Attribute passenger kilometers: The attribute passenger kilometers (or passenger miles) is also calculated for the network object vehicle journey item. **(13566)**
- + Demand description: The demand description (.dmd) can contain matrices which are defined by properties instead of their numbers. **(13099)**
- + More time-varying attributes: Time-varying attributes can also be defined for demand segments. **(13428)**
- + New attribute for block element: A new input attribute 'Used system route name' for block elements has been added. This attribute can be used to allocate system routes for empty trips. **(13292)**
- + Node geometry: The leg attribute 'ICA inscribed circle diameter' has been renamed in 'Roundabout inscribed circle diameter' and is now also used for the ANM Export of the roundabout geometry. **(12843)**
- + Result matrices of demand calculations: For the standard 4-step model and the EVA demand model the result matrices for trip distribution and mode choice are now defined in the corresponding procedures of the demand calculation. **(13098)**
- + Specific transfer walk times: Specific walk times can now be defined for pairs of the combination line and direction. Specific walk times of this type overwrite specific walk times of transport systems (if defined) and walk times between stop areas. **(12651)**
- + Time varying attributes: User-defined attributes can now also be defined for time-varying attributes. This can be done in the .net file or via the COM interface. **(13316)**
- + Turns, ICA: You can no longer edit the attributes 'ICA final capacity', 'ICA final saturation flow rate', and 'ICA final volume'. **(13109)**

Demand procedures

- + Estimate gravitation parameters: If the option 'Preset class limits and shares' is used, it can be defined to which interval the class limits belong. **(11903)**
- + Load model templates: Using VISEM model template files (*.vhd) is no longer supported. **(13133)**
- + Matrix references: In the procedures of demand calculation matrix references via properties can now be used to define input and output matrices of the procedures. **(13103)**
- + Tour-based model: Formulas can now be used for the definition of the utility functions. **(13683)**
- + Visem Rubberbanding: This function helps to shape trip chains that are directed to a defined main activity. For a main activity workplace the destination choice of an assumed prior Activity shopping considers the location of the workplace. The chosen shopping location is now on the way to the workplace, the trip chains become much more realistic. **(10593)**

Dialogs

- + Classified display: Editing class limits has been improved. In particular, it is now possible to define all class limits for the user-defined distribution of class limits. **(12585)**
- + Edit line route: Under the Tab 'Item and time profile' it is additionally possible to restrict the visible rows to all profile points. **(11019)**

- + Export/Import: Several export and import dialogs (e.g. ANM, HAFAS, railML) have been improved to clarify the functionality of the buttons. **(12558)**
- + Graphic parameters of POI categories: The context menu entries 'Edit graphic parameters for POI category...' and 'Apply the POI category's graphic parameters to the sub-categories' are only enabled when a POI category is selected. **(11839)**
- + Miscellaneous dialogs: The operating mode of scroll bars has been corrected in several dialogs. **(13283)**
- + Open networks: The option 'Read network file additionally' is now by default switched on. **(12447)**
- + Operators in formulas: The button for inserting operators in formulas has been improved. **(13354)**
- + Parameter dialog of timetable-based assignment: The tab 'Skim matrices' has been shifted to the left. **(13531)**
- + Presetting for alias name: When a new alias is created, the name of the attribute is entered as a presetting. This applies both for entry via attribute selection dialog and menu. **(10884)**
- + User preferences: The COM server registration has been removed from the user preferences and can now be found under menu 'Help' -> 'Register as COM Server'. The options to reset dialog positions, grid settings and the window configuration has also been removed from the user preferences. These options are now under menu 'View' -> 'User interface'. **(12534)**

Filter

- + The option 'undirected' is now also available in filters for turns and main turns. **(13807)**

Foreign formats

- + General import of PuT supply data: PuT supply data can be transferred from one Visum version to another version for example to map line route courses to the road network. This import of PuT data replaces the Add-In 'Import Transit Supply' but contains extended functionality to update the existing PuT supply with new data from another Visumversion without losing information of the existing supply. **(11441)**
- + HAFAS Import: Additional information (category, fare group, supplement, code of local transit, output control) are shown under Tab 'Transport systems'. **(10396)**
- + In the VDV452 Export it is optional possible to also consider line blocks of a selected block version for a selected calendar day. **(12774)**
- + OpenStreetMap import: The OpenStreetMap import can now automatically clip the data to a specific region defined by geographic coordinates. This allows to directly use input files for countries or states as provided by services like www.geofabrik.de. You can specify whether objects which are only partially contained in the clipping region are preserved in the import. **(12086)**
- + The VDV452 Import also considers line blocks if they are present in the original file that is imported. **(12773)**

Formulas

- + Calculation of several matrices: The procedure Combination of matrices and vectors allows several matrices to be calculated in one procedure. Result matrices and optionally inputs are selected by properties. The calculation iterates over one or more of these properties, e.g. the demand strata and modes of a demand model, and produces the corresponding outputs. **(13102)**
- + Matrix formulas: Matrix formulas have been extended by functions such as sum, minimum, maximum, average and product. These functions are applied to elements of the matrices. **(13100)**
- + New function If-Then-Else: A new function for formulas has been added which allows expressions of the form If-Then-Else to be defined. **(13390)**

Graphical procedures

- + Flow bundle calculation: Changes of the settings compared to the last execution of the calculation are now highlighted in the flow bundle dialog. Additionally, it is possible to reset the settings to those used in the last execution of the calculation. **(12657)**
- + Flow bundle dialog: The flow bundle conditions can be changed afterwards by selecting another network object. **(11802)**

Graphics

- + Calculation of Min/Max values for bars: The calculation of minimum and maximum values for the display of bars does not delay the display of the graphic parameter dialog. **(12618)**
- + Editing the graphic parameters of the matrix editor: The workflow for editing graphic parameters of the classified display has been improved. **(11852)**
- + Options for displaying polygone boundaries: Line width and line style for polygone boundaries (e.g. of zones, territories, POIs) are now user-defined. **(9487)**
- + Settings for screenshots: Settings for resolution and quality for screenshots are saved during a Visum session. **(13147)**

Installation

- + .NET-Framework: The installation now contains the .NET-Framework 4.5 instead of 4.0 if it is not already installed on the system. **(13525)**
- + CodeMeter Runtime: The CodeMeter Runtime shipped with Visum has been updated to version 5.10c. **(12880)**
- + Visum Engine: A new license variant of Visum is available, which can only be used as calculation node in combination with the add-on module Distributed Computing. **(12301)**

Junction editor

- + Vissim node preview: The preview has been updated to version PTV Vissim 6. **(13707)**

Listings

- + Access from PuT OD-pairs to PuT path: In list for PuT OD pairs the object PuT path can be accessed with indirect attribute. **(12664)**
- + Calculation of analysis rows: The calculation of analysis rows has been sped up. **(11805)**
- + Export of OD pair and path lists: The export of OD pair lists as well as the path lists have been sped up. **(12663)**
- + List (PuT transfer objects): Additional options for the evaluation of boarding and alighting passengers are included. For passengers transferring the From time profile and To time profile can optionally selected separately. **(12670)**
- + New aggregate function: For attributes of type Instant of time a new aggregate function headway is available. If the points in time correspond to a headway pattern similar to the procedure 'Calculate service trip pattern' then the headways are returned as strings. **(13686)**
- + New lists for demand objects and filter for matrices: Lists for person groups, activities, and activity pairs have been added. A filter condition for matrices can be defined directly in the matrix list. The filter applies to the corresponding matrix list only. **(13107)**
- + Opening the PuT path list and the list of PuT relations has been sped up. **(13795)**
- + Path lists: When opening path lists by default an origin zone filter is applied. **(12666)**

Main Window

- + Tool bar Functions: The button 'About' has been removed from the tool bar 'Functions'. **(12001)**
- + View Messages: The content of the message view can now be copied. **(13277)**

Miscellaneous

- + Number of callable instances of Visum: The number of Visum instances, that can be started on one machine has been limited to five. **(13720)**
- + User preferences: The default option for the matrix swap file has been changed. The option 'Activate swap file' is now switched off. **(13224)**

Network comparisons

- + Enhancement of model transfer files: The model transfer file includes additional tables of network objects and their attributes which were compared when generating the model transfer file. This information can optionally be displayed in the view of a model transfer file. **(9540)**

Network editor

- + Aggregation of line routes and time profiles: The default settings for the aggregation of line routes and time profiles have been adjusted. **(13648)**
- + Edit shape of courses: When editing the shape of line routes or paths the direction of the first and last link, respectively, is now highlighted. Additionally, it is possible to directly select a node or stop point for the course via the context menu. **(12186)**
- + Marking of vehicle journeys: Vehicle journeys can now be marked in the network editor, lists etc. and synchronization of this marking across windows (e.g. with the timetable editor) is possible. This also allows to have a quick view window for vehicle journey attributes. **(13201)**
- + Network objects with surfaces: Objects like zones, main zones, territories or POIs with surfaces can be converted from one network object to another. **(8796)**
- + Renumbering: Network objects can be renumbered starting with numbers from 1. **(11975)**
- + Selection of POIs: The selection tool for POIs can now optionally only select POIs of a specific POI category or it's sub-categories. The selectable POI category is defined through an arrow-button on the POI-button in the network object toolwindow. **(11161)**
- + Split link: When splitting a link, the preview now shows its new course. **(9932)**

- + Cancellation during inserting new partial faces: When inserting new partial faces for objects with surfaces, cancellation via the Esc-button returns to the mode 'Edit shape'. **(13051)**
- + Creating PuT stops on nodes: Stops/Stop areas/Stop points can be created on all (active) nodes via multi-edit function. Optionally transfer times can be set from a node attribute. **(12661)**
- + Edit shape of line routes and PrT paths: The new spatial course is shown when editing the shape of line routes and PrT paths interactively. **(10171)**
- + Network check 'Lines without fare system': A new option for Network checks enables to identify PT lines without fare systems. **(12665)**
- + Right-click logic in network editor: When an object is right-clicked, it opens not any longer the context menu of the object selected previously, but selection switches to the new object and opens directly its context menu. **(12510 🚫)**
- + Splitting links according to length: Links can be split with explicit entry of split position. **(12659)**
- + Tool for distance measurement in network editor: Distances in the network view can be measured by drawing up a line polygon. The polygon can include an unlimited number of intermediate points that can be snapped to point objects. **(5702)**
- + Undo for altering allocated stop for stop areas: When the alteration of an allocated stop for a stop area is undone, the transfer walk time for that stop area is restored as well. **(1806)**

Other procedures

- + Blocking back model: The 2nd phase (relief of congestion) of the blocking back calculation has been removed. **(12363)**
- + Blocking back model: The option 'during assignment' for the blocking back calculation has been removed. **(12362)**
- + Go to procedure: The number of minimum iterations can now be defined. In addition, the logical operator for the maximum number of iterations has been adjusted to '<' in the dialog. This is now in line with the internally used criterion for this comparison. **(11976)**
- + Intersect: The procedure has been multi-threaded. **(8846)**
- + Set run and dwell times: Optionally the travel times of turns and main turns can be taken into account when updating the run times for public transport. **(11264)**

Procedure sequence

- + Computation nodes: The management of computation nodes is organized in a separate view which can be found under View - Computation nodes. **(13171)**
- + Parallel calculation of procedures: It is possible to run individual procedures respectively groups of procedures in parallel if they are independent from each other. This is possible both on different computers and in several processes on the same computer. As an example, assignments for highway and PT normally can be calculated in parallel, as long as there are no interdependencies, such as travel times. **(11437)**

PrT Assignment

- + General procedure settings: The parameter 'Maximum tCur' for roundabouts has been added. **(12725)**
- + General settings for the ICA calculation: The setting 'tCur update' has been removed, because only the option 'Before and during assignment' is maintained. This option has been adjusted as follows: If the assignment uses the current assignment result as initial solution, the update of tCur is based on the results of the existing assignment, otherwise the assignment result is initialised for the corresponding demand segment and then tCur is updated. **(13326 🚫)**
- + ICA calculation for roundabouts (HCM): If for a leg a bypass is defined, the attribute 'Bypass Control' on the source leg is used to determine whether the bypass is yielding or non-yielding. The lane capacity will be set to 100000, the delay will be 0 if the attribute value for 'Bypass Control' is 'Without' or 'Target lane'. The values are calculated using Equations 21-6 and 21-7 of the HCM if the value is 'Yield right of way' or 'Stop'. **(13757 🚫)**
- + ICA calculation for roundabouts (HCM): The value A will be calculated according to Chapter 33 of the HCM2010 if and only if the overwrite flag for follow-up time is set. For this Equation 21-22 will be used. Otherwise the value A will be determined according to the first part of Chapter 21 of the HCM2010. This means that the defaults from Page 33-3 for follow-up time will never be used for A. **(13756 🚫)**
- + ICA, Kimber: The turn capacity for turns of roundabouts which are calculated using the Kimber method is now set to the approach capacity. **(13540 🚫)**

PuT Assignment

- + Calculate PuT skim matrices: It is now possible to calculate skim matrices for several analysis time intervals within the assignment period from one PuT assignment (headway-based and timetable based). **(8344)**
- + Extended transfer wait time: In the timetable-based assignment there is an additional option which prevents overwriting of the extended transfer wait time with special walk times at stops. **(12668)**
- + Improved cancellation behavior: Cancellation of PuT assignment is much quicker now, the user receives immediate response. **(11477)**

- + Stop area skims: Most of the PuT skims available can now be computed as skim matrices based on stop areas using the procedure 'Calculate stop area skim matrix'. **(10357)**
- + Timetable-based Assignment: Dominance for equivalent connections can optionally be deactivated. **(12842)**
- + Timetable-based assignment: The timetable-based PuT assignment can now also assign demand with arrival time based time series. For this definition a new attribute 'Time reference' has been added to the demand description. A time duration for the pre-assignment period can be defined in the parameters of the assignment. **(12632)**

PuT Operating Indicators

- + Projection of user-defined attributes: In addition to attributes of vehicle sections, also userdefined attributes of vehicle journey items can now be extrapolated within the line hierarchy and for territories. **(12652)**
- + Spatial PuT Analysis: A new procedure for the spatial analysis of public transport data has been implemented. This allows numerical attributes of vehicle journey items to be apportioned to vehicle sections. Using the new list 'Line route item-PuT-detail' several evaluations of combinations of attributes of the line route items and attributes of vehicle sections are possible. **(12653)**

Scenario management

- + Multi-user mode: Several users can work at a project at the same time if a project data base managed with SQL Server is used. Objects of the project are locked, if they are edited or used for the calculation by one user. Then they cannot be accessed by another user. **(12456)**
- + Surfaces will not be normalized automatically when loading modifications. **(13819 !)**
- + The file extension .vpdbx is now automatically linked to Visum, i.e. double click on a .vpdbx file opens Visum. **(13543)**
- + Calculation of scenario indicators: Scenario indicators can now be calculated later and independent of the calculation of the scenarios. **(11105)**

Scenariomanagement

- + Project settings: It is possible to additionally save attributes with default values in the modifications. **(13688)**

Schematic line diagram

- + Centered label: The label is now also suppressed if the value of a numeric attribute (directed and undirected) is zero. **(13714)**
- + Graphic display of headway and line: The settings for the classified display of edge courses have been simplified. The settings can now be defined in one dialog for all classes. **(12662)**
- + Interspace between transfer node and labels: For labeling of edge courses the inserted gap value for specified classes is used (new attribute DistFromTransferNode). **(12669)**
- + Marking: The marking of edges and slots in the schematic line diagram is now synchronized with the underlying vehicle journey (instead of the line routes as before) **(13197)**
- + New attributes for edge courses: The maximum headway (directed and undirected) determines the maximum duration between two successive departures of vehicle journeys on the edge course. **(13689)**
- + The conventional left-hand traffic display can be generated because of the possibility to define the distance between departure and arrival labels on the one hand and the distance between these labels and the transfer node on the other hand (see 12669). **(12944)**

Timetable editor

- + Compute service trip patterns: The calculation of service trip patterns now directly alters the attribute 'Service trip pattern number' of the vehicle journey, instead of only affecting the timetable editor. The display mode "Regular service" is therefore now realized as a grouping of the vehicle journeys based on this attribute. **(13199)**
- + Opening an infrastructure view from the schematic line diagram: Based on a marking of edges in the schematic line diagram, the graphical timetable can now be opened in a view suited for analysing the infrastructure (links) used by the vehicle journey covered by these edges. **(11447)**
- + Shift vehicle journeys to a different line: When shifting vehicle journeys to a different line it is possible to aggregate line routes if the target line contains line routes that are compatible to the line route of the shifted vehicle journey. **(12660 !)**
- + Stop sequence: The stop sequence consisting of stops or stop points can now be defined by the user. **(12939)**
- + The former Timetable editor has been divided into three separate views 'Timetable (tabular)', 'Timetable (graphical)' and 'Line block editor'. These views can be used independently. New tool windows for selecting and editing objects have been introduced. Furthermore, the functionality to synchronize different views has been extended to the views of the timetable editor. **(12941)**
- + The timetable editor has been completely redesigned. **(12825)**
- + User preferences: The settings for the font in the tabular timetable and the orientation of the graphical timetable are now adapted on a separate page in the user preferences. **(13196)**

- + Deletion of vehicle journey in timetable editor: The dialog only contains the options 'Yes' and 'No'. **(11963)**
- + Editing of individual vehicle journeys: The run and dwell times and the course of one or several vehicle journeys can now be edited independent of their line route course and time profile. If required, the vehicle journeys are relocated to automatically generated copies of the time profiles and line routes. **(12667)**
- + Recalculation of the sequence of stop events: The calculation of the sequence of stop events can now be cancelled. **(12226)**

VISUM files

- + Automatic reloading of external matrices: Matrices are always read from the version file, i.e. matrix values are not replaced by reloading external matrices automatically. This also applies to version files which are saved with VISUM 10.0 and older. **(13213)**
- + Reading demand files: When reading external matrices messages of the same cause can now be skipped. **(13562)**
- + Vistro Import: The import of vistro files has been improved. When importing vistro files with information about trip generation and trip distribution a procedure sequence is generated which automatically generates paths from assignment results. The required demand matrices for removed and added demand are also generated during the import. **(13580)**
- + Export of floating point numbers: In the network settings the default of the option for the export of floating point numbers in network, demand and model transfer files has been set to 'Always output with maximum precision'. This option does not anymore affect files in XML Format. In XML files parameters are always written with maximum precision. **(13571)**
- + Procedure 'Calculate service trip patterns': The procedure parameters can now be loaded/saved to/from XML-files. A new COM-interface is provided for manipulating these parameters. **(3872)**
- + Valid Days: The attribute "System-generated" of valid days is no longer a mandatory attribute. Old files (e.g. *.net-files) with this attribute can still be opened with Visum. Files written with PTV Visum 14 will no longer include this attribute. **(13436)**

Breaking Changes

Add-Ins

- + VisumPy: Redundant (internal) functions for matrix access have been deleted. Please adapt your scripts if necessary. **(13607)**

COM

- + Extension of shortest path search for PuT: The extension periods can now be accessed via the COM interface. The default value for the extension periods is 86400 and therefore differs from the previous value which depended on the analysis period. **(13429)**
- + Filtering in Path lists: The enumeration routeFilter_filterFromZoneFilter of routeFilterT is now always active, i.e. is also effective in combination with other members of routeFilterT enumeration. If no origin zone is given, the origin zone filter does not take effect. **(13710)**
- + MapMatcher: The default matching algorithm of the MapMatcher has been changed from 'Incremental' to 'Global'. You can reproduce the old behaviour by setting the attribute 'Algorithm' of the IMapMatchinParameter-object to '0'. **(13150)**
- + MapMatcher: The evaluation of detours of an edge has been modified. The value used for the evaluation is calculated using the formula $(\text{TypicalCostPer1000Meters} / 1000) * (\text{direct distance of the match points}) / (\text{cost of the edge})$. For that reason the method 'EstimateTypicalCostPer1000Meters' of the IMapMatchingParameters has been added. **(13750)**
- + MapMatcher: The IMapMatcher-object now gets initialized on creation and does no longer require an explicit call of the Initialize()-method. The method has therefore been removed. All changes to nodes and links of the network are now automatically reflected in the mapmatching process. **(12177)**
- + Refactoring and Speedup of GetNearestLink / GetNearestNode: The methods Visum.Net.GetNearestLink and Visum.Net.GetNearestNode have been moved from Visum.Net to the IMapMatcher-object. Both methods have been refactored and now return the results as output objects with properties providing the details, instead of using multiple output arguments which were difficult to handle by scripting languages. The old methods will be removed in one of the next releases and should no longer be used. **(3636)**
- + The obsolete COM object IPuTOpIndAdditionalAttrPara has been removed. **(13246)**
- + Timetable editor: The COM interface for the timetable editor has been changed as a consequence of the redesign. Some of the methods have been removed, others have a different function. **(13151)**

Data model

- ❗ Network settings - turn types: Turn types are only set according to the settings for turn types when new turns are created. This is the case if links are added or split. Turn types of other turns at the affected node are not changed. Also, changes to other network objects, e.g. attributes of links, do not trigger an automatic recalculation of the typ. (12408)
- ❗ Read additionally POI to X tables: When reading POI to X tables the new number of the POI is now taken into account. (12999)
- ❗ Specific transfer walk times: Specific walk times can now be defined for pairs of the combination line and direction. The change has direct effects in lists and when saving network files (*.net) with active objects only. (12651 +)

Demand procedures

- ❗ Estimate gravitation parameters: If the option 'Preset class limits and shares' is used, it can be defined to which interval the class limits belong. If the option 'From interval file' is used, the settings for the interval type will be ignored. In contrast to the previous interpretation interval limit for .att files are now interpreted as [a,b]. (11903 +)

Graphical procedures

- ❗ PrT shortest path search: It could occur that the results of the shortest path search were implausible, if the length had been used as search criterion. This error has been fixed. (12478)

Network editor

- ❗ Aggregation of line routes and time profiles: The default settings for the aggregation of line routes and time profiles have been adjusted. Notably, the default value for the 'Minimal route course share' has been set to 50%. (13648 +)
- ❗ Right-click logic in network editor: When an object is right-clicked, it opens not any longer the context menu of the object selected previously, but the selection switches to the new object and opens directly its context menu. (12510 +)

PrT assignment

- ❗ ICA, Kimber: The turn capacity for turns of roundabouts which are calculated using the Kimber method is set to the approach capacity. The previous calculation used the turn volumes of an approach to calculate a weighted capacity value. (13540 +)
- ❗ Equilibrium assignment: It could happen that some of the route impedances are not updated if the network balancing process had been terminated by the maximum number of iterations. This error has been fixed. (13214)
- ❗ General settings for the ICA calculation: The setting 'tCur update' has been removed. For the options 'Manually' and 'After assignment' workarounds can be applied. The option 'During assignment' is removed without substitution. The option 'Before and during assignment' has been adjusted as follows: If the assignment uses the current assignment result as initial solution, the update of tCur is based on the results of the existing assignment, otherwise the assignment result is initialised for the corresponding demand segments and then tCur is updated. The option does not apply in Assignment with ICA and dynamic assignments. (13326 +)
- ❗ ICA calculation for roundabouts (HCM): If for a leg a bypass is defined, the attribute 'Bypass Control' on the source leg is used to determine whether the bypass is yielding or non-yielding. The lane capacity will be set to 100000, the delay will be 0 if the attribute value for 'Bypass Control' is 'Without' or 'Target lane'. The values are calculated using Equations 21-6 and 21-7 of the HCM if the value is 'Yield right of way' or 'Stop'. The definition of lanes and lane turns will have no effect on the ICA calculation. (13757 +)
- ❗ ICA calculation for roundabouts (HCM): The dependency of the values A and B in the roundabout calculation has been changed. The value A will be calculated according to Chapter 33 of the HCM2010 if and only if the overwrite flag for follow-up time is set. For this Equation 21-22 is used. Otherwise the value A is determined according to the first part of Chapter 21 of the HCM2010. The calculation method for B has not been changed directly. If the overwrite flag for critical headway is set, B is using the follow-up headway as defined in Chapter 33 (unless the overwrite flag is set for follow-up headway as well). (13756 +)

PuT Assignment

- ❗ Timetable-based assignment: Some instabilities in the results were possible, if the network contained identical vehicle journeys (same time profile and same departure time). This error has been fixed. (13047)

Scenario management

- ❗ Surfaces will not be normalized automatically when loading modifications. (13819 +)

TFlowFuzzy

- ❗ Classes and shares for the distribution: If the option 'From interval file' is used, the settings for the interval type will now be ignored and the interpretation of the class limits depend on the file type, i.e. for .cod files limits are interpreted as [a,b[and for .att files as [a,b]. (13725)

Timetable editor

- ❗ Shift vehicle journeys to a different line: When shifting vehicle journeys to a different line it is possible to aggregate line routes if the target line contains line routes that are compatible to the line route of the shifted vehicle journey. The COM method `IVehicleJourney.ChangeLineOfVehicleJourney` includes an additional parameter which allows the aggregation with the first possible line route of the target line. **(12660 [+](#))**

VISUM files

- ❗ Automatic reloading of external matrices: Matrices are always read from the version file, i.e. matrix values are not replaced by reloading external matrices automatically. This also applies to version files which are saved with VISUM 10.0 and older. **(13213 [+](#))**
- ❗ Defaultvalue for numerical UDA: If the attribute 'Defaultvalue' is missing in the table User-defined attributes of a .net file, the values remain empty when reading this .net file. **(13801)**
- ❗ Export of floating point numbers: In the network settings the default of the option for the export of floating point numbers in network, demand and model transfer files has been set to 'Always output with maximum precision'. This option does not anymore affect files in XML Format. In XML files parameters are always written with maximum precision to avoid unintentional data loss. **(13571 [+](#))**