PTV Visum 15 Release Notes

PTV **GROUP**

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15.00-21   [120565]

✅ Fixed Bugs

Add-Ins

- ✅ Output of the assignment statistics in the add-in "Reporting PrT Assignment": Running the add-in "Reporting PrT Assignment" led to an error message if the output of the assignment statistics was enabled. This error has been corrected. **(17279)**
- ✅ TransCAD import with polygon points of links: For links with polygon points, the import of a TransCAD network with the add-in 'Import TransCAD Network' used to generate one polygon point too many, which was then located right on the From-Node or To-Node. This error has been fixed. **(16583)**
- ✅ TransCAD import with special characters: The import of a TransCAD network with the add-in 'Import TransCAD Network' failed if the input data contained special characters that could not be converted. This error has been fixed by skipping the affected values during the import. **(17197)**

COM

- ✅ Path settings for layout files of timetables: If you opened a layout file with a relative path via COM (method OpenLayout at IBlockDisplay, ITabularTimetable or IGraphicalTimetable) for one of the timetables, the project directory for timetable layouts did not take effect, but the project directory for layout files of the old timetable editor (up to Visum 13), which is no longer accessible interactively. This error has been fixed. **(17323)**

COM, Visum Files

- ✅ Reading in very old network files: If the import of very old network files failed, the import was still considered successfully completed. In particular, you did not get an error message in case of an error when you called the COM method LoadNet. This error has been corrected. **(17278)**

Demand Procedures

- ✅ High memory consumption with P+R: The memory consumption of the result data structures of the 'P+R lot choice' procedure has been reduced considerably. Version files that contain such a result thus use less memory once loaded. **(16096)**

Dialogs

- ✅ Crash after editing graphic parameters of a POI category: A crash no longer occurs when closing the graphic parameters dialog if the graphic parameters of a POI category are edited first and this change is saved in the subdialog for this POI category, yet then the graphic parameters dialog is exited via 'Cancel'. **(17315)**
- ✅ Editing the course of line routes, system routes, PrT paths: The floating dialog which can be used to influence or complete the edit of the course of a line route, a system route, a PrT path, or a link sequence has been truncated if a text magnification factor greater than 100% was set for the screen display. This error has been corrected. **(17295)**
- ✅ Preview of polygons in graphic parameters dialog: In case of narrow line widths, in the preview, the polygon frame could only be seen at the top and on the left side for various polygon graphic parameters. The bottom and the right side were missing or drawn asymmetrically. This error has been fixed. **(17259)**
- ✅ Progress dialogs do not block application: Under certain circumstances, progress dialogs displayed in case of a lengthy action did not block the interface reliably. It was possible to start a new action before the running action was finished, e.g. the procedure sequence while reading a version file, which led to indefinite consequences or even program crashes. This error has been fixed. **(16239)**

Graphics

- ✅ Missing route courses in screenshot of procedure sequence: If you created a screenshot in a script that was run in the procedure sequence during procedure step 'Run script', it lacked the 'Route course' layer. This error has been fixed. **(17399)**

I/O Interfaces

- ✅ 'PuT supply from Visum' import: If, in the source network, a line route traversed a shared section in both directions during the import of a PuT supply from Visum, unnecessary loops were sometimes inserted in the line route course in the target network when bundling with already existing line routes (option). This error has been fixed. **(16528)**
- ✅ Repeated railML import in one session: If you repeatedly opened the parameters dialog for the railML import in one Visum session, the lists to select the primary and secondary matching attributes on tab 'Transfer to target network' only contained the entries of the previous pass instead of all items available in the railML file. This error has been fixed. **(17080)**

Junction Editor

- ✅ Editing an external signal control: As soon as a signal group of a signal control with control type Vissig or RBC was marked in the Junction Editor, all menu items and tool bar buttons were inactive. This error has been corrected. **(17301)**

Network Editor

- ✅ Standard dwell time for lengthened line routes: If you lengthened an existing line route (at the start or end), the standard dwell time was not transferred to the previous start point/end point, i.e. the dwell time here was always 0. This error has been fixed. **(17458)**

PrT Assignment

- ✅ LUCE stops at end of proportionalising process: In certain cases, the calculation of the PrT assignment LUCE was not completed if one of the two options to optimize the proportionality of route volumes at meshes was activated and the calculation ran on multiple cores. This error has been fixed. **(17337)**
- ✅ Useless dispersion parameters in Tribut-Equilibrium assignment and Tribut-Equilibrium_Lohse: A crash no longer occurs if a dispersion parameter or the median is not positive in the distribution functions for an OD pair in a PrT assignment variant Tribut-Equilibrium or Tribut-Equilibrium_Lohse. From now on, the assignment will not be executed in such a case. **(17331)**

PuT Assignment

- ✅ Connections in departure extension of timetable-based assignment: If a departure extension is used in a timetable-based assignment and the option 'Delete connections that lie entirely within the departure/arrival extension' has been selected for the preselection, connections within the actual assignment time interval were also deleted under certain circumstances. This error has been fixed. **(17336 ⛔)**

PuT Operating Indicators

- ✅ Executing the 'PuT operating indicators' procedure on multiple cores could lead to sporadic crashes. This error has been fixed. **(17368)**

Timetable Editor

- ✅ Missing scroll bars after maximizing the tabular timetable: If you scrolled far to the right in the tabular timetable, so that some vehicle journeys were not displayed at the left margin and then enlarged the window (e.g. by maximizing it), these vehicle journeys were still not displayed and the scroll bar disappeared. The vehicle journeys could only be reached via the keyboard. This error has been fixed. **(16804)**

Visum Files

- ✅ Reading in attribute files while shortest path search is active: If a shortest path search was active in the network, reading in attribute files for network objects which affect the shortest path search (e.g. links) was extremely slow. This error has been fixed. **(15285)**

⛔ Breaking Changes

PuT Assignment

- ⛔ Connections in departure extension of timetable-based assignment: If a departure extension is used in a timetable-based assignment and the option 'Delete connections that lie entirely within the departure/arrival extension' has been selected for the preselection, connections within the actual assignment time interval were also deleted under certain circumstances. This error has been fixed. This leads to changes in the assignment result when using a departure extension in combination with this option. **(17336 ✅)**

✅ Fixed Bugs

Add-Ins

✅ Progress dialog in VisumPy: If you closed the 'ProgressDlg' from the TK package of the Visum Python library VisumPy, an error message was issued so far. This error has been fixed. **(17235)**

COM

✅ SaveDemandFile without layout: If the file name of a layout file was specified while calling method IIO.SaveDemandFile but no file was found using this path, the method was executed anyway instead of canceled with an error. This error has been fixed. **(17086)**

Demand Procedures

✅ 'EVA weighting' run time when using many cores: More run time was needed when using a lot of computer cores to calculate the procedure 'EVA weighting'. This error has been fixed. **(17239)**

✅ Crash P+R leg split: A crash no longer occurs when running procedure 'P+R leg split' if a demand stratum is specified as reference object for which no results are available from the procedure 'P+R lot choice'. **(17131)**

Graphics

✅ Diagrams in legend: In the legend, the formatting of the values for the diagram label was ignored for the scaling of diagrams, in particular the set number of decimal places. This error has been fixed. **(14765)**

✅ No link display in Junction Editor and during turn volume export: Sometimes links were not drawn reliably in the Junction Editor and when exporting turn volumes. This error has been fixed. **(17088)**

I/O Interfaces

✅ Passenger trip chains of parallel vehicle journey sections during railML import: If a source vehicle journey and a chained target vehicle journey had multiple parallel vehicle journey sections on the same calendar days, passenger trip chains were generated from different vehicle journey sections of the source vehicle journey to the same vehicle journey section of the target vehicle journey during a railML import. In many cases, this error could be fixed. **(17266)**

✅ PuT import from Visum generates loops: In certain constellations, the import of 'PuT supply from Visum' used to generate loops, i.e. links whose From-Node and To-Node are identical. These links could not be inserted into the network. This error has been fixed. **(17256)**

Lists

✅ Deleting activities while a matrix list is open: In large networks with a lot of matrices, deleting activities used to be very slow if a matrix list was open at the same time. This error has been fixed. **(17240)**

✅ Slow export of PrT path lists with flow bundle paths: The export of PrT path lists restricted to flow bundle paths took too long and was thus accelerated considerably. **(17114)**

Main Window

✅ Copy/Paste in the Quick view: If a row was marked in a list that was not synchronized, the actions 'Copy attributes' and 'Paste attributes' in the Quick view affected the object corresponding to this list row and not the current global marking (shown in the Quick view). This error has been fixed. **(16299)**

Matrix Editor

✅ Saving the filtered matrix view as matrix: Saving a filtered matrix view (e.g. considering the OD pair filter) in one of the suitable formats (e.g. $O) no longer causes a crash. **(17233)**

Network Editor

✅ Deleting all faces at main nodes: If operation 'Delete all faces' was called for a marked main node, a query was issued asking whether the user wanted to continue. If you answered 'No', all faces were deleted anyway. This error has been fixed. **(17132)**

- Moving polygon points with territory data: If a network contained result data for territories (e.g. from territory-based evaluations of the 'PuT operating indicators' procedure) and a polygon point of a territory was moved, a query was issued asking to discard the results for territories. If you said 'No', you were caught in a loop: the question was asked again immediately. This error has been fixed. **(16245)**
- Rerouting line routes/system routes/PrT paths: A crash no longer occurs when rerouting a line route/system route/PrT path if routing via closed links is prohibited in the parameters. This fix, however, leads to the recurrence of the preview error fixed in Visum 16.01-05 with VISUM-16961, which will be fixed in the next service pack. **(17223)**
- Stop points traversed more than once: The dialog to select the line or system route item in case of stop points traversed more than once or nodes when editing the course of a line route now opens when hovering the mouser over the stop point or node, not only when clicking the object. The error has been fixed. **(17158)**

PrT Assignment

- Editing impedance definition: Changing the impedance definition for a PrT transport system in the general procedure parameters could lead to a crash in certain cases. This error has been fixed. **(17133)**
- Simple impedance definition with t0: If the simple variant of the impedance definition was used for a PrT transport system with attribute t0 (travel time in unloaded network) as impedance, for connectors, the value t0 was not taken into account for so far. This error has been fixed. **(17153 ⚠)**
- Temporary closure of links in DUE: The calculation of the Dynamic User Equilibrium (DUE) no longer leads to a crash if a link is closed by specifying a time-varying capacity of 0 or a time-varying speed of 0 for a certain time. However, such links remain open with of a very low speed and can thus have small volumes despite of the closure. **(16912 ⚠)**

PuT Assignment

- Connection import with fares: The import of connections with fares no longer causes a crash if the volumes of some of the read-in demand segments are saved with different demand segments. **(17110)**

Timetable Editor

- Crash when switching the network while the Transfers display of regular services is open: A crash no longer occurs when switching the network (e.g. when loading a version file) if the Transfers display of regular services is open and 'Keep configuration' is set for windows in the user preferences. **(15021)**

Visum Files

- Cancellation of network import when reading transport systems: A crash no longer occurs if a message is issued for table 'Transport systems' while reading a network file and you cancel the import. **(17113)**
- Files with two periods in name: So far, it was not possible to open a graphic parameter file, filter file or list layout file from the project directory via one of the drop-down lists if the name and the file extension were separated by two periods (scheme '<name>..<extension>'). This error has been fixed. **(17151)**
- Impedance functions with formula attributes: Attributes of detailed impedance functions were checked too early when reading in a version file, so that set formula attributes were considered invalid and were thus lost. This error has been fixed. **(17180)**
- Message 'Preparing version file export...' when writing a version file: The message 'Preparing version file export' was displayed for an unnecessarily long time if the line route course layer was switched on and the calculation of the route courses was not finished yet. This error has been fixed. **(17186)**
- Network files with more than 65536 characters in a row: Reading a network file with more than 65536 characters in the last row no longer leads to a crash. **(17147)**
- Setting minimum green times using model transfer files: If a model transfer file contained modified minimum green times of stages, so far, the program did not check whether the existing information on green time start and green time end was consistent with the new minimum green times. This could lead to the generation of networks that could not be read in again when saving a version file and then trying to open the same file. This error has been fixed. **(17169)**
- Version files with a lot of screenlines: Reading in version files with screenlines used to be inefficient. Files with a great number of screenlines could thus de facto not be read in. This error has been fixed. **(17126)**

⚠ Breaking Changes

PrT Assignment

- Simple impedance definition with t0: If the simple variant of the impedance definition was used for a PrT transport system with attribute t0 (travel time in unloaded network) as impedance, for connectors, the value t0 was not taken into account for so far. This error has been fixed. This changes the skim matrix for affected transport systems as well as the result of any PrT assignment if there are zones with more than one usable connector. **(17153 ✅)**

⊗ Temporary closure of links in DUE: The calculation of the Dynamic User Equilibrium (DUE) no longer leads to a crash if a link is closed by specifying a time-varying capacity of 0 or a time-varying speed of 0 for a certain time. However, such links remain open with of a very low speed and can thus have small volumes despite of the closure. **(16912** ✓**)**

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✓ **Fixed Bugs**

COM

✓ Adding a matrix to IMatrixTable via COM: A crash no longer occurs when adding a matrix to an open IMatrixTable object if the new matrix is not compatible with the matrices already open in IMatrixTable (regarding the network object reference or the dimension). **(16090)**

COM-API

✓ Running a script while Visum runs as a service: If Visum was started from a service and a script was run in Visum in the course of this, the program froze when it was closed. This error has been fixed. **(17031)**

✓ Shortest path search or PrT assignment after renumbering zones: If the number of a zone was changed via COM, neither PrT shortest path searches nor PrT assignments could be carried out afterwards, because paths were no longer found. This error has been fixed. **(17005)**

Data Model

✓ Reading user-defined attributes from network files: If you read a network file that included a user-defined attribute and the network file did not contain all optional columns, default values different from those set when creating an attribute of the same type were sometimes set in the dialog. This led to different consequential errors, for example: attributes of the type 'File' were not generated and when opening the Edit dialog for this user-defined attribute, false error messages were issued. This error has been fixed. **(17007)**

Demand Procedures

✓ Wrong success message during 'EVA distribution/mode choice': If balancing failed during the procedure for a mode that was not interchangeable, depending on the sequence, the procedure was still finished with a success message and the procedure sequence continued. This error has been fixed. **(16886)**

Dialogs

✓ User-defined colors in graphic parameters: If more than 16 user-defined colors were selected in the color selection of a graphic parameters' dialog, a crash could occur in the further course of the session. This error has been fixed. **(17037)**

Formulas

✓ Integer target attribute in 'Edit attribute' procedure: When reading in version or procedure parameter files, which were saved with Visum 14 or earlier, in any contained procedure step 'Edit attribute' in which the target attribute was an integer but the formula was empty, this empty (but valid) formula was replaced by the invalid formula 'Floor()'. This error has been fixed. **(17070)**

Graphical Procedures

✓ Flow bundle terms with supply restriction: If the definition of a PuT flow bundle is read from a version file or from a graphic parameters file, terms specified in the file for which restrictions of the supply existed only contained that part of the supply whose time profiles had a profile point at the network object. This error has been fixed. **(17082)**

Graphics

✓ Internet maps under Windows 2008 Server and remote desktop: When using the operating system Window 2008 Server, in remote desktop sessions internet maps were not displayed in the network editor if the projection 'Sphere Mercator' was set. This error has been fixed. **(17019)**

✓ Outliers in route course layer: Display errors occurred in the route course layer if sections of the course were located outside of the display window. This error has been fixed. **(16795)**

I/O Interfaces

- 'PuT supply from Visum' import: A time profile without a course was generated if the second last and the last line route item of a line route were mapped to the same location in the network during an import of PuT supply from Visum. As a consequence, such version files could not be loaded any more. This error has been fixed: a correct time profile is now generated. **(17061)**
- 'To length' at left out intermediate points during import of 'PuT supply from Visum': The 'To length' of line route items of the source network that were left out during the import were lost, either because only stop points were considered or because no suitable location could be found in the target network. This error has been fixed. **(17093)**
- HAFAS import with circular passenger trip chains: A crash no longer occurs during the HAFAS import if the data contains passenger trip chains that form a closed chain that does not reach the starting point again but a vehicle journey that exists further on in the chain (example: A->B->C->D->B->C...). **(16897)**
- HAFAS import: If inconsistent data (e.g. references to non-existing stops) was found in an optional file of the HAFAS data pool, the import was canceled so far instead of continued without the optional file. This error has been fixed. **(16957)**
- Routing problems during import of PuT supply from Visum: If two line route items from the origin network were mapped to the same location in the target network during import of PuT supply from Visum, the line route could not be inserted. This problem particularly occurred when using intermediate points. This error has been fixed. **(16881)**
- Shortened vehicle journeys in railML export: The arrival and departure times of vehicle journeys shortened at the front (i.e. vehicle journeys that do not start at the first time profile item) were shifted in the railML export. This error has been corrected. **(16937)**

Matrix Editor

- Deleting zones while a Matrix Editor is open: A crash no longer occurs when deleting zones while a Matrix Editor is open. This error occurred only sporadically. **(16994)**
- Saving a filtered matrix view to file: Only the $O format was available when saving a filtered matrix view to file from the Matrix Editor. This error has been fixed. **(17046)**

Matrixeditor

- Adding a matrix to IMatrixTable via COM: A crash no longer occurs when adding a matrix to an open IMatrixTable object if the new matrix is not compatible with the matrices already open in IMatrixTable (regarding the network object reference or the dimension). **(16090)**

Network Editor

- Crash when deleting a count location: Deleting a count location no longer causes a crash. This used to occur under certain circumstances. **(16909)**
- Crash when splitting zones: Splitting zones in the network editor used to cause a crash if the numbers of the new zones were not higher than the numbers of already existing zones. This bug has been fixed. **(17072)**
- Renumbering vehicle journeys in mode 'Lines': Calling the shortcut menu entry 'Renumber vehicle journeys' had no effect if the network editor was in mode 'Edit: Lines'. This error has been fixed. **(17038)**
- Rerouting line routes via closed links: When editing the course of a line route, in some cases the rerouting preview contained paths that led across closed links even if this was ruled out in the parameters. When confirming this new course, a message was issued stating that the new course could not be used as it contained closed links. This error has been fixed, i.e. the preview of routes now only contains links that are not closed, if possible, and can thus be used for the course. **(16961)**
- Response when starting 'Link sequence from shortest path search': So far, no graphical feedback was given when using function 'Link sequence from shortest path search' if you selected the start node for the shortest path search, but only after dragging a path. This error has been fixed. **(15411)**
- Shifting the display area while editing the shape of line routes: The display area could no longer be shifted or zoomed via keys while editing the shape of line routes, system routes, or PrT paths. This error has been fixed. Now you can use the arrow keys in particular to shift the display area. **(16785)**
- Splitting zones: Numbers that were already assigned to zones were sometimes suggested as zone numbers for new zones when splitting zones. This error has been fixed. **(17096)**

PrT Assignment

- Impedance functions from XML procedure parameter files: A crash no longer occurs when executing a PrT assignment (different variants) if impedance functions were read from an XML procedure parameters file or from a version file saved with Visum 16 beforehand. **(17002)**
- Shortest path search or PrT assignment after renumbering zones: If the number of a zone was changed via COM, neither PrT shortest path searches nor PrT assignments could be carried out afterwards, because paths were no longer found. This error has been fixed. **(17005)**

PrT Assignment, Visum Files

- VD functions with number 0 from earlier versions: Due to an error, some VD functions were created with the number 0 in earlier program versions. If such a network was saved as a version file with PTV Visum 16 and later read in again, the VD function concerned was missing. Now the numbers of VD functions are renumbered in the valid range when reading in version files concerned or binary procedure parameter files. The references of the links etc. to the VD functions are adjusted accordingly. **(17013)**

Timetable Editor

- Aggregate functions in the tabular timetable: In the tabular timetable, if you displayed vehicle journeys grouped by service trip patterns and changed the aggregate function for an attribute, this change affected a row other than the one chosen. This error has been fixed. **(17104)**
- Graphic parameters for passive vehicle journey sections and items: In the tabular timetable, the settings for the text color and the background color of passive vehicle journey sections or vehicle journey items did not have an effect. The graphic parameters for passive vehicle journeys were used instead. This error has been fixed. **(16397)**
- Shortcut menu for vehicle journey sections in the tabular timetable: In the tabular timetable, the shortcut menu for vehicle journey sections was missing if exactly one vehicle journey was displayed with exactly one vehicle journey section. This error has been fixed. **(16030)**

Visum Files

- Attribute allocation during import of attribute file: In the dialog for the allocation of attributes, attribute names were cut off in the 'Target attribute' column. This error has been fixed. **(16803)**
- Reading network files, table 'POI to Links': Reading a network file no longer leads to a crash if the 'POI to Links' table (POITOLINK) contains an entry that refers to two nodes that exist in the network yet are not connected by a link. **(17058)**

Visum Files, Procedure Sequence

- User-defined attribute in Go To operation: If a 'Go To' procedure step was among the procedure parameters whose condition referred to a user-defined attribute, the set attribute was lost when saving and subsequently reading the version file. This error has been fixed. **(16887)**

15.00-18   [114521]   2016-11-17

⊕ New Features and Changes

I/O Interfaces

- ⊕ HAFAS data in UTF-8: HAFAS data can now also be imported if it is available in the form of text files in UTF-8 format. The format row '*F', which may be contained at the start of each HAFAS file, is evaluated for this. **(16196)**

⊘ Fixed Bugs

ANM

- PuT export in case of undirected link stop points: Undirected link stop points were not handled correctly during the ANM export. This could lead to the loss of PuT lines that served these stop points during the transfer from PTV Visum to PTV Vissim via ANM. This error has been fixed. **(16748)**

Add-Ins

- 'Calculate Matrix' without matrices: If the 'Calculate Matrix' add-in was run in a network that did not contain any matrices, the program issued no useful error message so far. This error has been fixed. **(16681)**

COM

- Change of key attributes via SetMultiAttValues and related functions: The change of key attributes of objects, which can be reference objects for matrices (i.e. zones, main zones and stops areas), is not possible with the Multi-Edit functions such as SetMultiAttValues. However, no error message was issued so far and the operation was partially executed. This error is fixed, i.e. the execution is rejected correctly. **(16432)**

COM-API

- ✅ Faulty system routes: A faulty system route used to be added to the network if, on the one hand, you entered an incomplete sequence of network items for the path using COM method INet.AddSystemRoute and, on the other hand, disabled the completion of the course through shortest path searches. The imcomplete course of the system route could lead to subsequent program crashes. This error has been fixed: Visum no longer permits the creation of such system routes. **(16784)**
- ✅ Running scripts via COM: If you ran a script via the COM function Visum.ExecuteScriptFile and the script aborted with an exception, a dialog used to open, bringing the process to a stop. Furthermore, ExecuteScriptFile returned without an error, so that the calling code could not react to the exception. These errors have been fixed. **(16703)**

Data Model

- ✅ Inserting the opposite direction of a line route: Inserting the opposite direction of a line route no longer leads to an infinite loop if it uses directed link stop points that do not exist yet in the opposite direction. **(16865)**
- ✅ Renaming and deleting transport systems with fares: Renaming and then deleting a (PuT) transport system in one session resulted in a faulty data model if at least one ticket type existed in the network (and thus supplements per transport system). As a consequence of this, version files could no longer be saved. This error has been fixed. **(16636)**

Dialogs

- ✅ Adding an assessment type for EVA weighting: If you created an assessment type under 'Define assessment types' in the procedure parameters dialog of the 'EVA weighting' procedure, the name of the new assessment type was not displayed during entry. This bug has been fixed. **(16779)**
- ✅ Copy/Paste Modal Split during EVA distribution/mode choice: In the procedure parameters dialog of the 'EVA distribution/mode choice' procedure, the Standardized assessment tab displays 8 decimal places. If you copied these values and pasted them to a different row, the transferred value was rounded to 6 decimal places. This bug has been fixed. **(16782)**
- ✅ Notification bar for scenario management and stop sequence: In some languages the notification bar for the scenario management and the stop sequence showed no control elements any more, but parts of the code. This error has been fixed. **(16863)**

Graphical Procedures

- ✅ Lengths with PuT Aux in shortest path search: The length displayed for path legs in the 'PuT shortest path search' list that were covered with a PuT Aux transport system did not correspond to the total length of the path leg but to the length of the first link of the path leg only. This error has been fixed. **(16868)**

I/O Interfaces

- ✅ OpenStreetMap import with large IDs: In OpenStreetMap, the highest ID of an object has exceeded the range that can be represented by 32bit numbers. Such data could not be read in so far. This error has been fixed, i.e. OpenStreetMap data can now also be read in if it includes objects with IDs of such large sizes. **(16771)**

Installation

- ✅ Automatic check out after license update: If there was a license among the licenses selected for automatic check out during program start, whose dongle has been updated, the automatic check out used to be canceled and the updated license data was retrieved. An 'unattended' program start (e.g. via COM) in particular could not be carried out. This error has been fixed: If there are other usable licenses apart from the updated license, the updated license is left out and the program is started with one of the known licenses. **(16884)**

Lists

- ✅ Filtered PuT paths lists with PuT path filter and network changes: Visum no longer crashes in case of certain changes to the network that affect the fare model if a PuT path list is visible, which only displays the paths of the OD pair filter and this OD pair filter contains filter conditions on PuT paths, which in turn refer to fare data and are changed by the network change. **(16162)**

Main Window

- ✅ 'Show messages' in procedures: The program no longer crashes if you click the ' Show messages' button (to open the message window) of the warning message during a parallelized procedure. **(16729)**
- ✅ Running procedures while the message window is open: Crashes no longer occur when running parallelized procedures while the message window is open. This error has been fixed. **(16756)**

Matrix Editor

- Undoing/redoing changes to graphic parameters: A crash no longer occurrs if you edit graphic parameters in the Matrix editor, close the editor, and subsequently undo or redo the changes to the graphic parameters. **(14907)**

Network Comparisons

- Update of comparison attributes on formulas: The comparison attributes (such as "This network - x') of version comparisons were not adjusted when updating the version comparison or when opening a version file with version comparison if the compared attribute was a formula attribute whose formula uses a user-defined attribute that has changed due to the update. This error has been fixed. **(16783)**

Network Editor

- Aggregating time profiles: When aggregating time profiles without the 'Time profiles with identical in-vehicle times and dwell times' option and coupled vehicle journeys existed on the time profiles, couplings could not be retained if in-vehicle times and/or dwell times of the partners changed in different ways. A separate message used to be issued for each affected coupling in this case without the possibility of disabling further messages. This error has been fixed. **(16269)**

PrT Assignment

- Demand from nested formula matrix: A crash no longer occurs when running an assignment (PrT or PuT) with MPA if the demand matrix is a formula matrix which itself uses another formula matrix. **(16617)**

PuT Assignment

- Calculating skim discomfort without connections: A crash no longer occurs if the skim 'Discomfort' shall be calculated in the context of the timetable-based assignment or skim matrix calculation, yet this is not possible due to vehicle journey volumes or because no connections were saved and the user confirms the issued warning nevertheless. **(16797)**
- Capacity-restricted assignment and MPA: If you carried out a second search in a capacity-restricted assignment or an assignment with sharing transport systems while MPA was on (percentage connectors), the same path could be generated more than once (and thus attracted more demand without justification). This error has been corrected. **(16870)**
- Demand from nested formula matrix: A crash no longer occurs when running an assignment (PrT or PuT) with MPA if the demand matrix is a formula matrix which itself uses another formula matrix. **(16617)**
- Direct distance at stop areas: If you calculated the 'Direct distance' skim with the 'Calculate stop area skim matrix' operation, the result was always 0 for all relations. This error has been fixed. **(16824)**
- Import of fares per demand segment: If no search is carried out in the context of the timetable-based assignment but the connections from a connection file are used and the connection file contains different fares depending on the demand segment, these fares do not take effect in the assignment. This error has been fixed. **(16817)**

PuT Operating Indicators

- Person kilometers / person hours in case of different operators on a time profile: If different vehicle journeys of the same time profile had different operators, so far, person kilometers / person miles rendered on these vehicle journeys were not saved to the corresponding indicators. This error has been fixed. **(16701)**

Timetable Editor

- Crash when changing the line selection: A crash no longer occurs when adding a line / line route / time profile to the line selection if a new network has previously been opened in the same session. **(16821)**

Visum Files

- Formula attributes in model transfer files: When reading a model transfer file, which also contains changes to user-defined formula attributes, these changes were not adopted if the formula referred to other attributes that did not yet exist at this time - for example because they can be found further down in the file and are therefore read later. This error has been corrected. **(16535)**
- Time formats depending on the country setting: So far, the start time and the end time of the execution of procedures were saved in a format that depended on the current country setting of the computer when saving procedure parameters XML files and the version files. The resulting files could only be read with the same country setting, which made a transfer of the files more difficult. This error has been fixed. **(16792)**

15.00-17   [112862]   **2016-09-27**

⊕ New Features and Changes

COM-API

⊕ Executing many COM commands of StopDrawing: The execution of many COM commands in succession for the case that drawing the network with the property IGraphic.StopDrawing was disabled has been further accelerated. **(16631)**

Dialogs

⊕ Editing line routes and time profiles: So far, in the 'Edit line route' dialog, you could not see whether the departure time or the arrival time was fixated at a profile point. This is now indicated by different graphic symbols. **(16203)**

Scenario Management

⊕ Closing the project dialog using Esc: To avoid an unintentional closure of the project dialog of the scenario management the Esc key cannot be used anymore to close this dialog. **(16619)**

⊘ Fixed Bugs

Add-Ins

⊘ Add-In 'Nested Demand Model' in incremental mode: The calculation is no longer aborted when using add-in 'Nested Demand Model' in incremental mode. **(16649)**

⊘ Nested Demand Modell fails in incremental mode due to invalid results:
The incremental calculation of the Nested Demand Model could fail because the calculated demand did not match the input productions / base demand. This was caused to numerical overflows, e.g. due to large utilities differences araising from hight default values for unserved connections. The bug was fixed and the calculation now terminates with valid results. Nontheless, a warning is given and the utilities and default values shoud eventually be examined and rescaled. **(16675)**

Dialogs

⊘ Demand segments in the timetable-based assignment with capacity restriction: If a timetable-based assignment with capacity restriction for several demand segments is defined, it was not possible to select based on which demand segment the vol/cap ratio-dependent impedance is to be calculated in the Tab 'Search'. This error has been fixed. **(10752)**

⊘ Graphics parameter dialog for bars: On the page of the object selection in the graphic parameter dialog labels could not be read when an enlarged representation of text is selected in the Windows system settings. This error has been fixed. **(16355)**

⊘ Utility definition in procedure 'Tour-based model - Combined trip distribution / mode choice': When copying and pasting the utility definition on tab 'Distribution Utility' of the parameters dialog of the 'Tour-based model - Combined trip distribution / mode choice' procedure, an additional plus sign was inserted in the formula. This error has been fixed. **(16698)**

Filters

⊘ PuT assignment statistics with an OD relation filter after a TSys-based assignment: After a tsys-based assignment in the PuT assignment statistics the total number of passenger trips was always zero and the number of passenger trips without connection was negativ if an OD filter was active (even if effectively all OD relations were active). Also, corresponding attributes of zones were affected. This error has been fixed. **(16626)**

Graphical Procedures

⊘ PuT shortest path search, changing parameters: A crash no longer occurs if option 'Consider only active vehicle journey sections' is activated in the search parameters after running a PuT shortest path search. **(16694)**

Graphics

⊘ Display error in the line course layer: When drawing the line course layer under certain circumstances errors occured (unnecessary loops of bars). This error has been fixed. **(15372)**

⊘ Link stop points in the line course layer: It two directed link stop points were located on opposite relative positions, i.e. one at position x of the link and the other one at position 1-x on the link in the reverse direction, outliners in the graphic display existed. This error has been fixed. **(16549)**

⊘ Slow loading of background maps: Loading background maps was slow in some cases, when more requests were issued in parallel than sub domains were available by the service used. This error has been fixed. **(16518)**

- ✅ Unnecessary permutations in the line course layer: In the display of the line course layer line bars which follow the same link sequence in parallel did unnecessarily cross often. This error has been fixed. **(15669)**

I/O Interfaces

- ✅ Export General Transit Feed (GTFS): The export of the General Transit Feed (GTFS) produced invalid data if exported attributes contained commas. This error has been fixed. **(16530)**
- ✅ GTFS-import fails on inconsistent data in calendar files: The GTFS import no longer completely fails when inconsitent serve_ids occur in the calendar.txt and calendar_dates.txt files. Instead, the corresponding valid day is now set to invalid for all calendar dates and the import is completed. **(16665)**
- ✅ Parameters of the railML import: If an attribute mapping of the railML import is set to an empty attribute selection this setting has not been saved in the parameter file (*.puti) and was not restored when opening such a file. Additionally, the indicator of imported vehicle journeys was not saved correctly. Both errors have been fixed. **(16488)**
- ✅ Pass through times in railML export: So far, during a railML export, no run times were output at the corresponding ocpTT element for time profile items at which boarding and alighting is not permitted (pass through). This error has been fixed. **(16667)**
- ✅ Passenger trip chains in the railML import: The program does not crash anymore when deleting passenger trip chains which originate from a railML import in the same Visum session and in which several parallel vehicle journey sections in the course of a railML train element adjoin at a place where the category of this train element changes. **(16546)**
- ✅ Tag filter in the OSM import: Filtering tags in the OpenStreetMap import configuration did not work correctly if between the filtered values spaces existed in the configuration file. This error has been fixed. **(16632)**
- ✅ railML export: For the railML export version 2.1 is supported, but so far matching URLs for namespace and schemaLocation have not been given. This error has been fixed. **(16584)**

Lists

- ✅ Search when editing: The program does not crash anymore when opening the search dialog (from a list or within the timetable editor) and a list cell is being edited. **(16565)**

Network Comparisons

- ✅ Changes of transport systems: The program does not crash anymore when updating a version comparison with a comparison network in the background and in this network a transport system has been removed of which a related attribute e.g. an attribute with subattribute transport system was shown in a list. **(16644)**
- ✅ Create Mode within network merge mode: network objects can't be created in the network merge mode. If the network editor had been in the create mode when switch to the network merge node, PTV Visum can't be closed or this mode can't be left. This error has been solved. **(16422)**

Network Editor

- ✅ Smart map does not respond to zoom: The activated smart map did not respond to zooming in the network editor. The screen section was refreshed only when explicitly clicking the smart map. This bug has been fixed. **(16026)**

PrT Assignment

- ✅ Evaluation of impedance functions: The program does not crash anymore when evaluating impedance functions in a parallized context, i.e. for example when opening a link list with the attribute 'Impedance-PrTSys' and active aggregation of rows. **(16652)**

Procedure Sequence

- ✅ Deleting marked objects within procedures: Visum no longer crashes when deleting marked network objects while a procedure is running, e.g. via COM. **(16661)**
- ✅ Distributed computing of procedures and scenarios: After an increase of the number of Visum instances of the PTV Vision calculation server these additional instances were not used immediately for executing existing orders but only when new calculation orders were sent to the calculation server. This error has been fixed. **(16612)**

PuT Passenger Survey

- ✅ Plausibilization of passenger trip chains in survey data: Under specific conditions, the plausibilization of survey data could generate paths whose path legs were connected to passenger trip chains although no passenger trip chains existed at the vehicle journey sections used and they were not continuations on the same vehicle journey past the survey path leg either. This error has been fixed. **(16709)**

Scenario Management

- Cancellation of calculation orders: If a current calculation of a scenario is cancelled the available number of Visum instances was not exhausted afterwards. This error has been fixed. **(16611)**
- Distributed computing of procedures and scenarios: After an increase of the number of Visum instances of the PTV Vision calculation server these additional instances were not used immediately for executing existing orders but only when new calculation orders were sent to the calculation server. This error has been fixed. **(16612)**
- Entries to the log in the scenario management: If entries to the log have been made with the dates of August 31st, October 31st or December 31st, respectively, the entries were rejected as invalid and not shown. At the same time a warning was shown indicating the invalid dates. This error has been fixed. **(16623)**
- Start of many scenario calculations: If many scenario calculations were initiated in a single action, the calculation failed. This error has been fixed. **(16598)**

Timetable Editor

- Crash after sorting: The program does not crash anymore when changing the line mode or when opening a new network, and previously vehicle journeys were sorted in the tabular timetable editor. **(16116)**
- Restoring the screen section in the graphical timetable: The screen section of the graphical timetable was not saved correctly to the layout file if a 24-hour display was active and the first hour of this 24-hour display did not start at 00:00. A false screen section was thus displayed when restoring the section (also from the version file). This error has been fixed. **(15832)**
- Search when editing: The program does not crash anymore when opening the search dialog (from a list or within the timetable editor) and a list cell is being edited. **(16565)**
- Shift vehicle journey to another line route: The program does not crash anymore when a vehicle journey is shifted to another line route and when this action is reversed using undo and subsequently redo is applied. **(16540)**

15.00-16 [111542]   2016-08-23

⊕ New Features and Changes

I/O Interfaces

- ⊕ Shape File Import: PTV Visum is able to import shape files of the type Polygon, PolygonZ or PolygonM. The option 'Replace boundaries' is now also provided for polygons, which contains z- or m- coordinates. **(16556)**

PuT Assignment

- ⊕ Scaling of computation time of the timetable-based assignment: The scaling of computation time of the timetable-based assignment with the number of used cores has been improved further for applications where at least one zone-based fare is considered. **(16401)**

Timetable Editor

- ⊕ Tabular Timetable Editor: After inserting new vehicle journeys, they will be highlighted and the view will scroll to the earliest inserted vehicle journey. **(15171)**

⊘ Fixed Bugs

ANM

- Simulation time interval for PuT Lines: The selected simulation time interval for PuT Lines was just exported correctly to AMN, if the annual calendar in the network settings starts with the day of the simulation time interval. This error has been solved. **(16193)**
- Slow export with many demand segments: The ANM export was very slow when many demand segments and time series elements were taken into account for the export of the .anmRoutes file. Furthermore, the progress bar was not updated when exporting matrices. Both errors have been fixed. **(16459)**

Add-Ins

- Add-In 'Import TransCAD Network': When executing the Add-in 'Import TransCAD Network' some of the attributes have not been taken over. This error has been fixed. However, the attribute identifiers of the definition layer and data layer of the imported shape file must match (note also case-sensitivity). **(16407)**

Graphical Procedures

- ✅ Transport system-based PuT shortest path search: The program does no longer crash when no path is found during a transport system-based PuT shortest path search. **(16404)**

Graphics

- ✅ Circle line in the route course layer: The display of circle lines in the route course layer was incorrect when the network section was so small that the complete route course was not visible. This error has been fixed. **(15493)**
- ✅ Graphic parameters of the tool window 'Smart map' in XML: If the graphic parameters of the smart map were written in XML format, nevertheless a binary file was created. Reading of graphic parameter files in XML also failed. Both errors have been fixed. **(16393)**
- ✅ Route course layer instable: Under certain circumstances multiple calculations of the route course layer could result in different displays. This error has been fixed. **(16288)**

I/O Interfaces

- ✅ Import PuT supply from Visum: If the creation of stop points on links is enabled in the target network, it was possible that several stop points were created on the same link. If these stop points were not in the correct order of the course of the line route of the source network the line route could not be imported. Furthermore it could happen that turns were opened for a transport system although this was not allowed in the parameters. Both errors have been fixed. **(16303)**
- ✅ ODBC Database connection: The exchange with PostgreSQL databases via the ODBC interface (MS SQL Server interface module) did not work due to library conflicts. This error has been solved. **(16208)**

Junction Editor

- ✅ Vissim node preview: Modifying the main node geometry during the Vissim node preview is open, might have led to a crash. This error has been solved. **(16460)**
- ✅ Vissim node preview: Selecting node legs, lanes, lane turns or crosswalks the Vissim node previewer was cleared. This error has been solved. **(16526)**

Miscellaneous

- ✅ If there are command line parameters or configuration files with extension *.reg when starting the program, they were not regarded before the actual program start, i.e. the required user preferences were not effective in the current session. This error has been fixed. **(16433)**

Network Editor

- ✅ Quick View: It could happen while working with PTV Visum, that attributes in the Quick view were displayed multiple times. This error has been fixed. **(16524)**
- ✅ Removing objects: Pressing the 'Del' key in an opened search dialog could result in trying to remove all and not only the selected items. This error has been fixed . **(16429)**
- ✅ Transform coordinates in case of projection changes: When changing the projection the coordinates have been transformed, even when the transformation was switched off by the given option (This just affected Visum Versions 15 and 16 of the latest service pack). This error has been solved. **(16557)**

PuT Assignment

- ✅ Calculation of fares: The calculation of fares has been accelerated for cases with many demand segments and fare systems. This has an effect on the timetable-based assignment and on the output of fares in PuT path lists and PuT path leg lists. **(16301)**

Scenario Management

- ✅ Export partial Project: The project directories have been set to the initial state, after exporting a partial project. This error has been fixed. **(16504)**
- ✅ Export partial project: Certain constellations in comparison patterns could prevent locking a partial project after export. This error has been fixed. **(16500)**

Subnetwork Generator

- ✅ Subnetwork Generator: If there was a path, which starts at an active zone a led to a passive link, the subnetwork generation has been cancel. This error has been solved. **(16494)**
- ✅ Subnetwork Generator: The program has crashed during generating a subnetwork, if modelled nodes contains non-active cordon links. This error has been fixed. **(16486)**

Timetable Editor

- ✅ Edit vehicle journeys in their course: The program does not longer crash during the stop sequence calculation when cancelling the dialog 'Edit vehicle journeys in their course' **(16436)**

15.00-15 [110339]	**2016-07-11**

➕ New Features and Changes

Add-Ins

- ➕ Optional and additional attributes for the GTFS import: When using the Add-In 'Import General Transit Feed' it is now possible to transfer optional and other attributes in the files to user-defined attributes of the corresponding network objects. **(15117)**

✅ Fixed Bugs

Add-Ins

- ✅ Import GTFS: If two imports using the Add-In 'Import General Transit Feed' were executed one after the other, then the second import was incorrect. This error has been fixed. **(16311)**

COM-API

- ✅ Load version with open network comparison: The program does not crash anymore when opening a version file using the method IVisum.LoadVersion, the currently open network contains a network comparison and the procedure sequence is open. **(16263)**

Data Model

- ✅ Relations per demand segment: For PuT path legs a relation from each demand segment to ticket types, fare system, and fare zones exist. So far, these relations per demand segment were sorted differently and arbitrarily. This error has been fixed. **(16296)**
- ✅ Repair courses of line routes: Due to an error invalid line routes could be generated. This error was fixed (see under 15995). So far it was not possible to read version files that contained these invalid line routes. This is now possible, but the data of the missing line route items cannot be restored. However, if an affected line route is found a technically correct course is established and a hint about the affected line route is shown. **(16004)**

Dialogs

- ✅ Create Activity chains: If it fails to create an activity chain, maybe because it's already existing the dialog won't close anymore with an error message afterwards. The dialog will remain open, so that previous input isn't lost and can be corrected. **(14999)**
- ✅ Edit link: When link attributes were modified on the page 'PrT TSys' in the 'Edit link' dialog, the callculated values for t0, tCur and Impedance were not refreshed. This bug was fixed. **(16211)**
- ✅ Network units and scale: When the network unit system was changed in the network settings dialog, and the dialog was closed thereafter without further visiting the page 'Scale', the network scale was not adjusted to the new unit and a misleading mesage was displayd. The network scale is now correctly adjusted to changes of the network unit system and no message appears.. **(16204)**

Filters

- ✅ Filter for OD pairs with a condition for PuT paths only: If a single condition for PuT paths is defined in the filter for OD pairs then so far only the OD pair filter was written to the filter file. The settings for 'Use filter' and 'Filter network volumes' were lost. This error has been fixed. **(15845)**

Formulas

- ✅ Edit matrix references using attributes: If a matrix reference was edited in the dialog 'Select matrix by properties' using the grid of attributes and on the right side the variant contained a context with a umlaut (e.g. 'CONTEXT[ZIELAKTIVITÄTSSET]') the matrix reference was not accepted. This error has been fixed. **(16201)**

- ✅ Formula attributes containing attributes of version comparison: When transferring formula attributes to other versions, it could happened that the attributes, based on a version comparison were assessed as 0. Only by open the Editing Dialog the values have been updated. This behaviour has been corrected. **(16271)**
- ✅ Strings in matrix formulas: So far it was possible to define a matrix formula consisting of only one attribute of type string. This error has been fixed. **(15207)**

Graphics

- ✅ Tables for point objects: When the option 'underline' is selected for a row, the option 'Same color for all' was no longer respected and the colors individually choosen for each row were always used instead. This bug was fixed. **(16331)**

I/O Interfaces

- ✅ GPX import: GPX files could not be imported regardless of the actual formatting of the XML files. This error has been fixed. **(15714)**
- ✅ VDV452 import: If VDV452 data without line blocks are imported and the table 'OPERATING_DEPARTMENT' contains an entry with number 0 lines, line routes, and time profiles were created, but vehicle journeys were not created. This error has been fixed. **(16310)**

Lists

- ✅ Demand segments in PuT path lists: When reading a list layout file for PuT paths the setting which defines the paths that are to be displayed (all commonly assigned demand segments or a selected demand segment) was not accepted. This error has been fixed. **(16184)**

Lists, Matrix Editor, Timetable Editor

- ✅ Artifacts in covered cells: Cells in the tables of lists, matrix editor or tabular timetable were not refreshed reliable during they are covered by other dialogs. This error has been fixed. **(15913)**

Matrix Editor

- ✅ Separator in interval files of the matrix histogram: If the separator was modified when writing distribution intervals to file or to the clipboard, the change was only effective in subsequent actions, e.g. when writing the file again. This error has been fixed. **(16244)**

Miscellaneous

- ✅ COM registration and program exit: So far it was not possible to exit the program immediately if PTV Visum was registered via the Help menu. This error has been fixed. **(16227)**
- ✅ Read script menu file additively: Reading script menu files additively did not work properly. The program could crash or become unresponsive. This error has been fixed. **(16181)**
- ✅ Sorting in the message window: The program does not crash anymore when sorting is triggered by a click right of the column headers of the actual columns. **(16289)**

Network Comparisons

- ✅ Changed courses in versions with different link numbers: When generating a model transfer file for two versions which only differed in link numbers the courses of line routes and system routes were not marked as being modified. Applying the model transfer file resulted in data loss of the affected line routes and system routes. This error has been fixed. **(16130)**
- ✅ graphic parameters in network comparison mode: If a XML based graphic parameter file is selected within the dialog to create a network comparison, the file is denied during the creation of the network comparison. This error has been fixed **(16353)**

Network Editor

- ✅ Creating screenlines: After creating screenlines the orientation is the opposite compared to the orientation which was shown during the creation process. This error has been fixed. **(16217)**
- ✅ Rerouting of shortened vehicle journeys: Rerouting of line routes was not possible in certain cases when a shortened vehicle journey existed for a time profile of the line route which was not affected by the modified part of the course of the line route. This error has been fixed. **(16210)**
- ✅ Shift stop points on links: The program does not crash anymore when a directed stop point is shifted to a node. **(16212)**

- Split Link: While splitting a link the snapping functionality always prefer the link as object. Existing nodes, which could be used as new link node can't be selected. In order to provide the possibility to split a link, using existing nodes the selection snaps now first on nodes. If a new node should be inserted, the existing function u""";split according to lengthu"""; can be used. **(16093)**

Other Procedures

- Signal optimization with PTV Vissig: The signal optimization produced incorrect results for permitted left turning vehicles if the saturation flow according to the HCM and the saturation flow calculated from the capacity and the time of clearance were different. This error has been fixed. **(16216)**

PuT Assignment

- Connections from connection file or from another demand segment: Chained-up vehicle journey sections and ring lines were accounted for in the calculation of the number of transfers and of walking times when the connections were imported from a connection file or from another demand segment. This bug was fixed. **(16351)**
- Headway-based assignment with fares: The program does not crash anymore when (complex) fares are used in the headway-based assignment. **(16154)**
- Timetable based assignment: The runtime for the timetable based assignment increase by using more than twenty cores. This issue has been fixed. **(16357)**

PuT Line Blocking

- Create user-defined line block items: The program does not crash anymore when creating user-defined line block items at positions where layover block items already exist which are then deleted. **(16268)**

PuT Operating Indicators

- Deviations in decimal places: In rare cases the results of the procedure 'PuT Operating Indicators' vary for repeated executions minimally. This error has been fixed. **(16219)**
- Procedure terminates with vehicle journeys after 24h: The procedure 'PuT operating indicators' terminates when the analysis period comprises exactly one day, revenues were calculated, 'consider only active vehicle journey sections' option is selected and there are vehicle journeys which start after 24:00. This error has been fixed. **(16308)**

Scenario Management

- Export of partial projects and special character: The export of a partial project from a scenario management project failed when in an attribute of a scenario management object (e.g. in the description or in the code of a scenario) an apostrophe was used. This error has been fixed. **(16240)**
- Export partial project: In the wizard for exporting a partial project it was not possible to reduce the column width once they were enlarged, because the context menu entries 'Adjust column width to window size' and 'Optimal column width' were not available. This error has been fixed. **(16242)**
- Key conflicts for PrT paths: For user-defined PrT paths (those which are not the result of an assignment) the project-wide key management was missing. This resulted in conflicts when the same path sets were created in different modifications or in the base version. This error has been fixed. **(16209)**

Timetable Editor, Lists

- Dropdown menus within lists: If tables (lists with extended input options, tabular timetable) contains dropdown menus the menu have been as wide as the cell. The width is now related to the longest entry, to guarantee the entries are fully legible. **(16157)**

Visum Files

- Statistics of modification at transfer data files: When reading the model transfer files the option 'show statistics of modification' has no effect, that the statistics were never displayed. This error has been fixed. **(16384)**

15.00-14 [109276]   2016-06-01

⊕ **New Features and Changes**

COM-API

⊕ Execution of blocking back via script: A recalculation or initialization of blocking back can now be triggered by a script in the procedure sequence using AttValue 'UseBlockingBack'. When changing other blocking back parameters blocking back will not be recalculated. **(16189)**

I/O Interfaces

⊕ railML import: The railML import cannot be executed when 'commercial train' elements are missing in the input file. Because some systems produce files without these elements, the import of a railML file without 'commercial trains' now results in a specific message. **(15706)**

PrT Assignment

⊕ Assignment with ICA: If blocking back is initialized after an Assignment with ICA the result of the last subordinate assignment, i.e. without queues but using the modified VDFs for links and turns, is shown. **(16186)**

Timetable Editor, Lists

⊕ Input of the From time profile item or To time profile item as code: In the timetable editor and in lists it is possible not only use numbers but also characters for the attributes From time profile item identifier and To time profile item identifier of vehicle journeys and vehicle journey sections. If there exists exactly one time profile item which is located at a stop point of which the code and name is identical to the characters entered (apart from upper and lower case) this time profile item is selected. **(16155)**

⊘ Fixed Bugs

Demand Procedures

⊘ Abortion of distribution in tour-based model in case the transformed utility is zero: The procedure 'Tour-based model - Combined trip distribution / mode choice' was cancelled in case the transformed utility is zero. This was also the case when the demand was zero. This error has been fixed. **(16188)**

⊘ Trip generation (4-step model): If the procedure 'Trip generation' contains linear combination with attributes that do not exist in the network the calculation was also cancelled in case the corresponding coefficients were zero for all demand strata. This bug has been fixed. **(16111)**

Dialogs

⊘ Edit subsegment shares in fleet composition: If in the dialog 'Management of the weight proportions of the fleet compositions' (for HBEFA) a value is entered which corresponds to the already existing value it was not possible to leave the dialog. This error has been fixed. **(16198)**

⊘ Fixation of the time profile: In the dialog 'Edit line route' Tab 'Items and time profiles' it is possible to fix the arrival or departure time via the context menu. If the departure time is fixed, it is not possible to fix the arrival time of the same profile point because the corresponding entry is missing in the context menu of an already fixed profile point. This error has been fixed. **(16160)**

⊘ Slow response with many demand strata: If many demand strata exist in the model the following two operations were very slow: opening the attribute selection dialog in which subattributes with demand strata exist, and opening the demand model dialog. Furthermore, changes in the network took a long time if a list with many columns of attributes with subattributes across all demand strata was open. This error has been fixed. **(16180)**

Formulas

⊘ Usage of attributes with subattributes: The program does not crash anymore if in a formula an attribute with a subattribute is used and the formula contains the wrong number of subattributes. **(16167)**

I/O Interfaces

⊘ Data base export from lists and imperial units: When exporting a list to a data base metric units were exported instead of using the units according to the network settings. This error has been fixed. **(16170 🔴)**

PrT Assignment

⊘ Demand from formula matrix and MPA: A PrT or PuT assignment failed, if connector shares (MPA) were used and the matrix for one of the demand segments was defined as formula matrix. This error has been fixed. **(16139)**

⊘ Partially vehicle actuated controllers for ICA: The network check 'Viability for ICA' now also identifies partially vehicle actuated controllers without coordinated signal group, because they cause problems in the ICA calculation (and therefore also within Assignment with ICA). **(16148)**

PuT Assignment

- Demand from formula matrix and MPA: A PrT or PuT assignment failed, if connector shares (MPA) were used and the matrix for one of the demand segments was defined as formula matrix. This error has been fixed. **(16139)**

PuT Operating Indicators

- Instable order of territory PuT detail objects: The order of territory PuT detail objects was instable for the export of an attribute file when the calculation was executed for the level 'Territory x .... x vehicle combination' and vehicle journeys with several vehicle journey sections exist of which some have a vehicle combination allocated, but others don't have vehicle combinations assigned. This error has been fixed. **(16137)**

⊘ Breaking Changes

I/O Interfaces

- Data base export from lists and imperial units: When exporting a list to a data base metric units were exported instead of using the units according to the network settings. This error has been fixed. If imperial units are used the exported values change. **(16170 ⊘)**

15.00-13 [108444]	2016-05-04

⊕ New Features and Changes

Add-Ins

- ⊕ Import General Transit Feed: Using the GTFS-Import Add-In the number of the original stop points will be stored in the user-defined attribute u"";Orig_IGu""; of the stop point within Visum. **(16129)**

Installation

- ⊕ Update of CodeMeter-Runtime to version 6.20: The Codemeter-Runtime has been updated to version 6.20. This also changes the user interface of the CodeMeter-WebAdmin. The update of the CodeMeter-Runtime must be performed manually on servers with network dongles on which PTV Visum is not installed. The CodeMeter-Runtime version 6.20 can be downloaded from the download area of the PTV Vision Traffic-License-Server. **(16032)**

Lists

- ⊕ Go to reverse direction: As in path lists in the context menu of the lists 'OD pairs' and 'Main OD pairs' is now the option 'Go to reverse direction' available. **(15149)**

⊘ Fixed Bugs

COM-API

- Main node in shortest path search ('IRouteSearchPrT'): So far in the method 'Execute' of the 'IRouteSearchPrT'-Object main nodes could not be defined as start or end points, respectively. This error has been fixed. **(15998)**
- Set time interval of assignment: The value of 86,400 (=24h) has been rejected when setting the end of the assignment time interval of the timetable-based assignment using the AttValue property for the attribute 'TimeIntervalEndTime' of ITimetableBasedBasePara. This error has been fixed. **(16095)**

Data Model

- Deleting chained up vehicle journey sections: The program does not crash anymore when accessing chained up vehicle journey sections after a vehicle journey section has been deleted and this vehicle journey section is the end of several different chained up vehicle journey sections at the same valid day. **(16099)**
- Normalizing surfaces: A dialog with unjustified technical messages could appear when normalizing (self-intersecting test) surfaces, either as independent action or as part of reading network or model transfer files. If the button 'Repeat' was pressed the program could also crash. This error has been fixed. **(16025)**

Demand Procedures

- Trip distribution (Standard 4-step model): The program does not crash anymore when the trip distribution is executed and an empty matrix reference is given for the distribution matrix. **(15733)**

Filters

- Update when changing the current time interval: If a formula attribute is applied in a filter condition and this formula attribute makes use of an attribute with a sub-attribute for analysis time interval in the form of 'CurInt' the filter has not been re-evaluated when the current time interval changed. This error has been fixed. **(16105)**

Formulas

- Fomulas with reference to time-varying attributes: An user-defined formula attribute in which the formula makes use of a time-varying attribute became invalid when reading a version file. This error has been fixed. **(16102)**
- Insert key word 'Matrix' in formulas: If the editing dialog 'Select operand' was opened using a double click on the key word 'Matrix' and the condition in brackets was empty, i.e. 'Matrix()', it was not possible to add attributes via the 'Create' button to define conditions. This error has been fixed. **(15428)**

Graphics

- Set discrete values in the classification for POI categories: Defining discrete values in the classification of POI categories did not work if the attribute of the classification was an user-defined attribute. This error has been fixed. **(16092)**

I/O Interfaces

- HAFAS import, additional texts in file 'ZUGART': After the train information additional language-dependent texts could be included in the file 'ZUGART' (type of train) of the HAFAS raw data. So far the import was aborted if such texts or other in version 5.40 of the HAFAS raw data format introduced rows for formatted templates, attributes or info text were included. This error has been fixed. **(15632)**

Main Window

- Generating new networks: Visum was freezing for quite some time in different situations when generating a new network (e.g. under scenario management or when importing data). This error has been fixed. **(16089)**

Other Procedures

- Procedures 'P+R lot choice' and 'P+R leg split': For high precision of output values numerical instabilities of results could occur in the two procedures for P+R. This error has been fixed. **(16028)**

PuT Assignment

- Timetable-based assignment with extremely high impedances: The program does not crash anymore when the impedances for all connections of one OD relation are greater than 100,000,000. **(16066)**

Scenario Management

- Reading files (.net, .tra, .dmd) additively was slowed down considerably when one of the quality lists such as 'PrT assignment quality data' or 'PrT ICA assignment quality data' was open. This was also the case in the scenario management when reading modifications. This error has been fixed. **(15961)**

Schematic Line Diagram

- Moving time profiles: The program does not crash anymore when moving a time profile from one line to another and when vehicle journeys of this time profile are shown in the schematic line diagram. In partucular, this could happen when using the functionality 'Edit vehicle journey in its course'. **(15759)**

Visum Files

- Reading files (.net, .tra, .dmd) additively was slowed down considerably when one of the quality lists such as 'PrT assignment quality data' or 'PrT ICA assignment quality data' was open. This was also the case in the scenario management when reading modifications. This error has been fixed. **(15961)**

15.00-12   [107484]   2016-04-11

⊕ **New Features and Changes**

Dialogs

⊕ Navigation through connectors of a zone and at a node: In the dialog 'Edit connector' it is now possible to navigate through all connectors of the zone and node, respectively. **(15681)**

✅ Fixed Bugs

COM-API

✅ Check of type for AddUserDefinedAttribute: The COM method 'AddUserDefinedAttribute' for creating a user-defined attribute for various container objects did allow for ValueType of the attribute which were not provided for user-defined attributes. This error has been fixed. **(15996)**

Dialogs

✅ Non numerical values in numerical table cells: The program does not crash anymore when pasting non numerical values from the clipboard to cells of a table that expects numerical values. **(15982)**

✅ Procedure parameter dialog for the tour-based model: Opening the procedure dialog "Combined tour-based model - trip distribution / mode choice' took a long time in networks with many demand strata and matrices. This error has been fixed. **(15951)**

Formulas

✅ 'In'-expression in matrix formulas: In Formulas the 'In'-expression could not be combined with other conditions using logical operators, in particular with 'ForEach'. This error has been fixed. **(15962)**

Lists

✅ Adjusting the color schemes: If the default for the analysis time slots is changed in the attribute selection dialog, so far the attributes have been adjusted but not the graphic parameters of corresponding columns. This error has been fixed. **(16005)**

Miscellaneous

✅ Licenses in terminal server environments: The restriction of the number of Visum instances used simultaneously in a session did not work correctly in terminal server environments. If several instances were started in a session, each of them used a separate license. This has been corrected, so that up to five instances can be started with one license. Instances in different sessions each use a separate license. **(16009)**

✅ Switch to fall-back licenses: If in the computer network several network licenses exist and the connection to the dongle get lost, the Visum instance will switch to other available licenses of other dongles when they are accepted as fall-back licenses, meaning they have the same license (add-on modules, network size etc.). So far this mechanism was ineffective because these licenses were never accepted as fall-back licenses even if this would have been possible. This error has been fixed. **(15953)**

Network Comparisons

✅ Network merge mode with main nodes: The Network merge mode failed when in one of the networks a main node existed. This error has been fixed. **(15988)**

✅ Version comparison with missing comparison network: The program does not crash anymore when selecting a network object in the window 'Marking' with an active version comparision for which the comparison network is missing. **(15990)**

Network Editor

✅ 'Shift stop point' can result in invalid line route courses: If a line route starts or ends at a stop point on a link and another line route passes this stop point in the opposite direction the course of this line route could become invalid if the stop point was shifted in a way that it changed to a directed link stop point in the direction of the line route that starts or ends at the stop point. This error has been fixed. **(15995)**

✅ Cancel creating a link: The program does not crash anymore if a new link is added in the network and then via the button 'Details' the 'Edit link' dialog is opened and afterwards this dialog is left using 'Cancel'. **(15993)**

PuT Assignment

✅ Executing the timetable-based assignment on computation nodes: The program does not crash anymore when the timetable-based assignment is executed on a computation node and volumes per vehicle journey item are saved. **(15980)**

- ✅ Passenger trip chains in the timetable-based assignment: If passenger trip chains exist in the network, the timetable-based assignment could fail. This error has been fixed. **(15992)**

Scenario Management

- ✅ Cancel opening a project: When opening a scenario managment project Visum asks if the current data should be saved in case the data have been changed. If one selects 'Cancel' the project is opened nevertheless. This error has been fixed. **(15999)**
- ✅ Negative transfer fares: In network files, model transfer files and in modifications of a scenario management project it was not possible to define negative transfer fares. This error has been fixed. **(15972)**

Timetable Editor

- ✅ Hierarchical stop sequence: The program does not crash anymore when saving the stop sequence as layout file or when saving the version file in case for an existing line selection a stop sequence has been calculated based on the hierarchical rule and after that one of the line routes is deleted from this line selection. **(15952)**

Visum Files

- ✅ Negative transfer fares: In network files, model transfer files and in modifications of a scenario management project it was not possible to define negative transfer fares. This error has been fixed. **(15972)**

15.00-11   [106914]   2016-03-23

➕ New Features and Changes

ANM

- ➕ PuT transport systems on main turns: It is now possible to also open main turns for PuT transport systems. This is necessary for the ANM export of PuT lines to Vissim if the PuT line must be mapped to a main turn that is not used by any other PrT transport system. In Visum the PuT line is still using the underlying link-node structure, i.e. is not using the main turn. **(14689)**

Data Model

- ➕ PuT transport systems on main turns: It is now possible to also open main turns for PuT transport systems. This is necessary for the ANM export of PuT lines to Vissim if the PuT line must be mapped to a main turn that is not used by any other PrT transport system. In Visum the PuT line is still using the underlying link-node structure, i.e. is not using the main turn. **(14689)**

Installation

- ➕ Firmware update: During the installation - both during the setup and an update with a service - an update of the firmware is triggered if an internet connection exists and a dongle is attached to the computer. **(15933)**

✅ Fixed Bugs

Procedure Sequence

- ✅ Distributed computing with very big files: If for distributed computing of procedures or scenarios very big files had to be transferred between computers the connection between computation nodes could be lost. This error has been fixed. **(15935)**

COM-API

- ✅ Crash when closing Visum: When Visum was closed the program could crash under certain circumstances if during a Visum session an Add-in or a Python script was executed. This error has been fixed. **(15924)**

Data Model

- ✅ Crash with inconsistent data: If the linkage between time profile items and line route items was not correct, the program could crash at various procedures without obvious reason. Now these procedures are stopped with an information of the corresponding line route, so that the problem can manually be corrected. **(15904)**

Dialogs

- ✅ 2D display in the graphic parameter dialog: The check box 'Draw layer 2D display' at the page for 2D display of the graphic parameter dialog was sometimes losing its settings if one entered the graphic parameter dialog after reading a version file. This error has been fixed. **(15948)**
- ✅ Graphic parameters dialog for turns: The two options 'Draw bar labels' and 'Draw bars' at the page 'Turns' of the 'Edit graphic parameters: Network editor' dialog did not work. This error has been fixed. **(15923)**

Filters

- ✅ Renaming comparison attributes: When reading filter settings in a version file that are saved with previous release versions of Visum filter settings were adjusted for attributes which have been renamed. However, this adjustment was only applied to attributes for which the filter condition was defined but not in case of a comparison attribute. This error has been fixed. **(15895)**

Formulas

- ✅ Formatted output using NUMTOSTR: The formatted output for the conversion of numbers into strings did not work when the number of decimal places was too big. This error has been fixed. **(15860)**

Graphics

- ✅ OSM background maps: Visum was not responsive if an OSM background map is switched on and the maximum zooming level is reached. This error has been fixed. **(14720)**

I/O Interfaces

- ✅ Link orientations after shape file import: After a shape file has been imported the link orientations of links were not always correct if for links the option 'directed' was used. This error has been fixed. **(15917)**

Lists

- ✅ Analysis rows for relations to vehicle journey items: The program does not crash anymore if for the calculation of analysis rows an attribute is used which refers via a relation to vehicle journey items. **(15907)**

Matrix Estimation

- ✅ Very large correction factors in TFlowFuzzy: The operation 'demand matrix correction (TFlowFuzzy)' aborts when one of the correction factors get an infinite value without producing a message indicating the cause for the abortion. The error message has now been cleirified. Infinite correction can occur when relations requiring correction have very small, but larger than 0 demand. **(15950)**

Network Editor

- ✅ Saving the version file while editing a line route: When a line route is created and its course is edited one can save the version file after switching to another view (e.g. a list) without finishing the editing step of the line route. However, the version file saved from this state could not be read anymore. This error has been fixed by preventing saving during the editing step. **(15928)**

PrT Assignment

- ✅ ICA calcualtion for left turns of actuated controllers: The ICA calculation according to HCM2010 for left turns of fully actuated controllers (RBC) were not correctly taken into account if the left turns have their own lane, but not their own phase, i.e. use the same phase as vehicles turning straight and right, respectively. This error has been fixed. **(15927)**
- ✅ LUCE assignment with proportionality: The program does not crash anymore under certain circumstances if LUCE is using the option for proportionality of route volumes for meshes. **(15932)**

PuT Assignment

- ✅ Program crash at connection export: The program does not crash anymore when writing connections from a timetable-based assignment when opening the file fails. The attempt to open the file for writing is repeated several times and if the problem persists (e.g. because the hard drive is inaccessible or full) the assignment is cancelled. **(15919)**

PuT Operating Indicators

- ✅ Vehicle journey after 24h: The procedure PuT Operating Indicators was aborted during the calculation of revenues when the option 'Consider only active vehicle journey sections' is selected and the network has no calendar but vehicle journeys starting after 24h. This bug was fixed. **(15940)**

Scenario Management

- ✅ Distributed computing with very big files: If for distributed computing of procedures or scenarios very big files had to be transferred between computers the connection between computation nodes could be lost. This error has been fixed. **(15935)**
- ✅ Edit Modification, Procedure parameter set or Comparison patern: The command bar shown when a modification, procedure parameter set or comparison pattern could not be displayed when the name of the edited item or the project contains special characters. This even prevented stopping the editing session. This bug was fixed. **(15958)**

Subnetwork Generator

- ✅ Private transport demand when using option 'Use connector links': If the option 'Use connector links' is selected, additional directly connected cordon zones were created in addition to those connected through the connector links. This happened for bounding nodes connected to active as well as passive links. The bug was fixed. **(15930)**

Timetable Editor

- ✅ Proportional spacing in the graphical time table: The calculation of proportional spacings between elements of a stop sequence was not correct if the line route items used for the calculation were not route points too. This error has been fixed. **(15916)**

Visum Files

- ✅ Double click on version files: When using a double click on version files to open the file project directories have not been set to the directory in which this version file is located. Consequently, files that are references in the version file via relative paths (e.g. pictures or .sig files) could not be found. This error has been fixed. **(15880)**
- ✅ Frequent cases when reading network files: For 'Frequent cases - Read timetables' the tables vehicle journey coupling section and vehicle journey coupling section item were not activated when reading network files or data bases additively. This error has been fixed. **(15941)**

15.00-10   [106327]   2016-03-03

⊕ New Features and Changes

COM-API

- ⊕ Opening and saving layout files for the graphical timetable editor: At the COM object for the graphical timetable (IGraphicalTimetable) the methods 'OpenLayout' and 'SaveLayout' were added. **(15823)**

Signal Control

- ⊕ PTV Balance:
  - It is now possible to combine signalised and unsignalised turns.
  - It is now possible to define arbitrary interstage orders. **(15910)**
- ⊕ Vissig:
  - Intergreen time violation checks, when editing signal group based signal programs, have been improved. **(15911)**

✅ Fixed Bugs

Add-Ins

- ✅ Generate PuT Zone Connectors: The Add-in 'Generate PuT Zone Connectors' did not create connectors if the name of a line contained a comma. This error has been fixed. **(15877)**
- ✅ Name of the vehicle journey for the GTFS import: When importing data from the General Transit Feed (GTFS) the name of the vehicle journey was not taken from the data field 'Trip_id'. Instead the name of the assigned time profile was used. This error has been fixed. **(15856)**

COM-API

- ✅ Calculating flow bundles for transport system - based assignment: So far it was not possible to calculate a flow bundle for a PuT demand segment assigned using the transport system - based assignment or create additional conditions via COM because the term type has always been set to PuT. This error has been fixed. **(15897)**
- ✅ IFlowBundle.CloseBracket: The call of the method IFlowBundle.CloseBracket for closing a bracket of several flow bundle terms failed with an error message. This error has been fixed. **(15873)**

Demand procedures

- Inaccessible relationships in the mode choice of the Combined tour-based model: A huge negative utility in the calculation of mode choice after the Nested logit model within the Combined tour-based model does not result in an overflow anymore. This can occur if for an OD pair all modes below the actual nest are not available. **(15792)**

Dialogs

- Attribute selection for graphic parameters of 2D display: The attribute selection for the 2D display was not always applied. This error has been fixed. **(15842)**
- Define parameters in the timetable-based assignment: If a new procedure PuT Assignment using the timetable-based method is added, the weighting factors for the search impedance are set to '1.0' by default. If the button 'Transfer prefactors to PJT definition' was used, empty values were received and applied like 0 instead of factor '1.0' in the calculation. This error has been fixed. **(15887)**
- Edit several vehicle journey sections at a stop: In the dialog for the definition of several chained up vehicle journey sections at a stop these chained up vehicle journey sections are marked as 'valid' if they are valid for at least one filtered calendar day. When leaving the dialog chained up vehicle journey sections are only created for these days. **(15801)**

Filters

- Filter for PuT paths with the attribute 'Index': If the OD pair filter uses the option 'Filter network volumes' and a filter condition with the attribute 'Index' the filter affects the filtered PuT paths list, but not the calculation of flow bundles or filtered network volumes. **(15890)**
- Initializing the filter when reading filter files: When reading filter files the option 'Initialize existing filters first' did not have an effect. This error has been fixed. **(15827)**
- Interaction between filter for OD pairs, flow bundle and list PuT paths: The program does not crash anymore if the option 'Filter network volumes' is used, a flow bundle is active (which then must be recalculated) and the list PuT paths is open. Furthermore, network volumes were not correctly calculated in combination with an OD pair filter for PuT paths. Both errors have been fixed. **(15846)**
- Reading filters from files: When reading filters from filter files invalid combinations of attribute type (numerical, predefined sets etc.) and filter operator (greater, equal, is contained in etc.) were not rejected. This error has been fixed. **(1082)**

Formulas

- 'If' with an empty value in the condition: The program does not crash anymore for formulas with an 'If' in case the two alternative values contain strings and the expression in the condition returns an empty value. **(15835)**
- Access to assignment matrices after deleting the assignment result: The program does not crash anymore when accessing an assignment matrix of a demand segment using a formula matrix (function 'AssignedVolumeMatrix(NsegCode') after the assignment was deleted or a zone was added (only for PuT demand segments). **(15837)**
- Concatenation of strings with empty values: The concatenation of two strings produced an empty value in case value on the right side was empty. If the value on the left side was empty the right side was returned. This error has been fixed. The empty value is now correctly treated as empty string in line with the treatment of numerical values where an empty value is zero for the following calculations. **(15831)**

Graphical Procedures

- Evaluation of flow bundle with an active OD pair filter: An existing flow bundle calcualtion with an active OD pair filter was repeated at every second change of the filter despite the fact that the option 'Filter network volumes' was deactivated. This error has been fixed. **(15853)**
- Graphics tools and search window: The program does not crash anymore when using one of the graphics tools (e.g. flow bundle, shortest path search, Isochrones) and the search window is open. **(15844)**

I/O Interfaces

- HAFAS import with passenger trip chains: The program does not crash anymore when the target network does not use a calendar and a vehicle journey which is part of a passenger trip chain departs past midnight. Furthermore, passenger trip chains which had a source vehicle journey section with a departure time after midnight and a target vehicle journey section with a departure time before midnight were not imported for the correct day. This error has been fixed. **(15872)**

- ✅ Time shift file for the HAFAS import: If a time shift of stops is defined by using the time shift file vehicle journeys with negative departure times could be produced. This error has been fixed, i.e. vehicle journeys have a positive departure time and the valid day is adjusted. **(15888)**
- ✅ Time shifts in the HAFAS import: When reading time shift files in the dialog of the HAFAS import the values for hours and the cut off time were always set to zero, and the date was set to the beginning of the calender period. These wrong values were then used during the following import. This error has been fixed. **(15839)**

Junction Editor

- ✅ Node impedance calculation ICA for shared lanes: The distribution of demand across lanes at nodes was not correct if during the iterative procedure a shared lane became a de facto lane due to the actual volumes by direction. In this case an error message occured and the assignment with ICA was finished. This error has been fixed. **(15794)**

Lists

- ✅ Analysis rows for empty values: The analysis rows in lists (Sum, Minimum, Maximum, Average) were not correct if the values in the first rows (at least 100 and more than 1/8) were empty. This error has been fixed. **(15824)**

Network Editor

- ✅ Shifting the centroid of a main zone: When selecting a main zone in the network editor zones are highlighted to add them to or remove them from the main zone. After shifting the centroid of the main zone zones were not highlighted anymore. This error has been fixed. **(15861)**

Other Procedures

- ✅ Intersect of geometries: When executing Intersect (both within the procedures 'Intersect', 'PuT operating indicators' and 'Territory indicators' as well as interactive in the network editor) some errors of geometry generation have not been shown. For the objects in question no geometry has been generated but the Intersect operation has been shown as being successful. This error has been fixed. **(15900)**

PrT Assignment

- ✅ Node impedance calculation ICA for shared lanes: The distribution of demand across lanes at nodes was not correct if during the iterative procedure a shared lane became a de facto lane due to the actual volumes by direction. In this case an error message occured and the assignment with ICA was finished. This error has been fixed. **(15794)**

PuT Line Blocking

- ✅ Docking of line blocking editor: Under certain circumstances a dialog with an error message appeared instead of a tooltip when docking the line blocking editor to the main window. This error has been fixed. **(15881)**
- ✅ Initializing line blocks with an open line block editor: The program does not crash anymore when line blocks are initialized using the procedure 'Init line blocking' with the line block editor open. **(15855)**

PuT Operating Indicators

- ✅ Link starts exactly at territory border: If the FromNode, the ToNode or a polygon point of a link lies exactly at the border of a territory the link has been allocated fully to both territories. This error has been fixed. **(15778 🛑)**
- ✅ Vehicle journey not in any territory, but stop in a territory: The program does not crash anymore when calculating operational performance of territories or when calculating the projection of user-defined attributes in case a vehicle journey exists which does not belong to any territory but serves at least one stop point which lies in a territory. **(15850)**

Scenario Management

- ✅ Backup of data base on network drives: When closing a scenario management project the creation of the backup project data base could fail if the folder 'Documents' refers to a network drive. This error has been fixed. **(15874)**

Schematic Line Diagram

- ✅ Labels for departures and arrivals disappear: When marking transfer nodes or edges the departure and arrival labels could become invisible if frames are not switched on for these labels in the graphic parameters of the schematic line diagram and if layers for branches and transfer node labels are also switched off. This error has been fixed. **(15770)**

Visum Files

- Initializing the filter when reading filter files: When reading filter files the option 'Initialize existing filters first' did not have an effect. This error has been fixed. **(15827)**

Breaking Changes

PuT Operating Indicators

- Link starts exactly at territory border: If the FromNode, the ToNode or a polygon point of a link lies exactly at the border of a territory the link has been allocated fully to both territories. This error has been fixed. This changes the results of the procedures 'PuT operating indicators' and 'Territory indicators' in affected networks. **(15778)**

15.00-09   [105406]   2016-02-04

New Features and Changes

COM-API

- Set project directories for all file types: Using the new method IVisum.SetAllPaths ([in] BSTR Path) the project directories for all file types can be set to one single folder at once. **(15725)**

Data Model

- Comparison of assignment quality data: New relations from 'Network' to 'PrT assignment quality data' and 'PrT ICA assignment quality data' exist which allow access to the entries of the last iteration in these lists. This allows output of these results, e.g. as scenario indicators in a project under scenario management. **(15731)**

Installation

- 'Repeat' when updating: If Visum is open and a service pack cannot be installed an option to repeat the installation is now offered without restarting the update process after Visum has been closed. **(14939)**

Scenario Management

- Comparison of assignment quality data: New relations from 'Network' to 'PrT assignment quality data' and 'PrT ICA assignment quality data' exist which allow access to the entries of the last iteration in these lists. This allows output of these results, e.g. as scenario indicators in a project under scenario management. **(15731)**

Fixed Bugs

COM-API

- Saving list PuT paths or list PuT path legs using RandomRound: The program crashed at a second export if a list PuT paths or a list PuT path legs was opened with COM and the set of paths were changed several times using SetObjects and exported via SaveToArray, and the property RandomRound (only available with COM) was used. This error has been fixed. **(15813)**

Data Model

- Deleting passenger trip chains: Deleting lines in big networks is very slow when passenger trip chains and/or forced chaining exist. This error has been fixed. **(15802)**

Demand Procedures

- Modal split in the list 'Network information'. The attribute 'Modal split' with the sub attribut mode in the list 'Network information' now provides meaningful values, if the existing zone matrices are labelled and used with corresponding matrix references. The modal split is calculated from the matrix sums of demand matrices with zone dimensions which belong to a demand model and have a mode code defined. **(15772)**

Filters

- Reading filters with brackets and empty conditions: The program does not crash anymore when reading a version file that on one side contains filter conditions for attributes with a discrete value range, but the set of valid values is empty, and on the other side filter conditions are put in parentheses. **(15737)**

I/O Interfaces

- Data base export to MS SQL Server: The program does not crash anymore if a password with certain special characters (e.g. semicolon) is used for the data base export to MS SQL Server. Furthermore, the username and password is not requested anymore if the login is using the current Windows authentication. **(15797)**
- Detectors in the Synchro import: When importing Synchro the positioning of detectors has been improved. Furthermore, more detectors are imported. **(15788)**

Junction Editor

- Reset lane data: The program does not crash anymore when lane data are reset via the Multi-edit special function for nodes and the junction editor window is open. **(15776)**

Main Window

- Views outside the visible area: The program does no longer crash when reading a version file with windows configuration from the version file for open views (user preferences) and the version file includes window positions which are outside of the visible area of the currently available screens. **(15773)**

Miscellaneous

- User preferences for Standard transport system for (main) turns: The settings in the user preferences under 'Network -> Turns and main turns' have not been written to the registry after changes. Consequently, the changes were lost after re-starting the program. This error has been fixed. **(15734)**

Network Editor

- Tabular editing of line routes: The program does not crash anymore when in the context menu the entry 'Tabular editing' is selected before a first course item is defined. **(15796)**

PrT Assignment

- Cancel Assignment with ICA: When the assignment with ICA was canceled and the option 'Complete calculation of current iteration' was selected, the current iteration of the subordinate assignment was completed and then the outer iteration. This is not correct. Instead now the subordinate assignment is completed and after the complete outer iteration assignment with ICA is canceled. **(15267)**
- Skim matrix calculation after LUCE asssignment: When calculating skim matrices with the option 'Minimum per skim' for Weighting of paths based on a LUCE assignment the mean was calculated instead. This error has been fixed. **(15816)**
- Warm start for Assignment with ICA: It was possible to activate the warm start option for Assignment with ICA (Tab 'Input'), but in combination with LUCE as subordinate assignment it was not used, i.e. the estimated parameters for VDFs have not beed used. This error has been fixed. **(15774)**

PuT Operating Indicators

- 'Only active vehicle journey sections' for network performance: When calculating network performance indicators for territories the option 'Consider only active vehicle journey sections' was not taken into account since Visum 15.00-06, because the logic for the calculation before that service pack was not correct. The option is now considered in the following way: If a PuT path leg contains a vehicle journey item for which the vehicle journey section is not active the volume is not considered for the calculation of the network performance of territorries. For revenues the values for length-proportional or fare point-proportional of the corresponding vehicle journey item is not taken into account for the PuT leg revenue. In this case for a territory which includes the entire network the territory cut value does not match the value of network performance for the line hierarchy. This case can only occur if the filter has been changed between running the assignment and the calculation of PuT indicators. In that case a warning is shown. **(15655 ⊘)**
- Network performance for PuT detail objects with vehicle combinations: So far the results for indicators like Passenger-km, Passenger-hours and PuT trips unlinked for territories with regard to vehicle combinations were different depending on the calculation for analysis time intervals. This error has been fixed. **(15528)**

PuT Passenger Survey

- 'NoPassengers' changed to floating point number: The input attribute 'NoPassenger' in single-row or multi-row survey data was an integer, but then transferred to a floating point number in attribute 'OD trips' of PuT paths. This error has been fixed. **(15728)**

Scenario Management

- Modifications in load order of a scenario: The attribute 'Modifications (completed, sorted by load order)' of a scenario should include all modifications in the order they are loaded. So far, the modifications were sorted by number. This error has been fixed. **(15765)**

- Split zones: When splitting zones for the new zones the next free numbers in the current network were suggested instead of the next free numbers in the project. This error has been fixed. **(15803)**

Schematic Line Diagram

- Suffixes in formatted labels: There exist several attributes for labels of directed edge courses that use suffixes like '*','^','!'. In formatted variants, e.g. attribute 'Most frequent two-hourly departure times' so far these suffixes were not shown. This error has been fixed. **(15758)**

Timetable Editor

- Editing of chained up vehicle journey sections in the tabular timetable editor: In the context menu of vehicle journey sections the entry 'Edit chained up vehicle journey sections' was missing when the add on modul 'OP' was not active. This error has been fixed. **(15800)**
- Recalculation of stop sequence when deleting lines: If for the stop sequence the mode 'Always auto-calculate stop sequence' is used, deleting objects of the line hierarchy often resulted in an unnecessary recalculation of the stop sequence. This error has been fixed. **(15673)**

Visum Files

- EndTime in the extended route import: In the extended route import the time 24:00:00 was not accepted as attribute EndTime. This error has been fixed. **(15785)**

⊘ Breaking Changes

COM-API

- Saving list PuT paths or list PuT path legs using RandomRound: The program crashed at a second export if a list PuT paths or a list PuT path legs was opened with COM and the set of paths were changed several times using SetObjects and exported via SaveToArray, and the property RandomRound (only available with COM) was used. This error has been fixed. Using a modified initialisation of the random round generator the exported rounded volumes can change. Because of rounding some paths can be omitted, the set of paths exported can change compared to the result so far. **(15813 ⊘)**

PuT Operating Indicators

- 'Only active vehicle journey sections' for network performance: When calculating network performance indicators for territories the option 'Consider only active vehicle journey sections' was not taken into account since Visum 15.00-06, because the logic for the calculation before that service pack was not correct. The option is now considered in the following way: If a PuT path leg contains a vehicle journey item for which the vehicle journey section is not active the volume is not considered for the calculation of the network performance of territorries. For revenues the values for length-proportional or fare point-proportional of the corresponding vehicle journey item is not taken into account for the PuT leg revenue. In this case for a territory which includes the entire network the territory cut value does not match the value of network performance for the line hierarchy. This case can only occur if the filter has been changed between running the assignment and the calculation of PuT indicators. In that case a warning is shown. The results change, also compared to the results which were produced with Visum 15.00-05 and earlier versions. **(15655 ⊘)**

15.00-08 [104691]   2016-01-14

⊘ Fixed Bugs

Add-Ins

- Names of matrices in the OMX import: If the meta data did not contain names, the matrix attribute 'Name' was not set. Now in this case the attribute 'Name' is filled with the identifier of the matrix in OMX. **(15686)**

Dialogs

- Attribute selection dialogs (both types): If the user defines a default for analysis time intervals ('Preset the analysis time slots') in the big or small attribute selection dialog also attributes with subattributes of other types than AHP, AP were removed from the selection. This error has been fixed. **(15709)**
- Background preview in the graphic parameters dialog: The preview from the page 'Background map' has not been updated, if the settings for Color, Grey scale or Intensity were changed. This error has been fixed. **(15740)**

- ✅ Editing a script menu entry: If Italian has been selected as the language in the dialog 'Edit script menu' the button 'Open' was not visible. This error has been fixed. **(15730)**
- ✅ Editing graphic parameters of the signal time-space diagram: The program does not crash anymore if the user exits the graphic parameter dialog of the signal time-space diagram. **(15697)**
- ✅ Number of vehicle journeys in the dialog 'Edit line route': On the 'Basis' page of the dialog 'Edit line route' the number of vehicle journeys was not reported correctly if the line route had more than one time profile. This error has been fixed. **(15762)**

Graphics

- ✅ Graphic parameters of the Smart map: In the Smart map the graphic parameters of the Smart map was used even if 'Graphic parameters from network view' was used. This error has been fixed. **(15502)**

I/O Interfaces

- ✅ Certain links in the OpenStreetMap import: Links with the property highway = 'secondary_link' or 'tertiary_link' were not imported when using the configurations 'Urban network', 'Urban road network', 'Detailed urban network' and 'National network'. This error has been fixed. **(15665)**
- ✅ Empty trips at the start of a line block in the VDV452 export: If a line block starts with an empty trip the operator number of the first vehicle journey of the line block was not allocated to this empty trip. This error has been fixed. **(15685)**
- ✅ Import 'PuT supply from Visum ...': The program could crash if the attribute 'Stop area number' under the option 'Attribute for number of origin stop point is based on' was selected but a related stop area does not exist. This error has been fixed. **(15741)**
- ✅ VDV452-Export: The value for STOP_POINT_NO in table STOP_POINT was not stable for different exports of the same network. In some cases, depots were not flagged correctly in the output data. These bugs were fixed. **(15695)**

Junction Editor

- ✅ Editing the allocation of signal groups to lane turns: In big networks editing the allocation of signal groups to lane turns in the junction editor was very slow. This process has been accelerated considerably. **(15760)**

Line Blocking

- ✅ Messages for the sensitivity analysis: If negative layover times are allowed within the sensitivity analysis of line blocking a message is shown for each passage between vehicle journey sections where negative layover times are used. In this message the vehicle journey sections were not referenced by their keys. This error has been fixed. **(15702)**

Lists

- ✅ Color schemes for numerical attributes: When editing the color scheme for a column of a list for a numerical attribute sometimes the options for attributes of type string were shown. This error has been fixed. **(15581)**
- ✅ Demand segments in the list 'Passenger transfers stops / time profiles': When reading a list layout for the list 'Passenger transfers stops / time profiles' the demand segment of the layout was not read. This error has been fixed. **(15710)**
- ✅ Filter in matrix list: If an attribute of a matrix was changed the list 'Matrices' has not been updated according to the filter conditions. This error has been fixed. **(15136)**
- ✅ Multiple calculation of aggregation classes: If grouping was activated via the context menu of a column the aggregation classes were calculated twice. When exporting lists with an active grouping the calculation was even done once per column. This error has been fixed. **(15546)**
- ✅ Synchronization and marking: If one changes to another network object in the tool window 'Network' a synchronized list loses its marking. The next click on the previously marked object in the list changes the network object type back but the object won't be marked. This error has been fixed. **(15680)**

Matrix Estimation

- ✅ Matrix correction without an assignment result: So far TFlow Fuzzy could not be executed without an assignment result. This was also the case if a flow matrix was loaded from file. This error has been fixed. **(15716)**

Network Comparisons

- ✅ Filter for version comparisons with comparison network loaded in the background: The filter in the network which is loaded in the background has not been updated when in a group filter (PuT lines, PuT stops, PrT paths) a property of a single filter condition has been changed. This error has been fixed. **(15688)**

Network Editor

- ✅ Click only active objects for connectors: Zones and nodes were also highlighted when moving the mouse over a passive connector even if the button 'Click only active objects' was active. This error has been fixed. **(15696)**
- ✅ Edit surfaces: If coordinates of points are very close to each other it depended on the settings of number of decimal places in the network parameters whether points were merged and consequently lost when editing, in particular when adding new faces. This error has been fixed. **(15576)**
- ✅ Generate stops/stop areas/stop points: The Multi-edit special function for generating stops/stop areas/ stop points on nodes now reports the number of stops created successfully. **(15763)**

PrT Assignment

- ✅ Calculation status after Assignment with ICA: If an Assignment with ICA was executed the calculation status of the assignment was set to the method of the subordinate assignment within Assignment with ICA. This error has been fixed. **(15756)**
- ✅ Incremental assignment in big networks: The program does not crash anymore when executing an incremental assignment with more than 64.000 zones. **(15707)**

PrT Assignment, PuT Assignment, Line Blocking

- ✅ Procedures with the option to complete the current interation when canceled: Several iterative procedures (PrT and PuT assignments, blocking back, detailed line blocking) offer to complete the current iteration when beeing canceled by the user. The procedure is then reported as sucessful, because a valid (partial) result has been calculated. The default value for the option was changed to "Not complete", in order to immediatly stop the calculation when the user presses 'Cancel' also if messages during the procedure calculation are suppressed through the user-preferences. **(15693)**

PuT Assignment

- ✅ Specific walk times and trip chains: If at a stop both specific walk times and trip chains exist it could happen that within the Branch&Bound search of the timetable-based assignment connections are wrongly dominated in case the trip chain time equals the specific walk time at the same stop. This error has been fixed. **(15672 🔴)**

PuT Passenger Survey

- ✅ Effect of transfer walk times when passing through: In the procedure 'Plausibilization of survey data' the walk times are also considered when the transition from the proceeding line to the survey path leg or from the survey path leg to succeding line is a continuation without change. This could occur when the proc./succ. line consists of several path legs, but the single-row survey format was used or when the prec./succ. line is defined by one row in the multi-row survey file format and connection search was required. **(15699)**
- ✅ Passenger trip chains in the procedure 'Plausibilization of survey data': So far in the procedure 'Plausibilization of survey data' passenger trip chains were only considered with in the proceeding line, the survey path leg, and the succeding line, but not when transferring from or to the survey path leg. This error has been fixed. **(15601)**
- ✅ Several unplausible path legs in the multi-row format: The program does not crash anymore during plausibilization of a survey path leg if the preceding or succeeding legs themselves consist of multiple legs and a path leg close to the survey path leg is unplausible. This case can only happen in connection with the multi-row format. **(15656)**

Scenario Management

- ✅ Editing the base version in oversize-mode: If Visum is operating in oversize mode because the number of network objects exceeds the license size, the base version was cleared when beeing edited through scenario management. This bug was fixed. **(15717)**

Timetable Editor

- ✅ Automatically calculated stop sequence: The stop sequence can also be edited if the automatic recalculation of the stop sequence is active. Generally this does not make sense but for temporary changes it is sometimes useful. Though, the modification done are lost during automatic recalculation. Therefore, now a hint is shown that the automatic recalculation is active when editing the stop sequence manually. **(15678)**
- ✅ Display of conflicts in the graphical timetable: When the active conflict display in the graphical timetable was used only vehicle journeys with the same stop-to-stop section in the opposite direction at the same time were shown as in conflict. Overtaking on single-track sections have not been highlighted as conflict. This error has been fixed. **(15518)**
- ✅ Missing scroll bar after deleting a vehicle journey: After deleting a vehicle journey which was shown in the tabular timetable editor a state could be reached where the first column was not visible, and a scroll bar was also not shown. This error has been fixed. **(15575)**

Visum Files

- ✅ Lane turns with user-defined attributes: When networks having user-defined attributes for lane turns and lane turns between links both closed for PrT were edited, the resulting version files could not be opened again. This bug was fixed. **(15721)**
- ✅ Relative paths using '.\': If relative paths were used for project directory entries and if they contained the string '.\' to refer to the current directory they could not be correctly applied. This error has been fixed. **(15591)**

⚠ Breaking Changes

PuT Assignment

- ⚠ Specific walk times and trip chains: If at a stop both specific walk times and trip chains exist it could happen that within the Branch&Bound search of the timetable-based assignment connections are wrongly dominated in case the trip chain time equals the specific walk time at the same stop. This error has been fixed. Due to the error the assignment results change. **(15672 ✅)**

15.00-07   [103745]   2015-12-03

⊕ New Features and Changes

Miscellaneous

- ⊕ Network sizes 6 and 7: The newly created network sizes 6 and 7 have been implemented. **(15631)**

Network Editor

- ⊕ Vehicle journeys in the view 'Model transfer file' (Tra-viewer): It is now possible to also synchronize vehicle journeys marked in the Tra-viewer with the network editor. **(15568)**

Schematic Line Diagram

- ⊕ Print area: It is now also for the schematic line diagram possible to define a print area and use the print area as output section. This allows reproducible printouts. **(4046)**

✅ Fixed Bugs

Add-Ins

- ✅ Check of attributes in several Add-Ins: In various Add-Ins it must be checked if an attribute still exists at the time of execution. So far this check did not include sub-attributes. This error has been fixed. **(15597)**
- ✅ Consecutive execution of Add-Ins 'Set Matrix Diagonal' and 'Create Regular Timetable': If the two Add-Ins 'Set Matrix Diagonal' and 'Create Regular Timetable' are executed consecutively, a cryptic error occured for the Add-in executed last. This error has been fixed. **(15598)**
- ✅ Help of Add-Ins: For the Add-Ins 'OMX Import', 'OMX Export', 'Preprocess Balance Epics', 'Import DIVAGeo' and 'Calculate Matrix' the help file could not be accessed using the corresponding button. This error has been fixed. **(15640)**

COM, Other Procedures

- ✅ Execution of script code from the procedure: If Python code is saved directly in the procedure parameters some methods of the Visum COM interface related to lists were blocked. This error has been fixed. The execution of the same code from external scripts was not affected. **(15592)**

Data Model

- ✅ Change of calender period and chained up vehicle journey sections: If the calender period was changed in a network with chained up vehicle journey sections (passenger trip chains and/or forced chainings) and an annual calender, subsequent chained up vehicle journey sections on calender days outside the new calender period could exist. Furthermore, the program could crash when opening the list 'Chained up vehicle journey sections' or errors in the timetable-based assignment could occur. **(15609)**

Demand Procedures

- ✅ EVA calculation without modes: The program does not crash anymore if the demand model has no modes or no exchangable modes and the procedure 'EVA distribution / mode choice' is calculated. **(15587)**

Dialogs

- ✅ Number of decimal places for classifications: The number of decimal places for classifications in the graphic parameter dialog was restricted to 6. Now the same number of decimal places as in the attribute selection for lists are allowed. **(15552)**
- ✅ Number of decimal places in formula attributes: In the dialog 'Edit user-defined attribute' the input field 'Decimal places' did not work anymore if the attribute was of data source type 'Formula'. This error has been fixed. **(15599)**

Dialogs, Formulas

- ✅ Button 'Op' in the dialog 'Select matrix': In the dialog 'Select matrix' using the form 'Select matrix by property' it is possible to add attributes via the button 'Op'. The selection shown in the attribute selection dialog was not included in the formula. This error has been fixed. **(15612)**

Dialogs, PuT Assignment

- ✅ If the coefficients of the search impedance in the timetable-based assignment were transferred to the definition of the perceived journey time and no attribute for weighting of PuT-Aux ride time but '1.0' was selected, this selection was not accepted when attempting to execute the procedure. This error has been fixed. **(15556)**

Formulas

- ✅ Edit formulas: When editing a formula in a dialog (e.g. procedure 'Combination of matrices and vectors') double click on MatrixList did not open a dialog where the attributes of the matrices could be edited. This error has been fixed. **(15527)**
- ✅ Empty strings: In formulas the string literal of empty strings, i.e. the quotation mark, was not recognized correctly. This error has been fixed. **(15574)**

Formulas, Lists

- ✅ Filter in the matrix list when changing language: In the matrix list a filter can be defined as formula. Attributes are entered and displayed in the current language. If the list layout is saved either by saving the layout file or by saving the version file with an open matrix list and then opened using a Visum with a different language the attributes were not translated. Consequently, the formula of the filter was invalid and matrices were not shown in the list. This error has been fixed. **(15583)**

Graphics

- ✅ Calculation of lengths for print areas in networks with projections: When calculating the print area the network scale is used for several functions, e.g. for 'To maximum scale'. In networks with a projection so far the scale of the print area could not be calculated correctly. This error has been fixed. For projections that depend on a position or for projections with different scales in x- and y-direction an averaged scale is used for the calculation as it is done for other calculations. **(13017)**
- ✅ Graphic layer 'Route course': The program does not crash anymore when drawing the graphic layer 'Route course' and the line routes pass U-turns multiple times. **(15495)**
- ✅ Graphical scale in legend and numerical output of scale in the print frame: If a projection is used the graphical scale in the legend of the printout or in an output of the screenshot function was wrong. The same is the case for the numerical output of the scale in the print frame. This error has been fixed. **(15466)**

I/O Interfaces

- ✅ Comment lines in the data area during VDV452-Import: So far the VDV452 import was canceled if for a table the number of imported data records did not correspond to the registered number with the end marker 'end:xxxxx'. This could happen if comment lines were part of the data area which were counted as data rows from the source program. Now in this case a warning is issued, but the import continues. **(15545)**
- ✅ Empty trips to and from the depot in the VDV452 export: So far empty trips to and from the depot were not exported correctly. If a block starts with an empty trip to or from the depot, respectively, these trips are now exported as empty trips to or from the depot. **(15563)**
- ✅ Import 'PuT supply from Visum...' with stop points on links: Line routes could not be imported if they were using several stop points on the same link in the wrong order. This could happen if in the target network long links exist and stop points were located by dropping a perpendicular in a different order. This error has been fixed. **(15536)**
- ✅ Penalties during import of 'PuT supply from Visum...': When importing PuT supply from Visum candidates were not always evaluated with the correct penalty term if a new stop point needed to be created. As a consequence such candidates were preferred by mistake. This error has been fixed. **(15589)**

Junction Editor

- ✅ Allocation of signal groups to lane turns: If a signal group has been allocated to a lane turn and other changes for the node were made and both the allocation and other changes were reversed later and user-defined attributes exist for lane turns the version file saved afterwards could not be opened anymore. This error has been fixed. **(15607)**
- ✅ Long reaction time for display of nodes: In networks with many nodes that are modelled in detail the display of the junction geometry in the junction editor took some time. This error has been fixed. **(15637)**

Lists

- ✅ Lists 'PrT paths on link level' and 'Stop areas': The program does not crash anymore when a stop area is created, PrT paths exist and the list 'PrT paths on link level' is open. **(15551)**
- ✅ Printing when analysis rows are shown: If a list has been printed while analysis rows (sum, minimum, maximum, average) are shown the first row of the list contained wrong data. This error has been fixed. **(14500)**
- ✅ Save PrT path list as attribute file: The program does not crash anymore when a PrT path list is saved as .att file and several cores are used. **(15570)**

Miscellaneous

- ✅ Import registry files: The automatic import of registry files at the start of Visum using an appropriate Config-file (VISUM.CFG) did not work anymore for the user settings, i.e. the user settings from the registry were not used when starting a new Visum. This error has been fixed. **(15654)**

Network Editor

- ✅ Delete last zone: The program does not crash anymore if the zone with the highest number is deleted and the zone has several connectors with percentages defined for PrT. **(15605)**
- ✅ Delete node from main node: If a two-leg node of a main node was deleted using Multi-delete with the option 'Connect links' the data model of the junction geometry could be damaged with the consequence that the version file could not be saved anymore. This error has been fixed. **(15606)**
- ✅ Delete nodes with two legs and stop points: If the user preference 'Permit creation of link stop points' was not enabled and nodes with two legs and stop points were deleted the stop points were not deleted but converted to link stop points. This error has been fixed. **(15647)**
- ✅ Shift stop points on links: When shifting stop points on links the setting 'Permit creation of link stop points' under user preferences was ignored so far, i.e. it was also possible to move a stop point from a node to a link even if the corresponding check box was disabled. This is now no longer possible. **(15252)**

PrT Assignment

- ✅ Assignment with ICA: The program no longer crashes if the network does not contain a node that is calculated using ICA or if MPA is used, and not all demand segments are assigned for which assignment results exist. In the latter case the execution of the assignment with ICA is still not possible and a warning is shown. **(15634)**

PuT Assignment

- ✅ Check for temporary parallel vehicle journeys: The test for temporary parallel vehicle journeys within the timetable-based PuT assignment checked inactive vehicle journeys too even if only active vehicle journey sections were considered during assignment. This error has been fixed. **(15542)**
- ✅ Passenger trip chains between vehicle journeys after midnight: The PuT assignment failed if two vehicle journey sections of vehicle journeys that both operate after midnight are connected via a passenger trip chain and there exists a path that follows this passenger trip chain. This error has been fixed. **(15625)**

PuT Line Blocking

- ✅ Instable results of line blocking with vehicle exchange: In rare cases it could happen that several calculations of line blocking with vehicle exchange using the same input data produced different solutions. Furthermore, vehicle combinations with smaller numbers were systematically preferred. Both errors have been fixed. **(15623** 🔴 **)**

PuT Passenger Survey

- ✅ Stay on board on the survey vehicle journey: The transition from a survey path leg to a preceding or succeeding line can also include the option stay on board in the same vehicle journey. This however was only possible if the walk time within the stop was smaller than the dwell time of the vehicle journey at the stop point. This error has been fixed. To deal with such transitions within the PuT paths transitons which actually represent a stay on board are treated in the same way as passenger trip chains. More specifically, the transition between these path legs are not counted as a transfer. **(15600)**

PuT Passenger Survey, Lists

- ⊘ Reading survey data additively: If survey data were read additively and a PuT paths list was open this list did not show the correct number of PuT paths, but the newly added PuT paths only. It appears that the data was not read additively despite the fact that internally all PuT paths were present in the version. This error has been fixed. **(15635)**

Scenario Management

- ⊘ Long scenario indicators: The calculation of scenarios are not canceled anymore if scenario indicators consisting of long texts are created through 'Concatenate' or similar aggregation functions. **(15579)**

Scenario Management, Procedure Sequence

- ⊘ OSM license warning when calculating scenarios: When starting new Visum instances for the calculation of scenarios or for distributed computing of procedures so far a license warning appeared if in the default graphic parameters (std.gpa) the use of OpenStreetMap backgrounds was configured. This error has been fixed. **(15604)**

Schematic Line Diagram

- ⊘ Edge courses with high frequency: In the schematic line diagram edge courses for which the frequency (number of strokes) is set to greater than 1 are displayed by a single line if the zoom level does not allow the display of spacings between the lines for the current display resolution. So far the change between simple and more detailed display was by class. Now for all classes the same display is applied and this is done at a later stage. **(15569)**
- ⊘ Preview of edge courses in the graphic parameter dialog: In the graphic parameter dialog of the schematic line diagram the preview of the classified display showed strokes despite the fact that in the schematic line diagram no edge course could be displayed due to an invalid attribute for the inner classification. This error has been fixed, i.e. in these cases the preview does not show edge courses. **(15559)**
- ⊘ Prohibit boarding/alighting: The program does not crash anymore when for a time profile item boarding/alighting is enabled and vehicle journeys using this time profile item are displayed in the schematic line diagram and then the change is reversed, i.e. boarding/alighting is prohibited again. **(15560)**

❗ Breaking Changes

PuT Line Blocking

- ❗ Instable results of line blocking with vehicle exchange: In rare cases it could happen that several calculations of line blocking with vehicle exchange using the same input data produced different solutions. Furthermore, vehicle combinations with smaller numbers were systematically preferred. Both errors have been fixed. This may lead to different results of the procedure. **(15623 ⊘)**

15.00-06 [102833]	2015-11-09

⊕ New Features and Changes

Add-Ins

- ⊕ Line aggregation and lenght data in GTF-Import: The GTF-Import was extended in two aspects. Until now, a line was created for each record in the routes.txt file by taking the ROUTE_ID as the line name. Line routes were associated with this line. Now, record having identical values in either ROUTE_SHORT_NAME or ROUTE_LONG_NAME are aggregated into a single line. If the fields are empty, lines are still genereated on the ROUTE_ID. Furthermore, the length information from the field SHAPE_LENGHT_TRAVELED in file 'stop_times.txt' is converted into the LineRouteItem.PostLenght if present. i **(15116)**

Schematic Line Diagram

- ⊕ Bundle edges for neighbors: It is now possible to apply this action recursively to all neighbors, i.e. to all edges which represent the same or less vehicle journeys and which have the opposite transfer node in common. **(13962)**

⊘ Fixed Bugs

ANM

- ✅ Link polygons when importing ANM files: When importing an ANM network so far at the end of a link an unnecessary link polygon point has been created at the position of the ToNode. This error has been fixed. **(15384)**
- ✅ Lower limit of the 'Peak hour Factor': The lower limit of the attribute PHF ('Peak Hour Factor') in the ANM model has been lifted to 0.25 because of the fact that according the definition of the PHF smaller values do not make sense. If it was attempted to import an ANM file with smaller values than 0.25 into PTV Visum, an error message was shown but no reason for the failure has been given. This error has been fixed. **(15385)**

Add-Ins

- ✅ General Transit Feed (GTF) import: When executing the Add-in 'Import General Transit Feed' now the direction definition of the network are used. So far the definitions for directions were created. **(15410)**
- ✅ Header lines in the GTF import: So far the GTF import failed if additional space characters existed in the header lines of the .csv files. This error has been fixed. **(15532)**

COM

- ✅ Many attributes set via COM: If many attributes of network objects are changed using single COM commands (SetAttValue, write access to the Active property), the process has been unnecessarily slow if the property IVisum.StopDrawing is set. This error has been fixed. **(15471)**

Data Model

- ✅ Attribute DSegSet of matrices: If only one matrix of matrix type 'demand' exists and if at least for one demand segment an assignment matrix is not selected then the matrix attribut 'DSegSet' has been filled with all codes of demand segments for which an assignment matrix was not selected. This error has been fixed. **(15521)**
- ✅ Walk times during the calculation of reached and missed transfers: So far when calculating missed and reached vehicle journey items (evaluation of the relation at the vehicle journey item and attributes 'Number of reached transfers' and 'Number of missed transfers' of a stop) walk times from the stop area of arrival to the stop area of departure were not considered if the two stop areas were identical, i.e. the value on the diagonal in the walk time matrix would be used. This error has been fixed. **(15483)**

Dialogs

- ✅ Add-on modules in the license management dialog: In the license management dialog useless options appeared in additionally shown rows for add-on modules if the column width of column 'Use license' was changed. This error has been fixed. **(15425)**
- ✅ Buttons in the dialog 'Demand models': Many buttons in the dialog 'Demand models' refer to the selected object or objects, respectively, but the buttons were not grayed out if no objects were selected. This error has been fixed. **(14994)**
- ✅ Created objects in the dialog 'Demand models': After creating new objects in different Tabs of the dialog 'Demand models' the objects were not selected. This error has been fixed. **(15000)**
- ✅ Multi-editing and sorting order: The program does not crash anymore when entering the dialog Multi-edit for a network object type for which after sorting (classical, alphanumerical, hierarchical) the first attribute had subattributes. **(15514)**
- ✅ Shorten a line route with several time profiles: The program does not crash anymore if a line route with several time profiles is shortened in the dialog 'Edit line route'. **(15544)**
- ✅ Translation of 'Aktuelles Zeitintervall' ('current time interval'): The character string 'Aktuelles Zeitintervall' (current time interval) was not translated. This error has been fixed. **(15462)**
- ✅ Type warning for user-defined formula attributes: In the dialog 'Create/Edit user-defined attribute' a warning was shown when editing formula attributes and the type was not 'Number with decimal places'. This error has been fixed. **(15554)**
- ✅ Unreadable text with high DPI settings: If the DPI scaling was high (e.g. 200%) the text in some tables of some dialogs could not be read. This error has been fixed. **(15322)**

Dialogs, I/O Interfaces

- ✅ Import dialogs for HAFAS and railML: The program does no longer crash if a semicolon (;) is used as separator. **(15026)**

Filters, Lists

- ✅ OD pair filter with condition for PuT paths: The program does not crash anymore if the filter is switched on and off when a filtered PuT path list is open, the filter does not contain a condition for OD pairs but the number of conditions for PuT paths changes. **(15487)**

Formulas, Visum Files

- Invalid formulas in version files: So far, reading version files was cancelled if formulas contained invalid characters. This concerned in particular formulas which were written in release versions 13.00-02 or earlier and contained the character '^' for power operations. This error has been fixed. **(15312)**

Graphical Procedures

- Delete PrT path when flow bundle calculation is active: The program does not crash anymore when a path is deleted in the Path list and a flow bundle calculation for links is active. **(15421)**
- Shortest path search between deleted network objects: After execution of procedures or after reading files additionally (e.g. .net or .tra files) so far the shortest path search was updated. The program crashed when network objects at the start or end of the path were deleted. Because it is possible to delete network objects using scripts or reading model transfer files, the shortest path search is now initialised in these cases. **(15499)**

Graphics

- Double Output for SVG-Export: Under certain circumstances some objects are exported twice when the route course layer is active, but requires some time for pre-calculations. This error has been fixed. **(15472)**
- Route course layer: If a route course lies partly outside the drawing area in some cases it is attempted to draw two segments which should not be connected. This error has been fixed. **(15473)**
- Selection of user-defined map service: If in the graphic parameters a user-defined map service is selected which does not or does not any more exist in the user preferences a dialog 'Select map service' is shown when the graphic parameters are opened. An alternativ map service can be selected in this dialog. If the selected map service is an available different map service and confirmed with Ok, no map was shown. This error has been fixed. **(15433)**
- Show print area: Despite the fact that in the graphic parameters the option 'Show print area on screen' was set, in cases where the print area was not set as output section for the print page it was not displayed. This error has been fixed. **(15523)**

Graphics, Other Procedures

- Updating the settings for desire lines: If a desire line is active and then the graphic parameters are modified (e.g. switching off desire lines), the value of the attribute 'In desire line' was not updated reliably. Also, the calculation of displayed (main) zone relations was still executed when modifying attributes of (main) zones which could take some time depending on settings. This error has been fixed. **(9020)**

I/O Interfaces

- Cancel Synchro import: If the Synchro import is cancelled directly after the start, some data were imported nevertheless before cancelling. This error has been fixed. **(15386)**
- Empty trips from line blocks in the VDV452 export: Depending from the Windows setting for 'Region and language' during the VDV452 export the length of empty trips from line blocks (table LINK, column LINK_DISTANCE) was not always correct. This error has been fixed. **(15489)**
- Import 'PuT supply from Visum': If in the target network a new link is created with a new stop point at its end then this stop point has not been used by line routes imported later, but for each of these line routes a new stop point was created. This error has been fixed. **(14344)**
- Primary key during export to MS SQL server: The export to a SQL server database failed when additionally primary keys were created. This error has been fixed. **(15555)**
- Stop hierarchy for the VDV452 export: When exporting to VDV452 format so far the table STOP_POINT was not exported following the conventions of the format. In the column STOP_POINT_NO continous numbering of stop points within the stop area was used instaed of a continious number within the stop. This error has been fixed. **(15458)**

Junction Editor, Main Window

- Searching for nodes in the network with the junction editor open: The program does not crash anymore when searching for a node after a version file is opened in which the junction editor is open without showing a node and the synchronisation is active in both the search dialog and the junction editor. **(15459)**

Line Blocking

- Open line blocks until after midnight: If open line blocks were created with vehicle journeys or empty journeys terminating after the line blocking time interval and partitions were created then the result of newly calculated partitions could depend on the previously created partitions but represented an equally good solution. This error has been fixed. **(15455)**
- Result message for procedure 'Line blocking': So far the result message for the procedure 'Line blocking' reported the number of line blocks of the last treated partition only. This error has been fixed. **(15494)**

Main Window

- ✅ Second screen not available: Views or tool windows moved outside the main window on a second screen could not be reached if the second screen was not anymore available and a version file with such a window configuration was opened. This error has been fixed. **(15163)**

Miscellaneous

- ✅ Icon in the system tray: In certain cases PTV Visum is showing an icon in the system tray (right area of the Windows taskbar) if the user interface is active. This error has been fixed. **(15284)**

Network Editor

- ✅ Change position of stop point as consequence of other actions: So far, stop and stop area positions were not changed if a stop point has been moved (e.g. when editing the shape of a link or when moving the position of a node) and this stop point was the only one of the stop area and stop, and stop and stop area were located at the same position as the stop point. This error has been fixed. **(15409)**
- ✅ Shift stop points: In some cases line routes were not correctly adapted if a stop point was shifted on a link and became a directed stop point. This error has been fixed. **(15438)**

PrT Assignment

- ✅ Convergence criteria for assignment with ICA: For the evaluation of convervenge criteria (ID 13537) only links for which a queue during assignment could be observed were considered. For the calculation of the GEH and the relative gap all links must be taken into account. This error has been fixed. **(15408 🔴)**

PuT Assignment

- ✅ Attributes for PTripsUnlinked differentiated by number of transfers: If several demand segments are assigned together the attributes for PTripsUnlinked differentiated by number of transfers (PTripsUnlinked 0 transfers, PTripsUnlinked 1 transfer etc.) were not correct. This error has been fixed. **(15456)**
- ✅ Vehicle journeys with several vehicle journey sections: If a vehicle journey has at least three vehicle journey sections and the first and second vehicle journey section as well as the second and third vehicle journey section, but not the first and third vehicle journey section overlap then the calculation of the spatial extent of these vehicle journey sections per calender day was incorrect in some cases. As a consequence the vehicle journey could not be found in the assignment or shortest path search. This error has been fixed. **(15530)**

PuT Operating Indicators

- ✅ 'Only active vehicle journey sections' for network performance: When calculating network performance for territories the option 'Consider only active vehicle journey sections' has been evaluated even if it does not make sense. This error has been fixed. **(15333)**
- ✅ Required vehicles for vehicle journeys after midnight: In the procedure 'PuT operating indicators' vehicle journeys and vehicle journey sections which started after midnight at the last day of the analysis period were not considered when calculating required vehicles and also when calculating derived PuT indicators and empty vehicle kilometers. This error has been fixed. **(15463)**

PuT Passenger Survey

- ✅ Different parameters of shortest path search: The program does not crash anymore when survey data are checked during plausibilization and for both the survey path leg and prec./succeed. lines a connection search with different search parameters are used. **(15496)**

Schematic Line Diagram

- ✅ Bundled edges when creating transfer nodes: When creating transfer nodes in the schematic line diagram bundled edges which touch the transfer node were falling apart if some of the corresponding vehicle journeys start or end at this new transfer node and others just pass through. This error has been fixed. **(15524)**

🔴 Breaking Changes

PrT Assignment

- 🔴 Convergence criteria for assignment with ICA: For the evaluation of convergence criteria (ID 13537) only links for which a queue during assignment could be observed were considered. For the calculation of the GEH and the relative gap all links must be taken into account. This error has been fixed. Therefore, the number of iterations can change and consequently also the results of the assignment. **(15408 ✅)**

➕ New Features and Changes

Dialogs

➕ Size of dialog for attribute selection: The size of the dialog for attribute selection (e.g. in lists) can now be made smaller than its initial size. This enables the usage of buttons when the screen resolution is low. **(15254)**

I/O Interfaces

➕ Access to MS Access data bases under 64bit: It is now possible to write data bases in the old format .mdb if a newer 64bit version of MS Access is installed on a machine. Furthermore, reading and writing of access data bases is now possible even if MS Access is not installed on the machine in use. **(14067)**

➕ Link length of zero when importing 'PuT supply from Visum': When importing the PuT supply from Visum a warning is issued if the value for the selected cost attribute is zero for all links in the source network. In this case the detour test would only accept routes which are shorter than the additive component. Hence, the import is offered without detour test. **(15198)**

Miscellaneous

➕ Retrieve certified time when starting Visum: If an error occurs when starting Visum and the license is to be checked out but no time server can be reached waiting times could be quite long. This error has been fixed. **(15454)**

➕ Warning when no license is available: Warnings from the license management can be switched off in the license management dialog. However, if no license is available at the time when the program is started then a warning is issued nevertheless. **(15278)**

Visum Files

➕ Model transfer files with the option 'Hide empty tables': If the option 'Hide empty tables' is not selected when writing a model transfer file then for the selected network objects tables for deleted, modified, created objects were written to the model transfer file. Now, for tables which do not contain any objects info tables are written ($#) to the model transfer file. If the option 'Hide empty tables' is selected also these info tables are omitted. **(15414)**

✅ Fixed Bugs

Add-Ins

✅ Add-In 'Buffers around PuT Lines': The execution of the Add-In 'Buffers around PuT Lines' with the option 'Only stop points of active time profile items' could fail if a filter for time profiles was set and a projection was used in the network. This error has been fixed. **(15424)**

Data Model

✅ Walk times between stop areas: If the number of a stop area was changed in a way that it influences the order of stop areas of one stop, then the walk times were wrongly swapped. The same happened if a new stop area with a smaller number as other stop areas of the same stop was added. This error has been fixed. **(15380)**

Dialogs

✅ Create system routes for pairs of stop points: In the corresponding dialog it was sometimes possible that no transport system was selected. If the Ok button was pressed under these circumstances the program crashed. This error has been fixed. **(15407)**

✅ Insert matrices via matrix reference: The program does not crash anymore when matrices are inserted via matrix reference. **(15400)**

✅ Insert several matrices via matrix reference: When inserting several matrices via matrix reference a default text for a ForEach Loop could be used. This text was wrong and also the check of the syntax was not thorough. Both errors have been fixed. **(15401)**

Filter, Graphical Procedures, Lists

✅ Frequent rebuild of lists using OD pair filter and flow bundle: The path list has been built up too often if an OD pair filter property is changed while both a flow bundle is calculated and an OD pair filter is active and a path list is open that makes use of either of these conditions as 'Selection'. **(15343)**

Filters

✅ Evaluations of OD pair filter: The OD pair filter was evaluated too often if conditions in this filter were changed. If additionally a flow bundle is active, the corresponding calculation was also updated with each re-evaluation of the filter. This error has been fixed. **(7422)**

Filters, Lists

✅ PuT path filter using Index: The program does not crash anymore when showing a filtered list and the OD pair filter for PuT paths is using the attribute 'Index'. **(15043)**

Graphics

✅ Drawing during network changes: The program could crash if data of the network were changed while in the background calculations for drawing the network window have been executed. This error has been fixed. **(15439)**

✅ Drawing of route course layer: If the layer for drawing route courses is in the lower part of layers drawing was unnessecarily delayed. The error has been fixed. **(15397)**

✅ Under certain spatial circumstances for links the program could crash when drawing the corresponding bars. This error has been fixed. **(15470)**

I/O Interfaces

✅ Cancel the ANM export: If the user were cancelling the ANM export during its first phase the ANM export did not respond. This error has been fixed. **(15382)**

✅ General Transit Feed (GTF) export: Only polygon points of links have been exported but not positions of nodes and stop points. Furthermore the coordinates were interchanged. This error has been fixed. **(15219)**

✅ Import 'PuT supply from Visum...': If the source and target networks did not match well line routes were generated which passed the same links several times. This could particularly often observed in the vicinities of stop points which were assigned via attribute comparison. **(15354)**

Lists

✅ Endless loop when building up a list: If an attribute whose calculation takes some time is included in a list view, PTV Visum sometimes got in an endless loop during building up the list view. This error has been fixed. **(15393)**

Network Editor

✅ Split links: The program behavior has been improved. When splitting a link using an existing node a preview indicates which node is used. **(13729)**

PrT Assignment, Junction Editor

✅ Distribution of volumes accross lanes in the ICA calculation: When distributing volumes across lanes according to the HCM it is checked if the entire volume is distributed. This check resulted in an error message even for very small differences. If the distribution was calculated as part of the assignment with ICA, the assignment stopped due to the error message. The check now accepts deviations of very small magnitude. **(15435)**

PuT Assignment

✅ Consideration of time for passenger trip chains: The time for passenger trip chains (time that a passenger spends in a vehicle while the vehicle journey changes) has not been considered within the perceived journey time (PJT). That means this time was neither part of the impedance nor part of the skim matrix. This error has been fixed. **(15392 🔴)**

✅ File extensions for skim matrices: A warning is given if for the output of two skim matrices the same file extension is used. So far this has not been properly handled. This error has been fixed. **(15434)**

PuT Line Blocking

✅ PuT line blocking with vehicle interchange in big networks: As soon as the solution space for the line blocking with vehicle interchange becomes big (i.e. many line blocks with many options for vehicle combinations) the execution of the procedure does not finish. This error has been fixed. **(15420 🔴)**

Scenario Management

- ☑ Export of a partial project from a protected project: When a modification is locked in a project and then exported to a partial project which is not protected the check sum is wrongly copied as well. As a result of this when opening the partial project the user was notified of a possible manipulation of the data. This error has been fixed. **(15402)**

Timetable Editor

- ☑ Scroll bar in the tabular timetable editor: If a tabular timetable editor was re-created from the version file the lower scroll bar could not be used properly. This error has been fixed. **(15444)**

Visum Files

- ☑ Procedure parameters for 'PuT interlining matrix': The parameters of the procedure 'PuT interlining matrix' were not read correctly when reading the procedure parameters from a version file or from a procedure parameter file. The option 'Calculate and save to file' was never ticked for the skims t-PuTSys, V-PuTSys and direct distance. This error has been fixed. **(15406)**
- ☑ Version file with KALIBRI procedures: Version files and binary procedure parameters which were saved with Visum release versions of PTV Visum 14.00-03 and later and which contained the procedure 'Estimate gravitation parameters (KALIBRI)' could not read in PTV Visum 15. This error has been fixed. **(15450)**

⛔ Breaking Changes

PuT Assignment

- ⛔ Consideration of time for passenger trip chains: The time for passenger trip chains (time that a passenger spends in a vehicle while the vehicle journey changes) has not been considered within the perceived journey time (PJT). That means this time was neither part of the impedance nor part of the skim matrix. This error has been fixed. The result of the timetable-based assignment changes when passenger trip chains exist in the network. **(15392 ☑)**

PuT Line Blocking

- ⛔ PuT line blocking with vehicle interchange in big networks: As soon as the solution space for the line blocking with vehicle interchange becomes big (i.e. many line blocks with many options for vehicle combinations) the execution of the procedure does not finish. This error has been fixed. Consequently, the results change in networks from a certain size. **(15420 ☑)**

15.00-04 [100998]   **2015-09-20**

⊕ New Features and Changes

Add-Ins

- ⊕ Accelerated Add-In 'Nested Demand Model': The AddIn 'Nested Demand Model' was accelerated for models containing many Demand segments. **(15295)**

Miscellaneous

- ⊕ Visum icon with release number: For a better distinction of different Visum installations the PTV Visum icon includes now the release number. **(15263)**

Network Editor

- ⊕ Drawing of networks: Drawing of huge networks has been accelerated. **(14640)**
- ⊕ Undo of creating of deleting POI categories: Undo and redo can now be used for the creation of deletion of POI categories without deleting the last actions. **(15212)**

PuT Assignment

- ⊕ Shortest path search within a stop: The default for shortest path search within a stop was changed to 'Search without restrictions'. This will lead to different assignment results, when an assignment procedure with the new default parameters is applied to existing public transport data. Background: The other options may violate basic rules of the shortest path search and may lead to artefacts in the assignment result. **(15341)**

Schematic Line Diagram

⊕ Considering through passage for departure and arrival attributes: It is now optional possible to also consider the times of through passages for departure and arrival attributes of the directed edge course. This can be decided by line route item. **(14173)**

Timetable Editor

⊕ Paste vehicle journeys from clipboard: So far pasting vehicle journeys from the clipboard could not be reversed, if they included coupled vehicle journeys. Now it is possible to also use undo for this special case. **(15352)**

⊕ Usability improvements: Several improvements of the timetable editor have been made:
- The tool window u"";timetable linesu""; opens with the line selection instead of an empty dialog.
- Via Icons the graphical and tabular timetable can by access from the tool window u"";timetable linesu""; without modifying the line selection or stop sequence.
- Activating u"";Group by service trip patternsu""; will automatically show the table header containing the service pattern information
- If the tabular timetable is displayed in the u"";group by service trip patternsu""; mode, new journeys will be displayed in additional groups, in order to identify them. **(13998)**

Timetable Editor, Lists

⊕ In the drop-down menus of attributes From time profile item index, To time profile item index, From time profile item identifier, and To time profile item identifier of a vehicle journey section only those time profile items are shown where the vehicle journey section can start or end. **(15375)**

Visum Files

⊕ Reading PrT paths from network files: PrT paths referencing more than two successive path items within the same main node could not be read from a network file. This is now possible, intermediate path items within the main node are ignored and warning messages are produced in the message window. **(15288)**

✓ Fixed Bugs

Add-Ins, Demand Procedures

✓ Infinite Values in the 'Nested Demand Model': If infinite values (infinite large and small) occur during calculation, the procedure continued using '0'. This issue is solved. **(15298)**

COM-API

✓ IVehicleJourneys.RemoveAllItems: The program does not crash anymore if the method RemoveAllItems of the IVehicleJourneys-Object is called. **(15336)**

✓ Infinite loop during program start via COM: It could cause an infinite loop if Visum was started via COM and no license were available or no license were chosen. This issue is solved. **(15304)**

✓ Start via COM: If Visum was started using COM and license information was out of date, a message was displayed interrupting the program start. This error has been fixed. **(15379)**

Data Model

✓ The relation from a turn to its lane turns did not show all lane turns if several lane turns with the same From lane but different To lanes of the same link existed. If there are several outgoing links from a main node to the same To node, then this relation showed also lane turns which did not belong to this turn. This error has been fixed. **(15350 ⊙)**

Dialogs

✓ 'Selection Off' in filter for lines: If one defines a filter using the button 'Selection OFF' in Tabs Line, Line route, Line route item, Time profile or Time profile item, respectively, the selection is lost after closing the filter dialog for PuT lines. This error has been fixed. **(15293)**

Formulas

✓ Initialize formula matrices: Formula matrices cannot anymore be initialized. 'Initialize' can only be applied to data matrices and changes their values to zero. So far the initialization of a formula matrix resulted in the deletion of the formula itself. **(14807)**

Graphical Procedures

✓ Flow bundle with vehicle journey section conditions: Visum won't crash if a graphic parameter is imported, which contains a flow bundle condition of a vehicle journey section, which won't exist in the network. **(15321)**

Graphics

- Diagrams of Enumerations: It's possible to display attributes containing enumerations. **(15331)**
- End label in route course display: At contiguous segments, which contains the same aggregation but no joint route course, the end label was displayed. This issue is solved. Beside that the calculation of the route course view is accelerated. **(15092)**
- File based backgrounds: File based backgrounds couldn't be processed, if they were stored in the project folder. This error has been fixed. **(15326)**
- Graphic parameters and deleting POI categories: After undo of a deletion of a POI category, the original graphic parameters haven't been applied, but the default parameters. This error has been fixed. **(15317)**

I/O Interfaces

- Storage of tavel times and length attributes from GPX data: The length and time derrived from GPX data is stored at the path element, which represents the current section, where the data was collected. A user defined path attribute is introduced which represents the time and length offset between the first imported trackpoint and first path item. **(15283)**
- Synchro import: If in the input Synchro network two nodes are connected by multiple links with intermediate nodes (of Type 'Bend'), the data could not be imported. This is now possible. **(15314)**

Lists

- Abort calculation of PuT path lists: Visum could crash if the calculation of a PuT path (-legs) list was aborted by the user. This issue is solved. **(15346)**
- Aggregation results when writing version files: If lists with aggregation results existed, the aggregated values became occassionally invalid. This error has been fixed. **(15266)**
- PuT path legs: During the creation of a PuT paths leg list the program could crash in certain circumstances. This error has been fixed. **(15328)**

Matrix Editor

- Filter in matrix view options: To set a filter in the view options of the matrix editor could take a long time. This functionality has been accelerated. **(15277)**

Matrix Estimation

- Missing paths for TFlowFuzzy: TFlowFuzzy cannot work, if routes are not saved during the assignment prior matrix estimation. An error message is shown if the matrix estimation procedure fails because of missing routes. **(14508)**
- Progress statistics of TFlowFuzzy: If no directory has been specified for the output of the progress statistics, the file has not been saved in the corresponding folder for other output data in the project directory settings. This error has been fixed. **(14757)**
- Use of filter matrix in TFlowFuzzy: The program does not crash anymore if a filter matrix is used to only update active OD relations (option 'Adjust only active OD pairs'). **(15290)**

Miscellaneous

- Behaviour when dongle is not found: If more than one license is selected for usage and the first checked license is not available (e.g. due to a non-accessible dongle), the user was prompted to select a different license instead of checking the other selected entries first. This error has been fixed. **(15310)**
- Localization of messages for license management: Some messages with respect to license management were not localized. This was fixed. **(15265)**
- Multiple licenses on the same dongle: When multiple licenses are hosted on the same dongle, and the modules of one license are a subset of the modules of another license, the license with the smaller set of modules could not be used. This was fixed. **(15334)**

Network Comparisons

- Formula attributes in networks loaded in the background: The network comparison with networks loaded in the background didn't consider the values of formula attributes. This issue is solved. **(15320)**

Network Editor

- Editing zones: The program does not crash anymore when editing zones. This could happen when a calculation result of the procedure P+R lot choice exists and the dialog of 'User-defined attributes' was opened. **(15296)**
- Rotate text objects: It's now easier to access the rotate functionality. **(15148)**

- ✅ Shifting of zone or main zones: The program does not crash anymore when shifting zones or main zones. This was the case when labels or in a diagram attributes of matrix row or matrix column sums have been used. **(14975)**

PrT Assingment

- ✅ Node Impedance calculation at signalized nodes: Visum won't crash during the node impedance calculation at signalized nodes if the cycle time isn't an integer. **(15377)**

Procedure Sequence

- ✅ Go to the operation: Visum no longer crashes when two 'Go to' procedures in the procedure sequence have the same procedure as the jump target. **(15345)**

Procedure Sequence, Scenario Management

- ✅ Too many Visum instances: When calculating several scenarios or applying the distributed execution of procedures the number of instances started was not in line with the settings in the user preferences. This was the case for using several cores of one machine as well as for using several computation nodes. This error has been fixed. **(15311)**

Scenario Management

- ✅ Alias for scenario indicators: The entered scenario indicators were not considered in the scenario list in the scenario tab. This error has been fixed. **(15300)**
- ✅ Opening a network during rerouting a line route: Visum won't crash if a network is loaded while a line route is rerouted. This is possible during editing a modification, while leaving the modification without finishing the routing or focussing a list and using the u""';Open versionu""'; in the u""';fileu""'; menu. **(15276)**

Schematic line diagram

- ✅ Reading of layout file: Opening of a layout file or interactiv changes of the layout in the schematic line diagram could lead to instable results, e.g. different edge courses could be generated for identical changes using the same data. This error has been fixed. **(15303)**
- ✅ Translation of special entries in the legend: The two special entries 'Kantenverläufe (Takt)' (English: Edge courses (headway)) and 'Kantenverläufe (Linie)' (English: Edge courses (Line)) have not been translated into the language of the Visum instance. This error has been fixed. **(15355)**

Timetable Editor

- ✅ Copy and paste of vehicle journeys: If vehicle journeys coupled among themselves were copied it could happen that after pasting these vehicle journeys in the same version file the original coupling information was modified. This error has been fixed. **(15351)**
- ✅ Extending/shortening vehicle journey sections: If vehicle journey sections have been shortened or extended by selecting a From/To time profile item or identifier in the tabular timetable, it was possible to also select time profile items at which boarding or alighting was not allowed. This error has been fixed. **(15371)**

Visum Files

- ✅ Graphic parameter file in XML: In the XML format of the graphic parameter file the size of the arrow and the selection of the transport system was missing. This error has been corrected. **(15376)**
- ✅ Writing model transfer files: After writing a model transfer file the loaded network was considered as changed. This error has been corrected. **(15368)**
- ✅ Writing model transfer files: If the option 'Hide attribute with default values' was active all attributes have been compared and written to the file, also those which were not selected by the user. This error has been fixed. **(15367)**

⛔ Breaking Changes

Data Model

- ⛔ The relation from a turn to its lane turns did not show all lane turns if several lane turns with the same From lane but different To lanes of the same link existed. If there are several outgoing links from a main node to the same To node, then this relation showed also lane turns which did not belong to this turn. This error has been fixed. As a consequence the results of the ICA calculation change as well as the results of an assignment with ICA. Furthermore, the lane turns are correctly treated also when executing an ANM export. **(15350** ✅ **)**

⊕ New Features and Changes

Add-Ins

⊕ Add-In 'Balance matrix': The Add-In allows now to use matrices of all object reference types including main zones and stop areas. **(15156)**

Main Window

⊕ Transfer graphic parameters, filters and list layouts: Graphic parameters, filters and list layouts can now be transferred from one Visum instance to another. Next to the corresponding drop-down menu there are new icons allowing copy to and paste from the clipboard of the corresponding data. **(8013)**

Network Editor

⊕ Less dialogs: Some seldom used dialogs are not any longer shown during network editing. Some other dialogs have been improved to make the relevant information and options easier accessible. This has been done e.g. for inserting stop points of deleting nodes. In the user preferences the user can define some defaults for this. **(15014)**

Scenario Management

⊕ Lock project: It is now possible to lock select components of a project (e.g. individual scenarios or modifications) from beeing edited. Setting and releasing the lock works by entering a user-defined password. If project files are fraudulently modified outside of the project context, the changed objects are listed for inspection when the project is opened again. **(13053)**

Schematic Line Diagram

⊕ Attribute 'Number of departures per hour' and variants: The calculation of the different variants of the attribute 'Number of departures per hour' now reflect the pass-through times more precisely. Analogous to the time table editor and the PuT operating indicators, pass-thorugh times are now interpolated based on link-lengths, instead of simply carrying the time of the preceeding time profile item forward. Thereby, frequencies are displayed acurately for time profiles with varying stops when the aggregation mode is per line routes etc.. **(14951)**

⊕ Consistent arrival- and departure times: New attributes for directed edges in a schematic line diagram allow to apply a consistent labeling across all transfer nodes for all edges representing the same underlying objects. The attributes provide the arrival- and departure times per hour for the first complete vehicle journey (traversing the entire time profile). Thereby, all labels refer to the same vehicle journey, even in constellations with multiple vehicle journeys per hour. **(14638)**

⊕ Distinguish edges traversed multiple times: A new layout option allows to display and distinguish multiple traverses of the same section between two nodes by a single vehicle journey in opposite directions. If the new option "consider line route direction" is selected, the two directions of the vehicle journey will appear as seperate edges. This also works for undirected aggregation levels. **(14459)**

✓ Fixed Bugs

ANM

✓ Broken data at nodes with identical coordinates: When two nodes connected by a link have identical coordinates, the ANM export would eventually produce broken data. The link was missing completely, and turns were only present for the first node, leading also to routes using the link being broken. This error was fixed. **(15197)**

COM, Scenario Management

✓ Export partial project via COM: When exporting a partial project from a scenario management project via COM all scenarios instead of only active scenarios have been experted. This error has been fixed. **(15272)**

COM-API

✓ Checking complex object keys in SetMultipleAttributes and SetMultiAttValues: When setting attribute values through SetMultipleAttributes or SetMultiAttValues for object types with complex composed keys (e.g. line routes), the check for existing objects with the same key did not work properly. This was fixed. **(14472)**

✓ Dialog for selecting licence during start via COM: If PTV Visum was started via COM and no Licence was setup, the dialog for selecting a licence blocked the starting procedure till a manual intervention. This behaviour has changed. COM will provide an exception in this case. **(15291)**

Dialogs

✅ Editing flow bundle term: In the dialog 'Edit flow bundle term' of Active lines the options 'Active vehicle journeys' and 'Active vehicle journey sections' under Tab 'Filtering' have been colored in yellow even if the selection was unchanged compared to the moment when the flow bundle was last executed. This error has been fixed. **(15248)**

Filter

✅ Undo for group filters: For group filters (Stops, Lines, PrT-Paths, OD pairs), changing the set of affected network object types was not undoable. This has been adapted. **(15180)**

I/O Interfaces

✅ Import of PuT supply from Visum: So far the import settings allowed to define the attribut 'Number' for the comparison attribute in the source network. The import could fail when several stop points must be created from one stop point or a stop point with this number already exists in the target network. To avoid this cause of failure the selection of 'Number' is not possible anymore. **(14188)**

✅ railML export: The .xml file could be invalid, when warnings appeared during the railML export process. This error has been fixed. **(15203)**

✅ railML import: The corresponding vehicle section could not be inserted, if at the first or at the last operation control point of a 'trainPart' element boarding and alighting, respectively, is not permitted. Now boarding or alighting will be permitted and a corresponding message is issued. **(15223)**

Junction Editor

✅ Leaving the signal timing view: PTV Visum won't crash if the signal timing view is left to another view in the junction editor and there was no signal timing has been applied to the node. **(15287)**

Miscellaneous

✅ Starting PTV Visum as a service: PTV Visum won't crash if used in a service environment and no licence has been set up or a licence hasn't been updated on an available hardlock in the network. **(15292)**

Network Comparisons

✅ Modifying user-defined attributes: If user-defined attributes are used in a version comparison with attributes these attributes were removed when changing their properties. The user-defined attributes now remain part of the version comparison if the changes are not essental, e.g. concen Code or name (not the ID). **(14766)**

Network Editor

✅ Aggregate line routes: The program does not crash anymore when aggregating line routes if line routes without time profiles exist. **(15213)**

✅ Join blocked links: When adding links of a link type having the default speed for any PuT transport system set to 0km/h, the t-PUTTSys was set to the maximum value of 6.000.000min. But such a link could no longer be joined with another link in the network editor, because the added t-PUTTSys values eceeded the maximum. This was fixed, t-PUTTSys of the joined link is now also set to the maximum value. **(15217)**

PrT Assignment

✅ Assignment with ICA using Lohse: The memory consumption for Assignment with ICA using the Equilibrium Lohse as the underlying assignment was reduced. **(15297 ⛔)**

✅ Connector shares with and without MPA: Visum no longer crashes, when assignment results exist for some demand segments and connector shares for zones are calculated once with and once without using MPA **(15282)**

✅ Matrix time series and connectors by share: If a PrT demand segment uses a matrix time series and if there are zones with multiple connectors using shares for total trips, the demand used within the PrT assignment could be too high. This bug has been fixed. **(15218)**

✅ Procedure Route import: The program does not crash anymore during the procedure 'Route import' if the imported routes contained cycles. **(14983)**

✅ Warm start in Assignment with ICA: Warmstarting and assignment with ICA did not work when multiple demand segments were assigned simultaneously. In this case, the existing assignment result was always deiscarded. This bug was fixed. **(15230 ⛔)**

Procedure Sequence

- Load version when the procedure sequence is visible: Visum no longer crashes when loading a version file if the procedure sequence is visible and the user preferences for the window confugrations are set to 'Always keep' or 'Read from version file, otherwise retain'. **(15210)**

PuT Assignment

- Capacity-restrained assignment and circle lines: The program does not crash anymore if in a timetable-based PuT assignment the walk time is 0s and the PuT supply contains circle lines. **(15247)**
- Capacity-restrained assignment with connection import: If in a timetable-based assignment with capacity restriction and without MPA the routes from a connection file are used, and this file was exported with MPA, the connection file could not be imported correctly. This error has been fixed. **(15222)**
- Timetable-based assignment with MPA: The timetable-based assignment could not be executed properly, if through the use of MPA more than 65535 virtual zones were generated. This error has been fixed. **(15214)**

Scenario management

- Cancellation of 'Edit modification': If the process of reading the base version or related modifications is cancelled by the user when editing a modification, Visum did not return to the 'Edit Project' dialog of the scenario management. This error has been fixed. **(15215)**

Schematic Line Diagram

- Delete line: When deleting a line the entire selection of vehicle journeys was lost in the schematic line diagram if the level 'Vehicle journeys' has been used and the level 'Line and direction' has not been used before. **(15199)**
- Delete vehicle journeys of an edge: If vehicle journeys of a marked edge are deleted from the selection of vehicle journeys via the context menu, the selection of vehicle journeys was only changed temporarily when the level was set to 'Lines and directions'. The deleted vehicle journeys appeared again after the version was saved and opened again. This error has been fixed. **(15183)**
- Set window section: When using the icon Set window section to enlarge the rectangle remained until the next drawing action. This error has been fixed. **(15189)**

Timetable Editor

- Tabluar time table: Visum no longer crashes when the regular services attributes are displayed in a layout grouped by service trip patterns. **(15208)**

Visum Files

- Reading detectors from network and model transfer files: When reading network or model transfer files, the association of detectors to lanes at main nodes did not correctly account for the leg orientation of the cordon links. This was fixed. **(15286)**

⊙ Breaking Changes

PrT Assignment

- Assignment with ICA using Lohse: The memory consumption for Assignment with ICA using the Equilibrium Lohse as the underlying assignment was reduced. Due to the changes, assignment results may change. **(15297 ⊘)**
- Warm start in Assignment with ICA: Warmstarting and assignment with ICA did not work when multiple demand segments were assigned simultaneously. In this case, the existing assignment result was always deiscarded. This bug was fixed. Therefore, the Assignment with ICA will now regard the existing assignment result for warm starting, leading to different final assignment results. **(15230 ⊘)**

15.00-02 [99341]	2015-07-24

⊕ New Features and Changes

COM-API

- Multi-delete nodes: The new method INodes.RemoveNodes allows to delete multiple nodes at once based on their properties. The criteria for identifying the nodes to be deleted are defined in analogy to the operation available in the network editor. They are passed to the method as attributes of an IRemoveNodesPara-object. **(9640)**

- VDV452-Export in COM: The method IVisum.ExportVDV452Data now uses a parameter object for providing the export parameters instead of individual arguments. A template IExportVdv452Para-object can be created through INet.CreateExportVdv452Para. **(15033 🛑)**

Demand Procedures

- 'P+R lot choice': The procedure 'P+R lot choice' now expects the utility term to be specified as utilities instead of costs (larger numbers result in higher attraction of the lot). Therefore, it will usually be required to apply negative coefficients to skim matrices (costs). **(15174 🛑)**

Dialogs

- Deleting multiple POI-categories: Multiple POI-categories can now be deleted at once in the 'Edit POI-categories' dialog. **(11825)**
- Editing formulas: Errors in formulas are now already signalized when editing the formula, instead of rejecting the formula just when the dialog is closed. **(13675)**
- Supply selection of the flow bundle: On the 'Supply' tab of the 'Edit flow bundle term' dialog, a shortcut menu has been added with the entries 'Select all', 'Remove selection for all', and 'Select marked items exclusively'. **(14268)**

Graphics

- Zooming by mouse wheel: The zooming by mouse wheel works faster now. **(15176)**

I/O Interfaces

- Couplings in railML-Export: Vehicle journey sections starting or ending in copled sections can now be exported to railML. This results in extra "trainParts" in the exported data compared to previous versions. If the start- or terminal point of a coupled section is not a stop point, the coupled section is shortened to the best matching section between stop points. **(14979)**
- Import chained trips from GTFS: If chained trips are present in the input GTFS data (defined through the Block_ID field in trips.txt), those are now considered when importing to Visum. **(14441)**

Installation

- Operation as CodeMeter network license server: If the setup is executed on a computer which is already operating as a CodeMeter network license server, this is now detected and it is offered to cancel the setup. This shall allow to assure troubleless work. Because the installation procedure updates the CodeMeter runtime, this disrupts the license server operation. Therefore, the installation should be done when the license server is not accessed by software users. **(15168)**

Junction Editor

- Vissim-Preview: The Vissim-Previewer is now based on PTV Vissim 8. **(15152)**

Miscellaneous

- Runtime fallback to different license: When the license used in a PTV Visum session becomes unavailable (e.g. due to network connection breakdown), Visum now tries to fall back to any (equal or superior) of the other licenses selected in the license manager. The license number does no longer need to be identical to the license used at startup. **(15191)**

Other Procedures

- Signal offset optimisation: The procedure 'Signal offset optimization' is now also available in 64-Bit installations of PTV Visum. **(14935 🛑)**

PuT Assignment

- Assignment with MPA: The combination of the volumes after an assignment with MPA has been accelerated. **(15080)**
- Capacity-restricted timetable-based assignment: The timetable-based assignment with capacity restriction has been accelerated. **(15145)**

Scenario Management

- ⊕ Integrate project: The inverse operation to 'Export partial project' is now available in scenario management. Components of another project can be integrated into the currently loaded project. Of course, this only works if the projects share at least some common features, e.g.. Using both, the 'export partial project' and 'integrate project' jointly supports workflows for distributing project work to across several contributors or organisations. **(14987)**

Timetable Editor

- ⊕ Improvements: The tabular timetable editor got some smal improvements. The attributes at pass-through stops are shown in tooltips. Attribute values are generally centered. The selection in the vehicle journey items is synchronized with the global stop point selection. Settings for service trip patterns in the regular services mode can be altered directly from the grid. **(15177)**
- ⊕ Repeatedly traversed stops, Opening from search windows: If a stop of a line route is traversed repeatedly and the respective line route items are allocated to the same item of the stop sequence, in the tabular timetable, this is indicated by appending '...' to the output. The tooltip displays the attribute values of all traversings. Moreover, both timetable editors as well as the block editor can now be opened directly from different search windows, e.g. for links, stop points, or blocks, via new shortcut menu entries. The object selection is automatically adjusted to the selected search hit. **(13784)**
- ⊕ Scrollbars and scrolling behaviour: The upper horizontal scroll bar was removed from the tabular timetable editor in order to gain extra space. The vehicle journey are now scrolled in live mode when moving the scrollbar, not only when the bar is released. **(13912)**

✓ Fixed Bugs

Add-Ins

- ✓ CalculateMatrix: If string comparisons were used for the expression in "changing cells only if", the calculation was canceled with an error message. This bug was fixed. **(15193)**

Data Model

- ✓ String length of indirect attributes: The maximum string length for attributes under Network settings can be exceeded if the aggregate function Dictinct or DistinctActive is used for indirect attributes of at least two relations. **(15167)**

Demand Procedures

- ✓ P+R leg split without demand: If the procedure 'P+R lot choice' was executed without input demand (e.g. in the first iteration of a feedback loop), the input demand of the following 'P+R leg split' procedure got multiplied. This bug was fixed. **(15158)**

Dialogs

- ✓ Edit POI-Categories: The Undo-function did not work properly after adding, editing or deleting POI categories. The command history was reset without warning, and in some situations Visum crashed. A messagebox now warns about the reset of the command history when adding or deleting POI categories (this can be switched off) **(15065)**
- ✓ railML-Export: Visum no longer crashes when the attribute selection in the dialog 'Export to railML' is changed after the dialog was already opened before for another network loaded in the same Visum session. **(15155)**

Formulas

- ✓ Data type for indirect attributes: The data type for indirect attributes of matrices used in formulas (e.g. through the 'Context' keyword) was not always determined correctly. This could lead to unjustified error messages, warning that an operator is not applicable to the data. This was fixed. **(15157)**

I/O Interfaces

- ✓ Couplings in railML-Import: When 'commercial trains' (with couplings) were imported as multiple vehicle journeys due to alternative route courses on different valid days, only the first resulting vehicle journey was coupled. This bug was fixed. **(15159)**
- ✓ GPX import: The import of GPX tracks no longer leads to a crash if a track point is allocated to a path item without a time and if the journey time at the path item is determined on the basis of the track point. **(15133)**
- ✓ Messages during export to database: When errors occur during the export of lists to databases, it was not possible to supress further similar messages ('No further warnings'). This is now possible. **(15166)**
- ✓ SATURN-Import with empty rows: When a row in a *.dat-file only contained blanks, the SATURN-Import would get tracked in an infinite loop. This bug was fixed. **(15206)**

Junction Editor

○ Vissim-Preview for roundabouts: The ANM-export from the junction editor to the Vissim-Preview did not contain some link attributes relevant for roundabouts. This error has been fixed. **(15200)**

Lists, Junction Editor

○ Deleting via DEL-Key: When pressing the DEL-key the currently selected network objects in the network editor were unintentionally deleted while working in lists of network objects which cannot directly be selected. The same applied to the junction editor if none of the objects were selected. Now the selected network objects in lists and the junction editor, respectively, are deleted, if that is possible, but selected objects in the network editor are unaffected. **(14538)**

Matrix Editor

○ Pan mode in matrix comparison. The pan mode could not be toggled using the space key in the matrix comparison window. This was fixed. **(15050)**

Network Editor

○ Creating POIs with restricted category selection: If the network editor was restricted to one POI category and its subcategories and this category had both one parent category and at least one subcategory, no categories could be selected when creating a POI. This error has been fixed. **(15175)**

○ Creating profile points: The Multi-edit special function 'Create profile points for line route items' used to permit boarding and alighting at the new profile points if they were located at a stop point. This error has been fixed. **(14928)**

○ Marking of linear POIs: In the network, it was sometimes difficult to mark linear POIs, i.e. polygonal POIs with an open polygon, with the mouse. This error has been fixed. **(15103)**

○ POI-allocations when splitting links: When a link with POI allocations was split, the relative positions of the POI-allocations got shifted. This no longer occurs. **(15035)**

○ Special multi-edit functions for POIs: When calling special multi-edit functions from the context menu of the network object toolwindow, the function was always applied to POIs of all POI categories. If the click sensitivity in the network editor was restricted to some POI categories, this restriction was not respected. The error was fixed. **(15085)**

PrT Assignment

○ Formula and data matrices: A crash no longer occurs in different PrT assignment procedures if a data matrix is allocated to one of the demand segments to be assigned while, in the same step, a formula matrix is allocated to a different demand segment. This applied to the procedures LUCE, TRIBUT-Equilibrium_Lohse, Stochastic assignement and Dynamic stochastic assignment. **(15124)**

○ Proportional connector shares and negative demand: The PrT assignments ignore relations with negative demand. But these relations were still considered when calculating cpacities for connectors with proportional shares (only for option 'Total trips', not for MPA). As a result, t_cur for such connectors could take very large values. This error was fixed. **(14969 ⊘)**

PuT Assignment

○ Memory consumption in capacity restrained timetable-based assignment: The memory consumption for calculating a timetable-based assignment with capacity constraint on systems with many cores was reduced significantly. **(15181)**

PuT Passenger Survey, Lists

○ A crash no longer occurs if a non-trivial path status filter is set in the PuT paths list and imported yet not plausibilized survey data exist. **(15151)**

Scenario Management

○ Comparison patterns and export of partial projects: When exporting project parts to a partial project, list layouts stored in a comparison pattern were not exported. This bug was fixed. **(15196)**

○ Key conflicts for POIs: When new POIs of the same POI-Category were added in separate modifications, key conflicts could occur in scenarios using combinations of these modifications. This is now avoided for new modifications, except when identical key values are used expicitely. **(15164)**

Timetable Editor

○ Cell selection in the tabular timetable: When a cell selection by mouse was started in a cell containing a symbol, the selection could not be extended to other cells. This is possible now. **(15201)**

- ⊘ Creating vehicle journeys: The tabular timetable as well as the 'Vehicle journey items' list were not refreshed when creating a new vehicle journey. This error has been fixed. **(15083)**

Visum Files

- ⊘ Quotes in $O-format matrix files: When quotes were used in zone names stored in matrix files in $O-format, these files could not be read. This bug was fixed. **(13134)**

❗ Breaking Changes

COM-API

- ❗ VDV452-Export in COM: The method IVisum.ExportVDV452Data now uses a parameter object for providing the export parameters instead of individual arguments. A template IExportVdv452Para-object can be created through INet.CreateExportVdv452Para. Existing scripts using ExportVDV452Data must be adapted. **(15033 ⊕)**

Demand Procedures

- ❗ 'P+R lot choice': The procedure 'P+R lot choice' now expects the utility term to be specified as utilities instead of costs (larger numbers result in higher attraction of the lot). Therefore, it will usually be required to apply negative coefficients to skim matrices (costs). **(15174 ⊕)**

Other Procedures

- ❗ Signal offset optimisation: The procedure 'Signal offset optimization' is now also available in 64-Bit installations of PTV Visum. The results of the procedure may differ from calculations done in previous versions also in 32-Bit installations. **(14935 ⊕)**

PrT Assignment

- ❗ Proportional connector shares and negative demand: The PrT assignments ignore relations with negative demand. But these relations were still considered when calculating cpacities for connectors with proportional shares (only for option 'Total trips', not for MPA). As a result, t_cur for such connectors could take very large values. This error was fixed. Due to this change, assignment results might change when proportional connector shares are used in conjunction with option 'Total trips'. This can occur even if no relation with negative demand exists. **(14969 ⊘)**

15.00-01   [98763]

⊕ New Features and Changes

Formulas

- ⊕ TableLookup: The TableLookup functionality has been accelerated significantly. **(15141)**

Installation

- ⊕ Improved check for matching installation: The check verifying whether the installation can be updated successfully when updating an existing installation has been improved. It particularly checks whether the basic installation is too old. **(15077)**
- ⊕ Python library numpy: The version of the numpy library supplied with PTV Visum within the scope of the Python installation has been upgraded to version 1.9.2. **(14800)**

Lists

- ⊕ Percentage format: It is now possible to enter percentage values in lists for all numerical dimensionless attributes, independent of the current display format. This also allows to read attribute files (*.att) containing columns with percentage values. **(15038)**

PrT Assignment

- ⊕ Number of CPU cores for LUCE Assignment: The LUCE assignment procedure now determines the number of available physical CPU cores directly from the system information. The calculation will be restricted to this number of threads in order to avoid usage of slower virtual cores. **(13335)**

PuT Assignment

⊕ Wait time at circle line transition (headway-based): During the headway-based assignment, the circle line transition used to be treated as stochastic wait time. However, as a stay on board is modelled here, a deterministic wait time of 0s is now assumed. **(15069 ⊘)**

Timetable Editor

⊕ Copy&Paste vehicle journeys: It is now possible to copy and paste vehicle journeys. This works even in different Visum networks and in different Visum instances. If required, Visum will create the required objects such as lines and line routes. **(14023)**

Visum Files

⊕ Data with a calendar reference during additive network reading: If you selected the 'Overwrite' mode for the calendar period when additively reading a network file, so far, data depending on the calendar falsely entered the target network if the calendar period of the network did not match the calendar period of the network file since all references to calendar days are specified as index referring to the calendar period. This applies to, for example, valid days, block versions, and chained up vehicle journey sections. These data are now adjusted when reading in the network file so that they keep the actual calendar day. **(15102)**

✓ Fixed Bugs

Add-Ins

✓ Buffers around PuT lines: In the Add-In 'Buffers around PuT lines', so far, the buffer size did not consider the projection set in the network. This error has been fixed. **(14973)**

✓ Nested Demand Model: Errors could occur when evaluating models with complex model structures (multiple nesting, alternative-specific lambdas on lower levels as common in WebTAG models). This was fixed. **(15123)**

Data Model

✓ Editing durations: Wrong values could be stored when editing duration values in the format m:s (minutes:seconds). This was fixed. Additionally, the evaluation of decimal places for durations was restricted to situation when either pure seconds or full durations with hours, minutes and seconds are entered. **(15042)**

✓ Special characters in AddIn parameters: Until now, special characters were rejected when setting values for the attribute AddInParameters. However, the parameters of add-ins usually contain such characters. As a result, users could neither set add-in parameters via the respective dialog nor read in XML procedure parameter files with add-in parameters. This error has been fixed. **(15058)**

Dialogs

✓ Dialog 'TSys/Modes/DSeg': A crash no longer occurs if you create a transport system while the licenses for PrT and PuT are switched off or if you create a demand segment yet no license (PrT or PuT) is available for any of the existing modes. **(14992)**

✓ Improvement of the 'Demand data' dialog: When finishing the entry of a start time on tab 'Demand segments' of the demand data dialog, this entry was not displayed in time format, but the numbers were displayed as entered. Further updates were missing in the dialog. The error has been fixed. **(14993)**

✓ Special characters in message windows: The character '&' which is frequently used in formulas was not displayed in message and warning windows. This was fixed. **(15079)**

Dialogs, Demand Procedures

✓ Matrix references and P+R procedures: If you edit one of the matrix references in the procedure parameters dialog of the procedure 'P+R lot choice' or 'P+R leg split', the formula was converted to capital letters, including the contained string literals (e.g for a DSeg code). The string comparison, which considers case sensitivity, subsequently produced different results. This error has been fixed. **(15140)**

Formulas

✓ Changes to BDA definitions and Undo: If you changed the definition of a user-defined attribute and later undo it, the necessary adjustments at formula matrices were not reset to the previous state. This error has been fixed. **(15046)**

✓ Column and row numbers of formula matrices: The calculation of the column and row sums of a formula matrix could yield false and ever-changing values if they were simultaneously called from a parallelized context, for example by calculation of the summation rows in lists. This error has been fixed. **(15128)**

✓ Numbers in matrix references: If a number occurred in the first place of a matrix reference which did not exclusively contain numbers (e.g. 'Matrix (3 = [ATTRIBUTE])'), the reference was not resolved correctly. This error has been fixed. **(14878)**

- Procedure 'Edit attribute' and string formulas: So far, in procedure 'Edit attribute', you could use numerical attributes in a formula even if the target attribute was a text attribute. The value was then implicitly converted into a string. This is no longer permitted. You now have to use the operator 'NumToStr' which explicitly performs the conversion. Furthermore, unnecessary brackets were inserted via the dialog when adding the Concatenate operator to a string formula and brackets in string formulas were not evaluated correctly. Both errors have been fixed. **(15056)**

Graphical Procedures

- Evaluating PrT flow bundles: The evaluation of a PrT flow bundle was slowed down unnecessarily when using multiple cores, in fact all the more so the more cores were used. This error has been fixed. **(14835)**

Graphics

- Turn volumes at main nodes: When drawing turn volumes at main nodes with option 'At the cordon nodes' checked, the smooth color transition did not work. This error has been fixed. **(15001)**

I/O Interfaces

- Add-In GTFS-Import: When importing files containing some special characters, the Add-In would stop the import. This was fixed and the messages during the import were improved. **(14892)**

Installation

- 'Silent' installation: Even if a 'silent' installation was required by command line parameter, the user was queried in specific cases. This error has been fixed. **(14374)**

Junction Editor

- Switching the node in the Vissim preview: If you switched to another node in the junction editor while the Vissim preview was open, the program sometimes issued an error message instead of displaying the newly selected node. This error has been fixed. **(14677)**

Lists

- PrT path lists: A crash no longer occurs if a procedure sequence is run while the PrT path list is open with a set origin zone filter after deleting the zone used for the filter. **(15024)**
- Response to network changes: Several analysis lists, i.e. those which do not list network objects directly, did not respond to changes to network objects and furthermore displayed the outdated data in this case. This applied to: all path lists (PrT and PuT), shortest path PrT and PuT, network statistics, all passenger transfer lists, goodness lists, and emissions. This error has been fixed. **(15121)**
- Territory PuT detail list: Visum no longer crashes when editing the network if the Territory PuT detail list displays projected user-defined attributes in the procedure 'PuT operating indicators' beforehand and the display is grouped by at least one column. **(15078)**
- Timetable Editor: Jump to the top (Ctrl + Pos1): If you jump to the top using the shortcut Ctrl + Pos1, the list did not scroll up if it contained an analysis row. Similarly, in the tabular timetable, the focus only jumps to the first column yet without scrolling the timetable. This error has been fixed. **(15013)**

Main Window

- Message window: The message window also displayed messages of the current network in gray. Furthermore, if several messages regarding network objects of the same type were marked, only the first network object was marked in the network editor instead of all. Both errors have been fixed. **(15139)**

Miscellaneous

- Chinese demo version: The demo version of PTV Visum ran in an infinite loop if it was started in Chinese. This error has been fixed. **(15052)**

Network Editor

- 'Edit category' for POIs: If the Multi-edit special function 'Edit category' for POIs was called for all (active) POIs via the shortcut menu in the tool window 'Network', it had no effect so far. This error has been fixed. **(15067)**
- Deleting nodes, connecting links: When deleting a node with two legs and connecting the two adjacent links, the data of the same link was always used, regardless of the user's selection. This error has been fixed. **(15068)**
- Moving point objects: If two point objects (or points of point/polygonal objects) were located closely enough, the other object was sometimes moved when clicking one object and trying to move it with the mouse. This bug has been fixed. **(15010)**

- ✅ Moving stop points: When moving a link stop point (directed or undirected) along the same link, values of user-defined attributes of line route items were lost, even if the order of all stop points on the link remains unaltered. This error has been fixed. **(14962)**
- ✅ Splitting a link: When splitting a link, the new node was placed at the position 0/0 at first. Only after moving the mouse, the mouse position was used. This bug has been fixed. **(15109)**
- ✅ Swapping line routes: So far, even profile points which were not located at a stop point could be selected as connection point when swapping line routes. The connection, however, does not succeed in this case because vehicle journey sections must not start or end here. Therefore, only profile points at stop points can now be selected as connection point. **(15060)**

PrT Assignment

- ✅ Analysis time intervals in dynamic assignment: When executing a dynamic PrT assignment DUE with option 'Use time intervals as analysis time intervals' deactivated, the current time interval was set back to the first analysis time interval. This error has been fixed. **(15093)**
- ✅ Dynamic stochastic assignment: A crash no longer occurs in the dynamic stochastic assignment if paths which used to be valid become invalid due to the continuous preselection. Furthermore, the independence of paths was not calculated correctly if the search was done for more than one time interval. The error has also been fixed. **(15130)**
- ✅ ICA calculation: So far, slightly different results could occur when repeatedly executing the ICA calculation. This error has been fixed. **(15016)**
- ✅ Parallel execution of the assignment: Creating PrT paths in the context of a PrT assignment calculated with mutliple cores no longer causes a crash. **(15107)**
- ✅ Path-dependent impedance components in stochastic assignments: A crash no longer occurs in the dynamic stochastic assignment if impedance components exist per path. Moreover, in stochastic and dynamic assignments, volumes were lost for a transport system if the coefficient for the general impedance was 0 for all demand segments of one transport system and if it was not equal to 0 for at least one other demand segment. This error has been fixed as well. **(15131)**
- ✅ Stochastic and dynamic stochastic assignment: So far, the detour test in the context of the stochastic or dynamic stochastic assignment failed to compare the run times of all links of the mesh distinguishing the paths. This error has been fixed. **(15115)**

Procedure Sequence

- ✅ 'Open' icon for files: Clicking the Open icon in the File column of a procedure step with reference to a file did not always open the right directory (i.e. the project directory of the file type or, if an absolute path was specified, the absolute path). This error has been fixed. **(15027)**

PuT Assignment

- ✅ PuT-Aux in headway-based assignment: In headway-based assignments, paths were sometimes not found if they were covered with PuT-Aux transport systems only. This error has been fixed. **(14926)**

Scenario Management

- ✅ Suppressing the GUI: If Visum was started with the add-on NO_UI so that no user interface is displayed, the admin dialog of the scenario was still displayed after loading a scenario management project. This error has been fixed. **(15066)**
- ✅ Write protection warning: A warning concerning a possibly existing write protection of the respective file is no longer issued when finishing the edit of a modification or when opening the base version. It is not required as the file is only read in both cases. **(15126)**

Subnetwork Generator

- ✅ Transfer of the tour-based freight model: Cutting a subnetwork failed if a demand model of the type 'Tour-based freight' was contained in the network which ought to be transferred to the subnetwork. This error has been fixed. **(15063)**
- ✅ Transfer of tour-based demand model: The generation of a subnetwork with option 'Include the demand model in the subnetwork' activated failed if the network contained a demand model of the type tour-based model including an activity pair with a reference to a time series. This error has been fixed. **(15084)**

Timetable Editor

- ✅ 'Divergence' of the tabular timetable: In specific cases, the tables for vehicle journeys and vehicle journey sections diverged, i.e. columns belonging together were not displayed one below the other any more. This error has been fixed. **(14959)**

- ✅ Marking in the tabular timetable: If you used the arrow buttons of the middle or the lower scroll bar to scroll the tabular timetable, the marking was sometimes lost. This error has been fixed. **(14914)**
- ✅ Optimum column width in the tabular timetable: If you set the optimum column width in the tabular timetable by double-clicking one of the separators in the column header of the items grid, the separators and the column header diverged. This error has been fixed. Furthermore, the calculation of the optimum column width no longer considers the column header but the column width is exclusively adjusted to the content of the cells. **(14209)**

Visum Files

- ✅ 'Effective control type' at nodes and main nodes: After reading in a version file, the attribute 'Effective control type' could display a false value in case of signalized (main) nodes with external control of the signal control (Vissig) if the associated sig file did not contain a signal program. This error has been fixed. **(14977)**
- ✅ Compared attributes in model transfer files: If the compared attributes should also be saved to file when generating a model transfer file, so far, the program only saved attributes of tables which contained at least one object with deviating data. This error has been fixed. **(15087)**
- ✅ Saving matrix data files: A crash no longer occurs if option 'Save matrix data as separate matrix data file' is checked and the version and the matrix file are then saved under a different name for the first time. **(15055)**

⊗ Breaking Changes

Formulas

- ⊗ Procedure 'Edit attribute' and string formulas: So far, in procedure 'Edit attribute', you could use numerical attributes in a formula even if the target attribute was a text attribute. The value was then implicitly converted into a string. This is no longer permitted. You now have to use the operator 'NumToStr' which explicitly performs the conversion. Furthermore, unnecessary brackets were inserted via the dialog when adding the Concatenate operator to a string formula and brackets in string formulas were not evaluated correctly. Procedure sequences which use the implicit conversions cannot be executed any more without an adjustment of the formula. **(15056 ✅)**

PuT Assignment

- ⊗ Wait time at circle line transition (headway-based): During the headway-based assignment, the circle line transition used to be treated as stochastic wait time. However, as a stay on board is modelled here, a deterministic wait time of 0s is now assumed. Assignment results of the headway-based assignment change accordingly if circle lines exist. **(15069 ⊕)**

15.00-00   [98239] 2015-06-23

⊕ New Features and Changes

ANM

- ⊕ Export of certain POI categories: The ANM export of certain POI categories as detectors is no longer possible. **(13774 ⊗)**

Add-Ins

- ⊕ Import Google Transit Feed: The import takes walk times between stop areas into account. **(12965)**
- ⊕ Preprocess Balance/Epics: There is a new Add-In, which prepares a Visum network for the application within PTV Balance/Epics (http://vision-traffic.ptvgroup.com/en-uk/products/ptv-balance/). **(14739)**
- ⊕ Reporting PrT Counts: The existing Add-In has been extended for validating travel times. It is now possible to compare observed and modelled travel times. This can be done on the level of PrT path level (one value per path) or using detailed time-space-diagrams. **(12436)**

COM-API

- ⊕ Add-Ins via COM: It is possible to execute Add-Ins via COM with a given parameter object. **(13948)**
- ⊕ DocumentName in scenario management: When a scenario management project is open the DocumentName can be retrieved via COM. **(14846)**
- ⊕ Licence information: Various information about the licence can now be retrieved by COM. **(14008)**
- ⊕ Saturn Importer: There is a new COM-function ImportSATURNData for the saturn importer. **(13946)**
- ⊕ Script code in script menu: For new entries in the script menu the script code can now be directly entered. **(13340)**

- ⊕ Set run and dwell times: The XML and COM interface of the procedure Set run and dwell times has been changed. **(3877 ⚠)**
- ⊕ The methods Get-/SetMultipleAttributes available for all network object collections can now optionally be applied only to active network objects. The Set-method matches the values to the active network objects by their order and ignores missing or surplus records. **(11042)**
- ⊕ Transforming Coordinates: There is a new COM-function TransformCoordinates, which transforms coordinates between different coordinate systems. **(13463)**
- ⊕ Two new COM-methods allow to perform pairwise checks of the compatibility of modifications
  - IModification.DoesNotOverlapWith() checks if both modifications are completely independent and do not affect the same network objects
  - IModification.CanBeCombinedWith() checks if the modifications can be applied sucessively without any conflicts. This also accepts a list of modifactions or numbers for the check.
  Both methods return a boolean flag indicating the compatibility **(14588)**

Data Model

- ⊕ Conversion of RBC controllers: When converting RBC controllers into signal group-based or stage-based control the information about signal times is largely maintained. **(11888)**
- ⊕ Coupling on vehicle journey level: Couplings represent portions of multiple vehicle journeys (of rail vehicles) conducted in common, which is done e.g. to provide higher capacities on the central trunk of a line, while separating into different breaches in the outer parts. Although the concept is usually applied to individual trips, the Visum data model covered this on the level of time profiles. Actions taken on the vehicle journey level were synchronized back to the time profiles by complex tools and mechanisms. In PTV Visum 15, couplings are now truly modelled on the vehicle journey level. This facilitates the management of the couplings and makes the concept more robust. Furthermore, some limitations of the modelling capabilities are now eliminated, e.g. vehicle journeys can now end within coupling sections. The user interface was adapted to the new data model, e.g. from the timetable editor, it is now possible to define couplings between an arbitrary number of vehicle journeys with shared course sections. **(13485 ⚠)**
- ⊕ Evaluation of connections: There are new calculated attributes for stops to evaluate the number of connections that can be reached or are missed. Additionally, in the data model corresponding relations have been introduced for vehicle journey items that enable the evalaution of connections at the arrival stop. **(14021)**
- ⊕ New relations from matrix toll: With the new relations from matrix toll it is possible to access links traversed and nodes. **(12907)**
- ⊕ New signalization type: There is a new signalization type "Epics/Balance local", which can be used to prepare the network for PTV Balance / PTV Epics. **(13627)**
- ⊕ Passenger trip chains: Passenger trip chains are situations in a time-table where two successive vehicle journey of different lines are served by the same physical vehicle. Thus, the passengers can stay seated while the line signs of the vehicle change. While similar concepts exist with ring lines and forced chainings, it was not fully possible to model this situation in Visum up to now. The concept of forced chainings was extended now in order to also cover the passenger perspective on the chaining. If two trips are connected by a passenger trip chaining, the public transport assignment and skimming procedures will not count the connection as an interchange. The connection time is accordingly attributed to the riding time. The shortest path search, fare calculation, public transport indicators etc. have been adapted accordingly. Also, the importers for HAFAS and railML have been extended in order to cover passenger trip chains provided through these formats. **(4181)**
- ⊕ Share of bypass volume: The default value for the leg attribute "Share of bypass volume" has been changed to 1.0. **(14130 ⚠)**
- ⊕ The calculation for overlapping time series items with time intervals has been improved. **(14703 ⚠)**
- ⊕ Time series in the demand description: In favor of a simplified model several attributes of time series have been removed. The attributes Start interval index and End interval index of time series items have been renamed in Start time and End time, respectively. **(14156 ⚠)**
- ⊕ Time series items: The attribute Value of time series items has been renamed in Weight. **(14162 ⚠)**
- ⊕ Time series types in the demand description: The network object Time series types has been removed. The two still existing time series types are available as domain types of time series with the values Shares and Matrices, respectively. **(14717 ⚠)**
- ⊕ Formular matrices as part of time series of matrix numbers: Formula matrices can now be assigned as matrices for time series of matrix numbers. **(14065)**

Demand Procedures

- Modelling of Park+Ride: Two new procedures for modelling Park+Ride, namely P+R parking lot selection and P+R leg split, are available. The first procedure calculates for each relation possible P+R lots and distributes the Park+Ride demand. Additionally, skim matrices for Park+Ride are calculated by this procedure which consider the cost of corresponding legs. The capacity of Park+Ride is taken into account and the volume-capacity dependent costs are also included in of the skim matrix values. Based on the distribution of demand across selected Park+Ride lots the procedure P+R leg split generates two matrices that reflect the demand for each of the legs for the corresponding assignment. **(9003)**
- Tour-based freight model: This new addon module is specifically targeted to modelling commercial traffic. The special characteristics of commercial traffic are mainly brought into the model by a second procedure for freight trip generation. This procedures allows to model the common practice of grouping multiple services into a single tour of a vehicle in an aggregated, macroscopic manner. Please read the overview document for more details. **(14259)**
- Tour-based model - Combined trip distribution/mode choice: The message for faulty (transformed) utility calculation has been improved. **(10264 ⚠)**
- Utility functions of the Standard-4-Step model: Formulas can be used for the utility function in the demand procedures Trip distribution and Mode choice. This results in a change of the XML format of the procedure parameters and of the COM interface. Access to the utility function is possible through AttValue of the classes IModeChoiceDStratModePara und ITripDistributionDStratPara. **(13736 ⚠)**
- Visem: The tour-based demand model can now calculate the mode choice using a nested choice model. **(12716)**

Dialogs

- 2D display / isochrones PrT: The settings for the 2D display have been fully redesigned and improved. Also, the settings for the isochrones PrT are now available at the graphic parameters of links. For details please read the overview document. **(1270)**
- Attribut selection dialog: When selected attributes are moved up or down using the arrows the grid scrolls so that the selected attributes are always visible. **(13092)**
- Classified display: Dialogs for the classified display have been standardized further. **(14055)**
- Default value for walk times in stops: A default value for walk times within a stop can be defined in the user preferences. This value is being used when a stop area is added interactively or when a stop area is allocated to a different stop. **(12448 ⚠)**
- Entering dates: PTV Visum has now a modern, more convenient control to enter dates, which allows among other things copy & paste. **(13366)**
- Formula editor: The options for editing formulas have been extended. There are new entries and buttons which facilitate the defintion of formulas. When editing formulas, e.g. by double click of its parts the access to operands and operators are better supported. **(13987)**
- Point of Interests (POI): POIs are now shown and ordered consistently in all dialogs. **(12694)**
- RailML and Hafas import dialogs: The grid of the dialogs have been rebuilt to allow for copy & paste of multiple selection. **(10823)**
- Settings for completing line routes: The settings for the Dialog Completing the courses of line routes are kept beyond one Visum session. **(12927)**
- Walk times of stops: When editing walk times of stops marked stop area releations in the dialog Edit stop are highlighted in the network editor. **(11750)**

Filters

- Comparison of numbers with decimal places: To avoid imprecision when comparing numbers with decimal places an epsilon neighborhood is used to examine the filter condition. **(12717)**
- Editing of filter conditions: Editing, activating and deactivating of filter conditions can now be changed using the Undo and Redo buttons. **(9226)**

Formulas

- Formula attributes: For numeric formula attributes the data type can be defined like for other user-defined attributes. **(14122 ⚠)**
- GEH Statistics: The GEH statistics is now available as function in formulas. The GEH is often used for comparing model and count data, see http://en.wikipedia.org/wiki/GEH_statistic. **(14062)**
- New functions for demand matrices: Flow bundle matrices, total demand matrices, assigned volume matrices and assigned volume matrices considering the filter for network volumes are available as functions for formulas. **(14778)**
- TableLooUp: With the new function Table Look-up it is possible to assign values from other network objects or use them in a formula. For example, one can use different factors in a formula depending on the type of the object. **(3343)**
- Working with strings in formulas: The possibilities of using strings in formulas have been extended. For example, string comparison, concatenation of multiple stings, conversion of strings into numbers and vice versa are possible. **(14104)**

Graphical Procedures

⊕ Automatic generation of flow bundle matrices: By default demand matrices from flow bundle calculations are saved as formula matrices in the Visum model.
Therefore, the procedure Save demand matrices from route volumes is redundant and has been removed.
(12393 ⚠)

Graphics

⊕ Bars for main turns: There is a new option in the graphic parameters for turn volumes that allows for drawing of bars for main turns starting at the cordon nodes. Consequently, volume bars can be displayed continuously in a network with main nodes. **(11265)**

⊕ Color settings for flow bundle: The graphic parameters to select the color of blow bundle objects have been modified. The color can directly be selected via the button. **(12600)**

⊕ Display of charts: The display of charts has been substantially improved and several shortcomings have been removed. **(7399)**

⊕ Display of route courses: The graphic parameters for the display of route courses have been redesigned. In particular, for links commonly used by several lines it is now possible to visualize bars of all objects depending on the aggregation level. **(5878)**

⊕ When loading graphics parameter, the network viewport is now also set when it's outside the area of the current network **(14444)**

I/O Interfaces

⊕ GPS Tracking: The GPS Tracking is no longer available. You can use the new GPX importer (11399) to import recorded GPS tracks. **(13494 ⚠)**

⊕ GPX-Importer: PTV Visum 15 brings new possibilities for importing data from the GPX format as it is produced by GPS devices etc. Such data usually represents routes or tracks, so they are a combination of the spatial course with timestamps of the waypoints. The importer for PTV Visum offers two different approaches when importing tracks and track segments - both can be applied simultaneously. In the more simple approach, the exact geographical course of the tracks is converted into linear POI objects. This is useful for visualizing the original data. In the more complex approach, the tracks are matched onto the road network already loaded in Visum. The matched course are represented by PrT path objects. **(11399)**

⊕ GTFS Export: Timetables can now be exported to the GTFS format. **(11170)**

⊕ GTFS Import: It is now possible to import GTFS data directly from a zip-file. **(14440)**

⊕ NEMA signal controllers: Older data files which incorporate NEMA controllers cannot be read anymore. **(13493 ⚠)**

⊕ RailML Import with ambiguous stop point allocation: Operation control points for which several stop points in the target network can be found are not ignored anymore. Under certain conditions a shortest path search is used to select one of the candidate stop points. **(10836)**

⊕ RailML import: If there are conflicts of run times between stop and passage points then passage points will not get the flag as profile points. **(14168)**

⊕ RailML operatingPeriod-elemente: All attributes that are included in the railML schema for operatingPeriod-elements are available for the import into attributes of PuT valid days. **(14541)**

⊕ RailML version 2.2: The railML importer can now import railML data version 2.2. The updated list of attributes, which can be imported, is shown in the import dialog (tab attributes). **(13660)**

⊕ TModel import: The import of TModel files is no longer available. **(13492)**

Lists

⊕ Attributes with alias: When using an alias for an attribute now the tool tip shows the original attribute name. **(14186)**

⊕ Conditional formatting: Is now possible to define color schemes, which define the background and text color of each cell. **(11999)**

⊕ Display of demand segments in path lists: Demand segments from a single assignment can be displayed in separate columns in the same path list. A subattribut for demand segments is introduced for path attributes like OD trips, fare, number of fare points and number of fare zones. **(13486)**

⊕ Empty values for attributes of type bool: The visibility of empty values for user-defined attributes of type bool in lists has been improved. **(14422)**

⊕ Export of PrT path lists: The export of PrT path lists have been sped up. **(10791)**

⊕ Export of lists: It is now possible to save grouped lists to attribute files, into the clipboard and to databases. **(9701)**

⊕ Formatting of numbers: The possibilities to format numbers have been extended by the thousand separator. There are new options in the user preferences under Formats, Lists and Matrix editor. **(11424)**

⊕ Paste content from clipboard: After pasting from clipboard the range of cells in which the content was pasted is marked. **(10089)**

Main Window

- Quick access to filters: Filter files *.fil can now be opened and saved quickly using a dropdown list in the main window (similar to the graphic parameters). **(9348)**
- Zoom using the mouse wheel: Zoom using the mouse wheel is now possible without explicit selection of the tool window. **(14657)**

Miscellaneous

- Information about maintenance contracts is now displayed in the license dialog **(12633)**
- Progress bar on taskbar icon: PTV Visum shows now for long-lasting processes (e.g. reading version files) in the taskbar using different colours the status of the process. **(14281)**
- The About-Dialog has been redesigned. **(14749)**
- The Help-menu has been aligned for all products of the Vision Traffic Suite. The COM documentation can now be accessed through a seperate menu entry. **(15015)**
- Windows Messenges: The number of entries for messages can be increased in the settings for user preferences. **(13135)**

Network Comparisons

- Model transfer file: It is now possible to choose any version file as base network (not only the currently used network), when creating a model transfer file. **(10507)**
- Overview comparison: It is possible to compare two Visum version files without saving the corresponding model transfer file. None of the selected version files must correspond to the currently loaded version file. Furthermore, the comparison can be restricted to input attributes. **(10354)**
- Version comparison for PuT paths: The version comparison for PuT paths has been removed. **(14567 ⊙)**

Network Editor

- Connect line routes: The combination parameters have been extended by an option for the dwell time at the connection point. **(14010)**
- Copy of line routes: When copying line routes the selection of the new line can optionally be restricted to active lines. **(12901)**
- DWG 2013 files can now be used as background images. **(13963)**
- Editing surfaces: When editing surfaces additional information of key combinations are displayed in the status line of the network editor. **(11336)**
- Hover-effects: When working in the network editor, the user now gets a direct feedback what will happen, if the currently desired action will be executed. E.g. when hovering over an object in the edit mode, this object will be highlighted. In the graphic parameters the user can define the transparency of this marking. **(14452)**
- In selection for lines and line routes: There are new options to apply the attribute In selection to other objects of the line hierarchy. These options can be accessed through the context menu of the dialog Lines / Line routes. **(10831)**
- Less dialogs: Some seldom used dialogs are not any longer shown during network editing. Some other dialogs have been improved to make the relevant information and options easier accessible. This has been done e.g. for inserting stop points of deleting nodes. In the user preferences the user can define some defaults for this. **(14447)**
- Measure distances: Measurement can now be completed with double-click (before: right-mouse click). **(14742)**
- Mouse pointer: The mouse pointer reflects now the current mode (insert, edit, spatial selection and graphic tools). **(13305)**
- Network check: There is a new option, which checks the vialibility of the network for the usage in PTV Balance/PTV Epics. **(14727)**
- Roundabouts: The default value for the attribute HasBypass has been changed. The attribute is now deactivated. **(14560 ⊙)**
- Scale network: It is now possible to scale networks during the transformation of network coordinates in the network settings (so far only rotation and shifting). **(14301)**
- Set run and dwell times: The procedure and special function for time profiles have now the same label Set run and dwell times. **(14057)**
- Shorten lineroute: Line route can now be shortened in the line route dialog (in addition to current possibility of interactive editing in the network editor). In the tab 'Items and time profiles' there is a new icon, which allows choosing the start and end stop points. **(5879)**
- Stop points on nodes: The attribute directed is deactivated for stop points on nodes from now on. **(14243 ⊙)**
- Swap branches of line routes: It is now possible to swap branches of two line routes at a selected stop point. The departure and arrival times of affected vehicle jouneys are maintained. **(13357)**
- User-defined attributes: There are new types for user-defined attributes available, namely area, speed, or currency, **(14348)**

- Editing of surfaces and polygon lines: Editing of surfaces and polylines has been simplified. More specifically, it is not anymore necessary to change in a state for editing shapes. The corresponding floating dialogs have been abolished. **(14448)**

Other Procedures

- Creation and calculation of multiple matrices with ForEach: The syntax for the creation and calculation of multipe matrices has been changed. It is now possible to iterate over one or several types of network objects using a loop variable allowing more intuitive access to network objects and their attributes. **(14368 ⓘ)**
- MSA: The procedures Method of successive averages (MSA) for attributes and Method of successive averages (MSA) for matrices were replaced by new functions in formulas. This allows to combine them with other formula functionality for attributes and matrices. The MSA algorithm is provided through a function MSA() which implements the common averaging between iterations with weights 1/N+1 and N/N+1. Custom averaging algorithms can be realized using another new function IterationCounter(). This function returns the current iteration counter of the procedure sequence and thus gives full flexibility about data and weights. When reading legacy procedure parameters, MSA procedures are automatically converted into the equivalent formulas. **(13986 ⓘ)**
- Usage of matrix references: It is possible to use matrix references for the selection of matrices in the procedures TFlowFuzzy, Estimate gravitation parameters (KALIBRI), and Go to the procedure. **(13852)**

PrT Assignment

- Convergence criteria for assignment with ICA: The convergence criteria for assignment with ICA have been extended by two link attributes. Additionally, the list of PrT ICA assignment quality data contains further results. **(13537)**
- ICA calculation for two-way stop nodes: The upper limit for the capacity calculation of turns of two-way stop nodes has been removed. **(14630 ⓘ)**
- Impedance with path level attributes: The stochastic and dynamic stochastic assignments can now consider path-level attributes during the impedance calculation used for calculating the shares for each found route. These stochastic assignments are in particular interesting for the assignment of freight and bicycles, as they can find several paths even if capacity/VD-functions have only limited effect on route choice. **(13766)**
- Network check: The functionality check network consistency has been extended. The additional options can be accessed through the button Parameters. **(9558)**

Procedure Sequence

- Attribute selection: An attribute selection dialog is now available for the procedure sequence. **(10193)**

PuT Assignment

- Coordination in headway-based assignment: If lines are split into several coordinated lines with the same overall headway, the assignment result is now (almost) identical to the uncoordinated scenario. Remaining differences are due to (too) tight cutoff criteria only. **(14240 ⓘ)**
- Headway-based assignment: The procedure has been substantially improved by the systematic removal of dominated transfer options from the search graph. This particularly optimizes
  * the robustness of results when modifying network or parameters slightly,
  * the correctness of path choice in the case of multiple transfer options between a pair of line routes, and
  * computation time. **(14510 ⓘ)**
- Parallel vehicle journeys: Parallel vehicle journeys can result in inconsistencies. Therefore, a warning is triggered. Additionally, a Network-check function has been introduced to find parallel vehicle journeys with the same time profile. **(14514)**
- PuT transfers: Now the list PuT transfer objects contains the passenger transfers per analysis time interval. **(13318)**
- Search impedance for the timetable-based assignment: The calculation of the search impedance in the timetable-based assignment has been adapted to the definition of the perceived journey time. The coefficients in the search parameters can be directly transferred to the perceived journey time using the corresponding button. **(14796)**
- Search parameter in the headway-based assignment: There is an additional search parameter, which determines the number of alternatives at which the exact calculation method is replaced by an approximation. **(14511)**
- Speed up of headway-based assignment: A significant speed up of path saving during the headway-based assignment could be achieved for cases when the cut-off factor for the maximum share is smaller than 1. **(8052)**
- Timetable-based assignment with capacity restriction: There is a new function called "DGITM - CGSP (France)" for the calculation of the volume/capacity ratio-dependent impedance. The formula follows french guidelines. **(13761)**
- Timetable-based assignment: The default coefficients for the calculation of the preceived journey time (PJT) have been adjusted to be more consistent with thouse from the headway-based assignment. This does not have any impact on already defined assginments. **(14938)**
- Transfer passengers: A speed up has been achieved by changing the data structures for transfer passengers. The speed up can be observed in the assignment, but also e.g. the OD pair filter is executed faster. **(14488)**

PuT Line Blocking

⊕ Line blocking with vehicle interchange: The calculation has been accelerated significantly. **(14552 🔴)**

Scenario Management

⊕ A new function allows to extract selected project items (the base version plus modifications, scenarios and parameter sets) into a new Visum project. If modifications are common to all exported scenarios, they can optionally be merged into the new base version. This allows to base the new project on a consolidated status. **(13054)**

⊕ Floating dialogs: The floating dialogs that appeared when editing the base version or modifications have been replaced by an information bar which is integrated in the main window. **(12111)**

⊕ Log entries: For a selected number of edit operations in the project log entries are automatically generated which include the change and user. **(13123)**

⊕ Save tra-files: The internal processes when saving tra-files has been optimized. Now existing tra-files are only overwritten, when the new tra-files has been successful generated. **(14948)**

⊕ Save while editing: When editing the base version or modifications it is now possible to save the current state of editing without exiting the editing mode. **(12877)**

⊕ Status activ for scenarios: Scenarios have a new attribute called active. The calculation of scenarios and scenario indicators is automatically done for scenarios for which this attribute is switched on. **(12875)**

Schematic Line Diagram

⊕ Legend: It is now possible to show both the outer level (e.g. frequency) and the inner level (e.g. line name) of classified edge courses in the legend in the schematic line diagram **(12988)**

Subnetwork Generator

⊕ Demand based on formula matrix: A subnetwork can also be generated if demand matrices are defined using formula matrices. **(13874)**

Timetable Editor

⊕ Selection of vehicle journeys: It is possible to automatically select all vehicle journeys of a marked line, line route or time profile. To do this, an additional context menu entry has been introduced in the tool window Timetable lines. **(14011)**

⊕ Symbols for stops: The graphic parameters of the timetable editor now include options to flexibly change the symbols of stops. **(13829)**

⊕ The layout settings (view port, 24h display,...) which are not part of the graphics parameters can now be saved and restored in layout files (*.tlgt) **(14793)**

Visum Files

⊕ Precision for number with decimal places: Numbers with decimal places are written to files (.net, .dmd, .att, .tra) according to the parameter for precision under Network settings. **(14017)**

⊕ Procedure parameter files: When reading procedure parameter files in XML now empty attribute values are set. **(14839 🔴)**

🔴 Breaking Changes

ANM

🔴 Export of certain POI categories: The ANM export of certain POI categories as detectors is no longer possible. **(13774 ⊕)**

COM-API

🔴 Set run and dwell times: The XML and COM interface of the procedure Set run and dwell times has been changed. The new interface UpdateTimeProfileTravelTimesPara has been added. **(3877 ⊕)**

Data Model

🔴 Share of bypass volume: The default value for the leg attribute "Share of bypass volume" has been changed to 1.0. This can lead to differences when opening version or network files, which had been saved with PTV Visum 12.5 or earlier. **(14130 ⊕)**

🔴 The calculation for overlapping time series items with time intervals has been improved. This reduces the possibility of errors. **(14703 ⊕)**

- ⚠ Time series in the demand description: In favor of a simplified model several attributes of time series have been removed. The attributes Start interval index and End interval index of time series items have been renamed in Start time and End time, respectively. This results in a change of the .dmd file. **(14156 ⊕)**
- ⚠ Time series items: The attribute Value of time series items has been renamed in Weight. **(14162 ⊕)**
- ⚠ Time series types in the demand description: The network object Time series types has been removed. The two still existing time series types are available as domain types of time series with the values Shares and Matrices, respectively. This results in a change of the .dmd file **(14717 ⊕)**

Demand Procedures

- ⚠ Tour-based model - Combined trip distribution/mode choice: The message for faulty (transformed) utility calculation has been improved. The procedure is aborted when trips get lost due the faulty calculation. **(10264 ⊕)**
- ⚠ Utility functions of the Standard-4-Step model: Formulas can be used for the utility function in the demand procedures Trip distribution and Mode choice. This results in a change of the XML format of the procedure parameters and of the COM interface. Access to the utility function is possible through AttValue of the classes IModeChoiceDStratModePara und ITripDistributionDStratPara. **(13736 ⊕)**

Dialogs

- ⚠ Default value for walk times in stops: A default value for walk times within a stop can be defined in the user preferences. This value is being used when a stop area is added interactively or when a stop area is allocated to a different stop. **(12448 ⊕)**

Formulas

- ⚠ Formula attributes: For numeric formula attributes the data type can be defined like for other user-defined attributes. **(14122 ⊕)**
- ⚠ The unit of attributes was not correctly considered in expressions used in matrix references. This could lead to wrong results and was fixed. Exisiting matrix reference expressions using attributes with units (e.g. Link[Length]) will now possibly return diverging sets of matrices. **(14929)**
- ⚠ Units of speeds: If speeds and attributes of type short length were used in formulas speeds were converted into m/s and ft/min, respectively. This has been changed. The output of speeds is now always in km/h and mph, respectively. **(14589)**

Graphical Procedures

- ⚠ Automatic generation of flow bundle matrices: By default demand matrices from flow bundle calculations are saved as formula matrices in the Visum model. Consequently, COM access to the flow bundle matrix has been changed. The procedure Save demand matrices from route volumes is redundant and has been removed. **(12393 ⊕)**

I/O Interfaces

- ⚠ GPS Tracking: The GPS Tracking is no longer available. Sie können jedoch den neuen GPX-Importer (11399) nutzen, um aufgezeichnete GPS Tracks zu importieren. **(13494 ⊕)**
- ⚠ NEMA signal controllers: Older data files which incorporate NEMA controllers cannot be read anymore. **(13493 ⊕)**

Network Comparisons

- ⚠ Coupling on vehicle journey level: Deleted couplings on time profile level in old model transfer files will not have any impact, as coupling does not exist any more on time profile level. **(13485 ⊕)**
- ⚠ Version comparison for PuT paths: The version comparison for PuT paths has been removed. **(14567 ⊕)**

Network editor

- ⚠ Roundabouts: The default value for the attribute HasBypass has been changed. The attribute is now deactivated. **(14560 ⊕)**
- ⚠ Stop points on nodes: The attribute directed is deactivated for stop points on nodes from now on. **(14243 ⊕)**

Other Procedures

- ⚠ Creation and calculation of multiple matrices with ForEach: The syntax for the creation and calculation of multipe matrices has been changed. It is now possible to iterate over one or several types of network objects using a loop variable allowing more intuitive access to network objects and their attributes. Procedure sequences saved in Visum 14 which contain the procedure Combination of matrices and vectors with ForEach are not automatically adapted to the new syntax. **(14368 ⊕)**

PrT Assignment

- ICA calculation for two-way stop nodes: The upper limit for the capacity calculation of turns of two-way stop nodes has been removed. The calculation of capacity follows now the HCM formulas. **(14630 ⊕)**

PuT Assignment

- Branch&Bound-Search in timetable-based assignment: The concept of dominance among connections plays an important role in the connection search and thereby impacts the assignment result. The dominance was not consequently applied when special transfer times were defined for stops, resulting in dominated connections remaining part of the choice set. This behaviour was corrected. Assignment results may change slightly in networks containing these rather rare cases. **(14512)**
- Coordination in headway-based assignment: If lines are split into several coordinated lines with the same overall headway, the assignment result is now (almost) identical to the uncoordinated scenario. Remaining differences are due to (too) tight cutoff criteria only. **(14240 ⊕)**
- Fare points on circle lines: Fare points on circle lines have not been considered correctly in the fare calculation. This error has been fixed. **(14791)**
- Farepoints for passing through: When using fare points for the impedance in the headway-based assignment the number of fare points for passsing through was not correctly taken into account. This error has been fixed. **(10790)**
- Headway-based assignment with chocie model "Optimal Strategies": The computation of route shares now works correctly even in the case that so many alternatives are considered that some of them are assigned a share below the path share threshold defined in the procedure parameters. Assignment results will change accordingly. **(14430)**
- Headway-based assignment: The procedure has been substantially improved by the systematic removal of pointless transfer options from the search graph. This particularly optimizes
  * the robustness of results when modifying network or parameters slightly,
  * the correctness of path choice in the case of multiple transfer options between a pair of line routes, and
  * computation time.
  This modification causes assignment results to change, particularly in the area of transfer flows. **(14510 ⊕)**
- Preselection in timetable-based assignment: In the preselection step, the treatment of connections partially lying outside of the assignment interval was flawed under certain circumstances, and has been correctly in Visum 15. The error relates to the two preselection options for deleting connections departing before, or arriving after, the assignment period. The temporal comparison between the assignment period and the respective connection interval did not consider day changes correctly, and worked on absolute times instead. This could cause feasible connections to be deleted. The assignment result may change if any of the two affected preselection options is set. **(14306)**

PuT Line Blocking

- Line blocking with vehicle interchange: The calculation has been accelerated significantly. Calculation results may differ slightly compared to earlier versions. **(14552 ⊕)**

Visum Files

- Procedure parameter files: When reading procedure parameter files in XML now empty attribute values are set. They are not anymore replaced by default values. **(14839 ⊕)**
- Invalid control characters: Invalid control characters written to xml files could cause an abortion when reading these files. This error has been fixed. **(14847)**

COM-API

- Some deprecated functions were finally removed:
  - Visum.Net.CalcPartNet --> use Visum.CalcSubNetwork instead
  - Visum.Net.GetNearestLink --> use Visum.Net.CeateMapMatcher().GetNearestLink instead
  - Visum.Net.GetNearestLinkCache --> use Visum.Net.CeateMapMatcher().GetNearestLink instead, Cache is automatically applied if the same MapMatcher-instance is used for successive calls
  - Visum.Net.GetNearestNode --> use Visum.Net.CeateMapMatcher().GetNearestNode instead

  - IVehicleJourney.RemoveItems --> not required anymore **(13752)**

Other Procedures

⚠ MSA:
The procedures Method of successive averages (MSA) for attributes and Method of successive averages (MSA) for matrices were replaced by new functions in formulas. Therefore, the corresponding COM-class MSAPara and the access funcions AttributeMSAParameters, ODMatrixMSAParameters and SkimMatrixMSAParameters at IOperation were removed. Scripts using these functions will no longer work and must be adopted. When reading legacy procedure parameters, MSA procedures are automatically converted into the equivalent formulas. **(13986 ⊕)**