

# **VISUM Release Notes**

**Version 10.0**

**Version 10.01-03**  
**Last modified: 2007-10-17**



Stumpfstr. 1  
D-76131 Karlsruhe  
Phone: +49 721 9651-313  
Fax +49 721 9651-299  
e-mail: [hotline.visum@ptv.de](mailto:hotline.visum@ptv.de)

**Attributes**

- ▶ *Time (duration) data format*: The current global selection (minutes/seconds) is now also regarded for copying a time duration attribute to an integer attribute. (6422)

**COM Interface**

- ▶ *Time (duration) data format - COM*: The current global setting (minutes/seconds) is now also regarded for copying numbers without unit to a time duration attribute via COM. (6541)
- ▶ *Python*: Due to a Python error, object-returning functions which do not require any parameter used to provide corrupt objects. With the new version Python 2.5, this problem will no longer occur. Please download a setup for this update from the Add-On section of our Download Area. (6297)

**Dialogs**

- ▶ *Vehicles dialog box*: The program will no longer crash, if the dialog window is opened again after closing it by clicking the Close button x in the top right corner of the dialog title bar. (6472)
- ▶ *Attribute selection window*: Tool tips are available. Thus, even the complete name of indirect attributes can be read easily now. (6418)

**Graphics**

- ▶ *DWG background file*: Correct display, even if the DWG file contains multiple layers. (6475)

**I/O**

- ▶ *Read GPA file*: Selective reading of a graphics parameter file created with VISUM 10 will no longer change settings like e.g. Draw desire line links, as long as they have not been selected for reading. (6534)
- ▶ *Read attributes*: Automatic allocation of imported attributes to VISUM attributes works also for input attributes with translated sub-attribute, e.g. Connector.Weight (PrT/PuT). (4312)

**Listings**

- ▶ *Tooltips*: Tooltips will not remain visible after program changes. (6453)

**Network Editor**

- ▶ *Subnetwork generator*: The process is no longer terminated even if a path traverses a main node via an active incoming cordon link whereas the outgoing cordon link is passive. (6512)

**Object Model**

- ▶ *Delete TSys*: Deleting a TSys which is permitted to use a lane turn could have produced an inconsistent network state. Then VISUM used to crash, e.g. during Save version to file. This bug could be fixed. (6530)

**Other Operations**

- ▶ *Standardized assessment*: Now, the induced transport demand is calculated correctly, even in case of rising PuT impedance. (6484)

**PuT Assignment**

- ▶ *PuT Shortest path search*: VISUM will no longer crash while drawing a PuT path which includes a PuT-Aux-Sys path leg with identical StartNode and End Node.  
*Please note*: Normally those paths do not make sense but can be found due to certain search constraints, e.g. limited walk time per PuT-Walk path leg. The (recommended) assignment option "Branch & Bound" would not find such paths. (6525)
- ▶ *Timetable-based PuT assignment using Shortest path search*: In rare cases, the number of passenger transfers of the found path could exceed the user-defined maximum number of transfers. This bug could be fixed. (6509)

**TFlowFuzzy**

- ▶ *TFlowFuzzy*: When selecting the Turn\_UDA serving as source of Turn\_AddValues, a MainTurn\_UDA having the same name is now only required if the network contains main turns. (6511)

**COM Interface**

- ▶ *SetMultipleAttributes*: Columns with empty attribute IDs are now ignored. In this way, a matrix created by a call to *GetMultipleAttributes* can be reused for the *Set...* function even if not-editable attributes are contained. (1667)

**Dialogs**

- ▶ *Graphic parameters dialog box, classification*: Entering an invalid class limit like "<" or "=" (thus without a number) does not cause a crash anymore. (5368)

**Timetable Editor**

- ▶ *Creating regular services*: The program will not crash if the assignment result is discarded by this operation. (6447)

**I/O**

- ▶ *Reading blocks from network file*: The "end time" of a block is no longer reset to 0 when additively reading block items from a network file in mode "overwrite course". (6474)
- ▶ *Reading a network file*: The "overwrite" mode did not work for connectors. In the past "overwrite attributes" was used instead. The error has been fixed. (6470)

**Junction Editor**

- ▶ *SCJ optimization*: During green-time optimization of stage-based signal controllers, lane volumes are in all cases determined precisely for the decisive saturation per stage now. (6482)

**Listings**

- ▶ *Copy & paste*: Alternative to Ctrl+C and Ctrl+V you can now also activate copy & paste via the keyboard shortcuts Ctrl+Insert and Shift+Insert. (6118)
- ▶ *Context-sensitive menu in listings*: The context-sensitive menu is now also available if all rows of the listing are marked. (6378)
- ▶ *Synchronization listings <-> network editor*: No more problems with the evaluation of the current network editor marking if a listing of the same type is currently open. (6488)
- ▶ *Copy & paste*: Data of any desired cell range can now be exchanged with Excel via the clipboard. (6390)

**Network Editor**

- ▶ *Quick view*: Individual cells can now also be copied and pasted in the quick view window - entirely analogous to listings. (6232)
- ▶ *Quick view*: Several cells can now also be marked and e.g. be edited simultaneously in the quick view window. (6443)

**Object Model**

- ▶ *Vehicle journey items*: Objects of this type are now 'active' if
  - a) they meet the filter condition (as before), and
  - b) their vehicle journey is "in selection" (new).The second condition is needed to create specific sets of active objects, e.g. via COM, (6481)

**Other Operations**

- ▶ *Modal Split (Standardized assessment)*: Procedure parameters (e.g. G1 and G2) are correctly saved to protocol file now. (6483)
- ▶ *Flow bundle*: When a GPA file is read selectively, a flow bundle will only be recomputed if flow bundle parameters were actually imported. (6471)
- ▶ *Coordinate transformations*: Computational errors in the transformation have been fixed. (6478)

**PuT Assignment**

- ▶ *Headway-based assignment*: If the headways are calculated from the timetable, vehicle journeys with a departure time beyond 24:00 used to be ignored. This error has been fixed. (6486)
- ▶ *Skim matrix calculation*: If the demand segment selected for skims is deleted from the network, the assignment parameters are adapted such that the first remaining demand segment takes its place. Thus it can no longer happen that skim matrices with an empty demand segment reference

are created. (6487)

10.01-01

Corrections, Bug Fixes and New Features (ID)

2007-09-26

### Dialogs

- ▶ *Generate EVA sequence of operations:* The assistant provides the following new functionalities:
  1. Optional Go To operation,
  2. Selection of the DSegs the indicators of which are to be averaged via MSA in the iteration,
  3. Selection of the DSeg to check convergence during Go To operation. (6454)
- ▶ *Dialog Create vehicle journey(s):* Only line routes with a time profile can be selected in this dialog. (5736)
- ▶ *Node dialog box:* Node topologies are now always correctly adjusted when editing the main node number. (6436)

### Filters

- ▶ *Mode "undirected":* In the filter dialog for links and connectors, the button which activates mode "undirected" is now visible again. (6456)

### Graphics

- ▶ *Reading a GPA file:* The program does not produce an error anymore when ignoring the graphic parameters for the print page. (6468)
- ▶ *DXF export:* The export is no longer cancelled due to memory shortage. (6433)

### I/O

- ▶ *Editing project directories:* The directory for projections is no longer changed when clicking "All" in dialog Edit project directories -just like in case of PFD files and User VDF DLLs. In contrast to other file types, projections do not differ in the event of different projects; an adjustment of the path is thus not desired. (6457)
- ▶ *Read ATT file:* Attribute files can now also be read in for Tsys and modes. (6437)
- ▶ *Writing an EDF file:* VISUM no longer crashes if the export is cancelled with a click on "Cancel". (6435)

### Listings

- ▶ *Paste attributes from clipboard:* In the following cases, VISUM no longer crashes when importing input attributes with subattributes:
  1. in case of connector attribute Weight (PrT or PuT),
  2. if the subattribute is not contained in the target network anymore, e.g. due to a missing Tsys. (6446)
- ▶ Keyboard shortcuts which start scripts from the script menu now also work if the active window is a listing. (6407)

### Demand Model

- ▶ *EVA Weighting:* The weighting functions EVA1, EVA2 and Schiller were adjusted to the parameterization described in the manual. (6455)

### Network Editor

- ▶ Keyboard shortcut "Ctrl-G", which calls up the Gpar dialog box, now also works if the floating dialog of line route is activated. (6217)
- ▶ *Deleting coupled time profiles:* VISUM no longer crashes when deleting couplings if time profiles are deleted in the process. (6438)

### Interfaces

- ▶ *Subnetwork generator:* The operation is no longer cancelled with error message "Network does not contain link from node x to node y". This could occur if the first section of the path to be exported lay within a main node. (6469)
- ▶ *Subnetwork generator:* Main nodes are now only exported if they contain at least one node to be exported. (6467)

### Other Operations

- ▶ *Operation "Edit attribute":* The program does not crash anymore if the operation is run for user-defined attributes which are no longer contained in the network. (6445)

## Miscellaneous

- ▶ Rounding numbers with decimal places no longer leads to an instable performance. The effect could occur anywhere in the program, yet was computer-dependent. (6448)

10.01-00

Corrections, Bug Fixes and New Features (ID)

2007-09-14

## Attributes

- ▶ The turn attributes FromPrio and ToPrio were sometimes miscalculated in the past if the links that were used to determine these attributes were one-ways roads. The error has been fixed. (6398)

## COM Interface

- ▶ A new method called "ExistsByKey" is available at *IConnectors*, which is used to verify the existence of a connector between a pair zone-node. (5720)
- ▶ A new method called "ItemByID" is available at *ILineRoutes* and *ITimeProfiles*, which is used to get an object via its numeric ID. (6417)
- ▶ The decimal separator (full stop or comma) can now be read and set via COM. This is done at *IOptions* with method *DecimalSeparator*. (6412)

## Dialogs

- ▶ Buttons which transfer changes to the network that were made in a dialog but do not close the dialog are now called "Preview" throughout the program, even if option "Cancel" is provided after the operation. If the dialog remains open, they are called "Apply". (5947)
- ▶ *Dialog box Log and Error files*: 1. The time of the last modification is no longer (two hours) too old, 2. The time is now issued in the common format hh:mm. (6393)

## I/O

- ▶ *Reading major flows from version files*: Manually set major flows are no longer ignored when reading version files saved with VISUM 9.5 or older versions, if the involved links are one-ways roads. (6421)
- ▶ *Reading a network file*: If line routes without a valid course are discarded at the end of the import, VISUM now records the names of the respective objects in the error file *Error.txt*. (6411)
- ▶ *Network I/O, "Frequent cases"*: In scenario "Timetable", VISUM now uses the correct settings for tables line route item and time profile item. (6414)
- ▶ *Write network file, table Lanes*: Attribute *OriginLaneNo.* is allocated with the same logic as in VISUM <= 9.5: it refers to the next through lane. (6424)
- ▶ *HAFAS import*: If, due to a coupling, vehicle journeys need to be deleted because they start or end in the coupled section, VISUM now asks the user whether the objects should really be deleted. If denied, the vehicle journeys are retained and no coupling is created. The vehicle journeys concerned are listed in the trace file. (6426)

## Listings

- ▶ *Entering cell values*: Pasting an empty string from the clipboard no longer leads to a crash. (6428)
- ▶ (Sporadic) crashes no longer occur when clicking menu entry "Listings" following repeated imports of a version file. (6429)
- ▶ *Layout files for POI listings*: List layout files of different POI categories are now interchangeable. (3965)
- ▶ *Analysis rows*: The display of analysis rows in a list no longer leads to a crash when in the difference network mode. (6434)
- ▶ *Tooltips*: Listings display column header tooltips again with the attribute ID of the column. (6364)
- ▶ *Context-sensitive menu*: Values of enumerated types (e.g. control type of a node) can now be selected directly in the context-sensitive menu of the list again. (6339)
- ▶ *Marking a column*: Marking an entire column in a path listing no longer leads to a crash due to lack of memory. (6409)

## Matrix Editor

- ▶ *MLG file*: Operation "Set value" in the context-sensitive menu (right mouse button) can now be executed from within an MLG file. (5604)

## Network Editor

- ▶ If you dock both window Quick view and window Network objects when they were previously

hidden or closed, VISUM now automatically restores the most recently used vertical division between the two windows. (6158)

- ▶ If you close window Quick view and window Network objects, VISUM now restores this status when exiting and reopening the program. (6218)
- ▶ *Check network*: Main turns are now also taken into account when checking for useless turns. (6366)
- ▶ *Deleting stops*: VISUM no longer crashes when deleting a stop at which a vehicle journey or a vehicle journey section ends which does not run until the end of its line route. (6383)
- ▶ *You can now use entry "Block" of the context-sensitive menu to block turns and main turns for all TSys (main turns: just in the context-sensitive menu of listings). So far the command was provided for turns only (former entry: "Delete"). (6392)*
- ▶ *Blocking links*: A detailed warning is now issued if a link cannot be blocked for a TSys since the link is traversed by system routes of the respective TSys. (6423)

### Object Model

- ▶ *Major flows*: Major flows are no longer defined between two exit links or between two entry links. (6321)

### Other Operations

- ▶ *PuT shortest path search*: Repeated calculations of the operation are now notably faster if the search graph is internally build up anew only in the case of actual modifications to the network. (6198)

### PrT Assignment

- ▶ *Equilibrium\_Lohse*: The PrT assignment variant produces correct path volumes again. These were incorrect as of service pack 10.00-12 and did thus not match the (correct) link volumes in the network. (6395)

10.00-13

Corrections, Bug Fixes and New Features (ID)

2007-09-06

### Attributes

- ▶ For parameter d of the Akcelik2 function, the lower limit of the value range has been changed to 0.01. (4824)
- ▶ New zone attributes provide direct access to row and column totals, minima etc. of OD matrices and skim matrices. (6079)

### COM Interface

- ▶ *Export of the timetable editor*: In the auxiliary attribute "NO" of the vehicle journeys, the line route item index is now returned. (6397)
- ▶ *PrT shortest path search*: The path found so far is no longer initialised before running a new search via COM if the script does not explicitly contain an equivalent command. This way, an existing path can now also be extended in the PrT shortest path search. (6323)
- ▶ *Procedure parameters*: For access to SingleSkimMatrixPara, capitalization or use of small letters respectively is no longer regarded for indicator IDs. In case of an invalid ID a COM-Error will be returned. (6348)

### Dialogs

- ▶ *Dialog box "Print area"*: The input field entries for width and height in [mm] are displayed in red again if the values exceed the output value of the print page. (6325)
- ▶ *Save network*: The context-sensitive menu of a table (right-click) now provides functionalities to simultaneously switch on/off all attributes of a table. (5986)
- ▶ *Filter dialog window*: Can now be resized. (4526)

### Graphics

- ▶ *Screenshot*: The screenshot functionality is now available in the graphical timetable and in the timetable network graph. (5165)
- ▶ *Legend*: In the legend, line bars are displayed for active lines only (similar to network display). (6329)
- ▶ *Large background images*: Backgrounds from an image size of 5000 x 5000 pixels are now displayed correctly again when zooming into the network. (6330)
- ▶ *Background texts*: Any Unicode character can now be displayed. (6369)

- ▶ *Scaling backgrounds*: The scaling of backgrounds using button "Scale" works correctly again. (6381)
- ▶ *Drawing polygons*: Drawing polygons with enclaves no longer leads to insufficient memory. (6379)

## I/O

- ▶ *Printing*: The program no longer crashes if no printer is installed when negating the subsequently issued prompt for a printer to be installed. (6359)
- ▶ *Read/save network*: When reading a network additively or saving a network selectively, a dialog now lists frequently occurring use cases which can be applied instead of assorting the concerned tables by hand. (1437)
- ▶ *Saving an OD matrix*: Flag "Consider OD pair filter" now also takes effect if the matrix is saved in binary format. (1441)
- ▶ *HAFAS import*: The import now takes into account that some of the project files might have been changed since the last import. (6127)
- ▶ *PAR file import*: You can now also read in either just the procedures ("Operations") or just the functions of the procedure parameters. (6260)

## Listings

- ▶ *Printing listings*: Listings can be printed again directly from VISUM. (6334)
- ▶ *Column width*: 1) Double-click the column separator for optimum column width. 2) Similar to Excel, multiple marked columns can be set to uniform column width by dragging. (6240)
- ▶ *Default settings for listings*: In the new tab "Listings" in the "Options" dialog window, you may tick an option for network synchronization and select the font for listings and quick view display. (6049)
- ▶ *Spatial selection*: Listings are now automatically updated when modifying the spatial selection. (6374)
- ▶ *PuT path listings*: The display and export of PuT path listings has been accelerated. (6362)
- ▶ *Listing Stops - Stop transition times*: The new listing provides more convenient editing of the walk times between the stop areas of a stop. (5577)
- ▶ *Fix column*: This context menu command has been made available again. (6336)
- ▶ Now, invalid entries cause editing mode termination. (6338)
- ▶ *Save layout*: Saving a layout file from the list of vehicle journeys will no longer cause a program crash. (6345)
- ▶ *Path listings*: Both listing PrT path on link level and listing PuT path legs can now be saved in a format suitable for data base exports, either with or without a "header" for each path. (5106)

## PuT Operating Indicators

- ▶ *Revenue calculation*: If option "Fix revenue per PTripUnlinked" or option "Revenue per fare point" is selected, the setting now also takes effect if fares were not calculated in the assignment but read from file. (6115)

## Matrix Editor

- ▶ *Reading \$O matrices*: When opening matrices in format \$O within the matrix editor, values are no longer assigned to the wrong OD pairs. (6396)
- ▶ A section of matrix cells, rows, or columns can correctly be selected with the "Shift" key again. (6403)
- ▶ *Undo functionality*: The following operations can now also be undone: 1. Copy & paste of matrix cells. 2. Edit individual matrix cells. (6386)

## Network Editor

- ▶ *Insert line route*: The "Edit" dialog is now automatically displayed after the completion of the route course of a newly inserted line route. (6306)
- ▶ *Quick view*: When exiting a field marked with a \* (symbolising deviating attribute values), the program no longer issues a warning saying that the value cannot be saved. (5566)
- ▶ *Split link*: A crash no longer occurs if a user has write access to a link but only read access to the speed limits on that link. (6148)
- ▶ *Copy system route*: The newly created system route is now immediately displayed in the system route dialog. (6385)
- ▶ *Only active objects can be clicked*: This setting now also takes effect during complex Insert and Edit operations like editing the shape of line routes or inserting a connector, and not just when directly clicking on objects. (6259)

- ▶ *Lane definition*: Even in the case of faulty geometric data (from VISUM 8), resetting the lane definitions no longer causes a crash. (6331)
- ▶ *Quick view*: Changing the default font for list output does now also take effect for quick view display. (6355)
- ▶ *Quick view*: One common quick view layout file is now saved for all network object types. (6298)
- ▶ *Copy line route*: The newly created line route is now always marked. (6343)
- ▶ *Difference network*: Background polygons and background texts can be edited and deleted in the difference network mode again. (6324)
- ▶ *Context-sensitive menu of system routes*: The Multi-Edit functionality works again. (6404)
- ▶ *Edit shape of line route*: The line route dialog is not displayed anymore while editing the shape of a line route. (6263)

### Object Model

- ▶ *Shortest path search*: The same shortest path algorithm as in VISUM 9.5 is now applied to PrT isochrones and when completing or inserting line routes. Memory shortage problems thus no longer arise. (6280)

### Interfaces

- ▶ *Delimiter*: The decimal separator which used to be a network property has to be set globally under "Options" now. (6335)
- ▶ *HAFAS import*: Cancelling the import in the initial phase does not cause a crash anymore. (6357)

### Other Operations

- ▶ *PuT shortest path search*: A click on "Initialize" now also clears the PuT shortest path search listing. (6315)
- ▶ *Read survey data*: When reading in multi-line survey data, the name of the line is now also correctly identified if no transport system is specified. (6328)

### Miscellaneous

- ▶ *Menu Help*: The menu contains new entries that provide access to the VISUM documentation and the support form. (6190)

### PrT & PuT Assignment

- ▶ *All path listings*: New relations to origin and destination connectors permit the display of connector-based data. (6296)

### PuT Assignment

- ▶ *Read PuT assignment data from version file*: Path volumes are no longer multiplied by factor  $10^n$  when a version file is opened which was saved with VISUM 10 after reading data from an older version file which has been created with a VISUM version before version 10. (Here,  $n$  = number of decimal places for assignment calculation.) (6356)
- ▶ *PuT assignment statistics*: VISUM used to allocate unrealistic, way too low values to factor "PTripsUnlinked" which is issued in the zone and total statistics. (2038)
- ▶ *Path volumes*: The rounding of path volumes did not work reliably stable in arithmetical respect in case of a defined number of decimal places for demand values and volumes, e.g. first volumes of path A were rounded up and then the volumes of path B. This bug could be fixed. (6360)

### TFlowFuzzy

- ▶ *Main turns*: TFlowFuzzy now also handles main nodes correctly, i.e. counted data are taken into account at main turns yet not at inner links of main nodes. (6346)
- ▶ Correct PrT flow matrix calculation even in case of paths via main nodes. (6347)

10.00-12

Corrections, Bug Fixes and New Features (ID)

2007-08-16

### COM Interface

- ▶ *Analysis time intervals*: The method AnalysisTimes.TimeInterval does not return an error anymore when accessing the last time interval. (6317)
- ▶ *Exporting a listing*: The utilised key fields can now be set both via COM and interactively in the dialog. (5554)



## Dialogs

- ▶ *Dialog box Stops*: The first column of the Walk times tab is now always wide enough to fully display the numbers of the stop areas. **(6284)**
- ▶ *Network I/O, frequent cases*: When selecting use case Timetable, the program now also activates tables "Vehicle journey sections" and "specific walk and wait times". **(6242)**
- ▶ Dialog box "Procedure parameters": VISUM now automatically adjusts the jump address of "Go to the operation" procedures when creating or shifting a "Group" procedure. **(6128)**

## Timetable Editor

- ▶ *Edit shape of line route*: Editing the shape of line routes sometimes led to a crash if the timetable editor was open at the same time. The error has been fixed. **(6318)**

## Graphics

- ▶ *Legend*: If a POI category is deleted and a new one created instead, the legend now displays its correct name and no longer the name of the deleted category. **(6314)**
- ▶ The global marking color ("Basis" tab) can now be used for all types at the touch of a button. **(2882)**
- ▶ *Drawing main turns*: Main turns can now be graphically displayed in the same manner as turns. Both types together form a layer. **(4466)**

## I/O

- ▶ *PDF files*: The file extensions of third party file formats (like image files, shape files, access databases,...) can no longer be edited. This modification became necessary since in the past, due to accidental modifications or the import of out-dated project directory files, some of the file formats processed in VISUM were not displayed. **(6302)**
- ▶ *Difference network*: The use of version files with activated PrT shortest path search does not lead to a crash anymore. **(6322)**

## Listings

- ▶ *Default layout*: When opening a listing for the first time, several important attributes with subattributes (like volume (AP)) are displayed automatically again. **(6299)**
- ▶ *OD pairs listing*: This new listing provides direct access to OD and skim matrix values, which can be edited like the values of all new listings. **(5520)**
- ▶ In the new listings also, functionality "Undir. value" now operates correctly. **(6273)**
- ▶ *Difference network*: The case that all cells of the new listings are empty in mode Difference network does not occur anymore. **(6312)**
- ▶ *PuT path legs*: Saving the list to a file or the clipboard no longer leads to errors caused by lack of memory. **(6293)**

## PuT Operating Indicators

- ▶ *PuT Operating Indicators*: The procedure no longer generates PuT territory detail objects of which all attributes amount to 0. **(6245)**
- ▶ Line costing results are no longer discarded immediately if the user modifies option "Calculate indicators for..." on tab LineCosting or option "Use for calculated results" on tab Analysis time intervals. This will only take effect during the next execution of the procedure. **(5953)**

## Network Editor

- ▶ *Insert POI*: If no POI category exists when inserting the POI, the program now returns to the dialog box that is used to insert POI categories. **(5839)**
- ▶ *Main lines*: The context-sensitive menu of lines now also provides access to options Multi-Edit (including operation Intersect) and Multi-Delete for main lines and to the corresponding listing. **(6241)**
- ▶ *Dialog box Line routes*:
  1. Extending the marking via the Ctrl key no longer causes the dialog to scroll to the beginning of the marking.
  2. The columns are now adjusted automatically when modifying the size of the dialog. **(6262)**
- ▶ *Background texts*: VISUM no longer crashes when deleting multiple texts if a text is marked at the same time. **(6265)**
- ▶ *Aggregate nodes*: The operation no longer produces invalid line route courses. **(6276)**
- ▶ *Zoom by factor*: The specified factor is now interpreted as customary: in case of entries > 1, VISUM zooms in, in case of entries < 1, VISUM zooms out. **(6304)**

- ▶ *Edit shape of line route*: Clicking "Refresh" or shifting the display detail no longer results in a redraw of the the line route course that was valid before rerouting the course. (6274)

### Other Operations

- ▶ *LineBlocking*: The program no longer generates unnecessary layover block items with a time period of zero in networks with service trips that have a starting time past midnight. (6301)
- ▶ *Edit attribute*: The operation can now also be utilised to allocate string-valued attributes. (5834)
- ▶ *Flow bundle*: The calculation of flow bundles no longer leads to an infinite loop if an OD pair filter is activated at the same time. (6310)

### PrT Assignment

- ▶ PrT assignments "Tribut" and "DUE": Both assignments now also work with connector shares ("MPA"). (6247)
- ▶ *Connector weights per relation*: Different PrT assignments possibly save multiple volumes per path (e.g. in case of several DSeg for one TSys or when saving by time interval). In combination with connector weights these differentiated path volumes were aggregated incorrectly on zone level so far. The error has been fixed. (6300)
- ▶ *Traffix*: VISUM no longer crashes if the name of the utilised network file exceeds thirty characters. (6303)
- ▶ *TModel volume-delay functions*: The upper limit of the value range for the parameters a and a' has been raised to 1000. (6305)

10.00-11

Corrections, Bug Fixes and New Features (ID)

2007-08-07

### COM Interface

- ▶ Matrices can now also be created, deleted, and assigned to Dsegs via COM. (1430)
- ▶ *Muuli*: The Muuli COM interface can now also be called directly from the VISUM COM interface via Visum.Matrixeditor. A separate registration is thus no longer necessary. (6164)

### Dialogs

- ▶ *Dialog "Log and Error files"*: The dialog only displays log and error files that were produced by VISUM itself. (6244)
- ▶ *Dialog box "Procedure parameters"*: Double-click on a procedure of type "Group" in order to expand/reduce the respective group. So far this could only be achieved by double-clicking the row header. (6204)
- ▶ *Dialog box "Procedure parameters", tab Blocking-back model*: Activating the blocking-back model no longer produces a deadlock if input parameters on this tab fall outside of the valid range. (6235)

### Timetable Editor

- ▶ *Shorten vehicle journeys*: The arrival and departure times of modified vehicle journey items were sometimes displayed incorrectly when shortening vehicle journeys in the timetable editor. The error has been fixed. (6227)

### Graphics

- ▶ *Point object symbols*: The following new icons are now available as symbols: Stop sign, Two-way stop (TWS), Signal controlled (SCJ), and five-pointed star (POI). (5961)
- ▶ *Legend*: Stop catchment areas and the colour gradient of the 2D display (usually for isochrones) are now also displayed in the legend. (4314)
- ▶ *Drawing polygons with enclaves*: Such polygons can now also be drawn if users greatly zoom in. (6248)
- ▶ *Edit shape*: VISUM now automatically initiates a refresh of the network when editing the shape of line routes in order to e.g. update link labels with attribute "Number lines". (6253)

### I/O

- ▶ *Read network*: Signal groups with a green time start or end that exceeds the cycle time of the signal group are now rejected with a corresponding warning. (6251)
- ▶ Import transactions like Read network and Read attributes are as fast as in VISUM 9.5 again. (6212)

## Junction Editor

- ▶ *VISSIM preview*: The preview window can now be exited manually, i.e. not just by using the respective button in the node dialog box. (6169)

## Listings

- ▶ VISUM no longer crashes when deleting e.g. territories in the network display if the territory list is open. (6249)
- ▶ *Territories - PuT detail*: VISUM does not crash anymore if the list is displayed in the foreground and 1) LineCosting results are already available and the user sets a different detail level, or 2) modifies the analysis period. (6210)
- ▶ *PuT path listing*: Headers are no longer missing in the following special case (which sometimes led to a crash when navigating the list): *Two* service trips exist on a PuT path for at least one path leg, which operate at the departure time at the start of the path leg, of which only one however covers the entire path leg. (6252)

## Matrix Editor

- ▶ *Muuli*: VISUM attribute files can now also be read in if they were created with versions from VISUM 9.5 onward. This applies to Projections, Projections of aggregated areas, Gravity, and Kalibri. (5492)

## Network Editor

- ▶ *Lane turns*: In case of left-hand traffic, U-turn lane turns can now be defined for the rightmost lane, and not for the leftmost lane. (6231)
- ▶ *Browser*: In the browser, navigation via the arrow keys and a marking of multiple entries can now be carried out with a shift click. (6243)
- ▶ *Multi-Delete vehicle journeys/time profiles*: The operation now causes the deletion of just the active objects of the respective type - as is the case for all other network object types. (6256)
- ▶ *Link orientations*: When deleting a transport system, link orientations are now automatically adjusted. (6225)
- ▶ *Menu*: All functionalities of the view tool bar are now contained in menu "View". Furthermore, feature "Zoom by factor", known from prior releases, has been added. (6144)
- ▶ *Aggregate zones*: The program no longer crashes if a layer different from "Zones" is active at the time of the execution. (6267)

## Object Model

- ▶ *User-defined attributes*: The property "Sparse" has been removed. (6096)

## Other Operations

- ▶ *Line blocking*: The operation no longer crashes if the first journey of some block departs after 24:00 of the last day of the analysis period. (6272)
- ▶ *GoTo procedure*: The initial allocation of the checked matrix (or of the attribute) no longer happens before the execution of the very first procedure but before the first execution of "GoTo". (4556)
- ▶ Limited versions of VISUM 10.0 can be executed without administrator rights again. (6271)

## PrT Assignment

- ▶ *ICA/Traffix*: The calculation now saves the waiting time only in turn attribute tCur(TSys), and no longer in t0(TSys) which instead is now set to the input value t0. (6221)

## PuT Assignment

- ▶ The quantity "non-assigned demand" contained in the zone and total statistics is now, like any other indicator, based on the non-rounded original demand of the matrix. For performance reasons, the trace file output of relations without connections however only contains those relations for which the rounded demand is also > 0. (6214)
- ▶ *Headway-based assignment*: Specific waiting times ("matched transfers") are now also considered correctly if their value is higher than the default (random) waiting time. (6261)

## Dialogs

- ▶ *Legend*: When using functionality Initialize, you can now optionally switch on just the active layers of network object types for which objects currently exist. (6203)
- ▶ *Dialog box Print area*: VISUM now checks the value ranges of all input data. As a result, the program no longer issues numerous warning messages in a row, which prevent the user from cancelling the action. (6175)

## Graphics

- ▶ *Screenshot*: 2D isochrones are now also displayed correctly if the set solution is higher than 96dpi. (4907)

## Listings

- ▶ *PuT path listings*: VISUM no longer crashes if there are no PuT Dseg paths (error occurred as of VISUM 10.00-09 ). (6213)

## PuT Assignment

- ▶ *PuT connection import / Use file for search*: If the read in connection file contains a PuTWalk link which is no longer possible in the current network (e.g. due to deleted connectors), a detailed warning is issued and the import is cancelled. (6211)
- ▶ *Headway-based assignment*: The run time of the assignment is equal again to the run time in VISUM 9.5. (6196)

10.00-09

Corrections, Bug Fixes and New Features (ID)

2007-07-20

## COM Interface

- ▶ Sporadic crashes used to occur when terminating VISUM via COM. This has been fixed. (6184)

## Dialogs

- ▶ *Trip distribution - Parameter dialog*: The selection of a skim matrix in the grid which has a key > the row index no longer causes a crash. (6193)

## Graphics

- ▶ *Column charts*: The y-axis labelling for attributes of type km<sup>2</sup> and type mi<sup>2</sup> is now output in the very unit and no longer in m<sup>2</sup>. (6170)
- ▶ *Column charts*: Column charts are now also placed right next to the corresponding network object if all network coordinates lie within a very small range of numbers. (6181)
- ▶ *Drawing background images*: The display of metafiles as backgrounds has been improved. (6180)
- ▶ *Arrow head*: In the graphic parameters, users can now select an open arrow as arrow head as an alternative to the triangle. (5980)

## Listings

- ▶ *All path listings*: The first DSeg for which paths are actually available is now always preset when opening a list. (1435)

## PuT Operating Indicators

- ▶ A crash no longer occurs when trying to calculate the revenues by territory if no territories exist in the network. (6201)

## Multi User

- ▶ Main zones and main nodes can now only be edited if they lie within the lock polygon. (5971)
- ▶ *Shortest path search with target attribute for route index*: A message saying that links cannot be edited is now only issued if the required rights exist. (6149)
- ▶ Functionality "Merge nodes" is now available in Multi-user mode. (6032)

## Demand Model

- ▶ *Calculate skim matrix*: The progress dialog now indicates the correct number of calculated matrices. (6185)

## Network Editor

- ▶ *Coupling*: VISUM now determines the departure times of the vehicle journeys on the coupling

section based on the time profile which is the starting point for the coupling. (4460)

- ▶ *Set window*: The program now exits the "set window" mode after the definition of a section if backgrounds, texts or polygons are activated as network object type. (6027)
- ▶ *Delete DSeg*: In cases where the deletion of DSeg requires an assignment result initialization, VISUM now automatically refreshes the network display. (6177)
- ▶ *Link symmetry*: By mistake, this feature used to regard all links as symmetrically attributed if the first considered link pair was symmetrical. The error has been fixed. (6197)

#### Other Operations

- ▶ *Subnetwork generator*: The program no longer aborts if the network contains PuT path that lead via main modes. (6040)
- ▶ *NCHRP255*: The occurrence of active, isolated nodes in the network no longer causes a crash in the procedure. (6195)
- ▶ *PuT shortest path search*: PuT shortest path searches no longer lead to a crash if specific walk times at stops are defined. (6189)

10.00-08

Corrections, Bug Fixes and New Features (ID)

2007-07-11

#### Attributes

- ▶ Accessing LineRouteItem.NodeNo and SysRouteItem.NodeNo no longer leads to a crash if the respective objects do not refer to a node. (6133)

#### Dialogs

- ▶ If a screenshot cannot be exported due to a high resolution, VISUM now reopens dialog box "Set resolution" so that the user can select a lower resolution while using the same settings. (6172)

#### Timetable Editor

- ▶ *Insert regular services*: In the timetable editor, users can now create regular services with a departure time past midnight. (6153)

#### Graphics

- ▶ *Desire line*: If option "undirected values" is checked, both bar scaling and bar label are now determined on the basis of the undirected values and the bar is drawn centred. (5996)
- ▶ *Image display*: Transparent image colours are now actually displayed transparently (3635)
- ▶ *Backgrounds*: When loading WMF files as backgrounds, the program now identifies the position correctly and displays the entire section. (6161)
- ▶ *Preview*: The preview is now calculated correctly when clicking "Apply" in dialog box "Set up page". (6150)
- ▶ *Bar display*: Link and connector bars with a length that would be below one pixel in the display can now be either shown or hidden (Option "Hide short bars"). (6099)
- ▶ *STD.GPA*: VISUM now uses the graphic parameters saved in this file for display when reading in networks in a format that does not contain any graphic parameters (e.g. network files (non-additive), data bases (non-additive), TModel, EMME/2 or EDF). (6052)

#### I/O

- ▶ *Legend*: You can now read text files into the legend. (6151)
- ▶ *Read network*: Table VEHUNITTOVEHCOMB is saved even if there are vehicle combinations without vehicle units. (6135)

#### Junction Editor

- ▶ *VISSIM preview*: For nodes and main nodes, the preview of the node geometry is available again. (5871)

#### Listings

- ▶ VISUM no longer crashes when editing interdependent objects in different listings, e.g. nodes and links. (6155)
- ▶ *Blocks*: VISUM no longer crashes when running procedure "Init LineBlocking" if a line blocking listing is open at the same time. (6130)

#### Multi User

- ▶ *Additive network import*: During the import VISUM now uses keys from the user's current key

contingent if option conflict avoidance is activated. (5981)

### Matrix Editor

- ▶ Matrices that are still open in the matrix editor when opening a new file or using File - New will now be closed. (6111)

### Network Editor

- ▶ Deleting links and subsequently saving a version file no longer leads to a crash in connection with signal control. (6121)
- ▶ *Main nodes*: All special functions available for nodes or polygons (zones, territories) can now be applied to main nodes, too. (5856)
- ▶ *Edit shape of line route*: In-vehicle times and dwell times now change only on the rerouted section, never before. (6131)
- ▶ *Link sequence from shortest path search*: The functionality now marks the located links instead of setting them active and all the remaining ones passive. This logic complies better with the operating logic of the network editor. (6136)
- ▶ *Filters*: When trying to activate a filter via the filter icon in the network object window for which no filter criteria have been set, VISUM queries whether the filter dialog should be opened anyway. (6138)
- ▶ *Delete Zones*: Multi-Delete works again. (6147)
- ▶ *Copy attributes*: In the quick view window and in the network editor, the functionality now also works for subattributes. (6165)

### Object Model

- ▶ When entering a number with decimal places where the program expects an integer, the entry is now rejected and an error message is issued. This applies to entries in listings as well as to the import of network or attribute files. (6146)

### Other Operations

- ▶ *Intersect*: The operation no longer terminates if a link polygon contains two identical points. (6120)

### Miscellaneous

- ▶ *Start-up without user interface*: VISUM can now be started without the interface via COM or with a command line argument. (131)

### PrT Assignment

- ▶ *User-defined volume-delay functions*: Attribute VoIPCUPrT is no longer miscalculated by factor "c" from the parameters of the volume-delay function. (6129)

### PuT Assignment

- ▶ *Headway-based PuT assignment*: Skim matrices do not contain invalid values (like 1.#J) anymore if there is a demand of 0 to  $10^{(-10)}$  on relations. (6126)
- ▶ *Headway-based PuT assignment*: The program does not produce incorrect path volumes anymore if an assignment with several DSegs and an indicator calculation are run at the same time. (6132)

10.00-07

Corrections, Bug Fixes and New Features (ID)

2007-06-28

### COM Interface

- ▶ *Shortest path search*: VISUM no longer displays the marked shortest path twice if the autozoom is called after searching a shortest path via COM. The original marking is now deleted correctly. (6098)

### Dialogs

- ▶ *Line routes window*: The sorting of line routes is now always stable - also in terms of their direction. (4965)
- ▶ *Dialog box Edit graphic parameters*: The editing of the line style is more concise and the dialog now provides a preview. (5002)
- ▶ *Dialog box Edit graphic parameters*: When accessing a tab with classified drawing mode on, the first class is now marked in the grid on the left. It is thus a lot more obvious that the parameters displayed on the right are set for this class. (5540)

- ▶ *Dialog box Signal groups*: The "Signal groups" tab no longer crashes if an SCJ is defined both for nodes and main nodes. (6104)
- ▶ *Dialog box Signal groups*: The "Stagebased" tab now also displays correct turns if an SCJ is defined both for nodes and main nodes. (6106)
- ▶ *Dialog box Signal groups*: Tag "Lane turns" no longer displays faulty turn orientations if an SCJ is defined both for nodes and main nodes. (6107)

## Graphics

- ▶ *Save GPA file*: The graphic parameters for the headline of the print frame are no longer lost if the user saves and reloads a GPA file. (6090)

## I/O

- ▶ *Read/save network*: When reading a network additively or saving a network selectively, a dialog now lists frequently occurring use cases which can be applied instead of assorting the concerned tables by hand. (1437)
- ▶ *Read ATT or shape file*: The import is no longer cancelled if a file contains attributes that do not exist in VISUM. (6113)

## Listings

- ▶ *Insert column*: The insertion of columns via the context-sensitive menu before or after the marked column now also works for attributes with subattributes. (6114)
- ▶ The zone listing is no longer displayed when calling up listing "Territories / Basis". (6123)

## Network Editor

- ▶ *Quick view*: In the quick view, attributes can be edited again. (6117)
- ▶ *Quick view*: VISUM no longer crashes when activating the attribute selection if attributes that were added to the last modified network do not exist in the current network. (6119)
- ▶ 1. PrT assignment results are now always discarded when modifying main nodes. 2. PuT assignment results are now obtained when inserting or deleting main nodes. (5898)
- ▶ *Synchronisation new listings <-> network editor*: Deleting a network object no longer triggers an automatic switch of marking to the object with the smallest key even in case of an activated synchronisation with a listing of the object type concerned. (6103)
- ▶ *Editing the shape of line routes*: Filter settings are now always obtained during the tabular lengthening of a line route. (6038)

## Interfaces

- ▶ *Emme/2 import*: VISUM now updates all dialog settings when loading an import parameters file (\*.emme). (6122)
- ▶ *NCHRP255*: The link adjusted values used to be output for inlinks and outlinks. If a link was an inlink for one node and an outlink for another node, then the order of the nodes processed determined which link adjustment factor was the final link attribute written. From now on, VISUM only writes the inlink adjustment factor since this is largely preferred to the outlink.adjustment factor (2338)

## Other Operations

- ▶ *Flow bundle*: Trips from one main zone to another main zone can now be filtered via flow bundles. (2286)
- ▶ *PuT passenger survey*: Skim matrices can now also be calculated during direct assignment. Furthermore, direct assignment now determines total statistics and zone statistics like general PuT assignments. (5506)

## Miscellaneous

- ▶ *Menu*: Crashes no longer occur when opening menu "File" if the number of files to be displayed is set to zero. (6110)

## PrT Assignment

- ▶ *Blocking-back model*: The convergence behavior of the combination of equilibrium assignment and blocking-back model calculated during assignment has been improved. (6093)
- ▶ *NEMA*: The use of faulty orientations at main nodes used to produce computing errors. This has been fixed. (6105)
- ▶ *Calculate skim matrices*: The global min/max settings now also apply to matrices that are kept in

RAM. (6125)

- ▶ *Dynamic PrT assignment*: The program no longer crashes when opening listing Path if a dynamic assignment has been run and path were saved as connections, yet without analysis time intervals (6108)
- ▶ *PuT assignments*: All assignments can now be run without saving the paths. This way, the memory usage can be reduced if required. (5973)

10.00-06

Corrections, Bug Fixes and New Features (ID)

2007-06-21

### COM Interface

- ▶ The new COM function *IsTimeTableRunning* of *IVisum* determines whether a timetable is currently running. (6087)

### Dialogs

- ▶ *Dialog box Edit graphic parameters*: On tag "Layer", all layer names are now translated correctly into the currently set language. (6073)

### Timetable Editor

- ▶ *Timetable editor, Regular service mode*: VISUM does not crash anymore if vehicle journeys are edited in this mode in such a way that the last two service trip patterns coincide, i.e. one column disappears. (6034)

### Graphics

- ▶ *Print output*: The printing of transparent bitmaps has been accelerated. This particularly applies to pattern fillings with small line distances, e.g. fine polygon hatching patterns. (4241)
- ▶ *Backgrounds*: VISUM no longer crashes due to a memory shortage when drawing large background files. (6058)
- ▶ Backgrounds of type ECW / JPEG2000 are positioned correctly again when using the zoom. (6077)

### I/O

- ▶ *Reading attributes*: In the import dialog, all attribute names are now translated into the language specified by the user. Lately, attributes with subattributes (like "PuT") were not translated. (6086)
- ▶ Instead of activating the demand data/skim matrix dialog box, VISUM now returns to the main network window after opening a matrix via File - Open. (6088)
- ▶ *Read shapefiles*: VISUM no longer crashes due to a memory shortage when reading in shapefiles as screenlines. (5888)
- ▶ *Read network file*: When completing line routes with option "If no shortest path found, create only, if link can be permitted for TSys", VISUM now also opens turns for the line TSys if required. So far, the import could fail in this situation because of turn blockings. (5574)
- ▶ *Additive reading of network files*: Entries in table coupling section and table coupled time profile that do not match the network are now always discarded. An inconsistent network state cannot develop anymore. (6091)

### Junction Editor

- ▶ When editing the number of lanes of a link, VISUM no longer creates legs with an incorrect number of lanes at adjacent node topologies. However, the error only occurred in case of split legs. (6083)

### PuT Operating Indicators

- ▶ *PuT Operating Indicators*: Indicators that depend on paths based on the assignment are now determined with more temporal precision. This permits more precise time interval-based evaluations. (5787)

### Network Editor

- ▶ *Split zone*: VISUM does not crash anymore when terminating the operation with Cancel. (6085)
- ▶ *Shortest Path Search*: Calculating an interactive PuT Shortest path search with PuT additional path leg(s) and then deleting a time profile or splitting a link no longer causes a crash. (5748)
- ▶ *Graphics tool bar*: Via a new icon (filter symbol and mouse pointer) the user can specify whether all network objects can be clicked by the mouse pointer or just the active ones. This feature is particularly useful if a great number of network objects lie close to each other. (1440)



- ▶ *Delete link*: VISUM no longer crashes when deleting a link if the Quick view is activated and an assignment has been calculated in the network. (6089)
- ▶ *Shortest Path Search*: Calculating an interactive PuT Shortest path search with PuT additional path leg(s) and then calculating a timetable-based PuT assignment with search option "Shortest Path Search" no longer causes a crash. (5749)

#### Object Model

- ▶ *Delete vehicle journeys*: The program does not crash anymore when deleting vehicle journeys while filter conditions have been defined for them, which use attributes that reflect properties of other objects (like TSysCode of the line). (6094)

#### PrT Assignment

- ▶ *PuT assignment DUE*: The assignment no longer terminates with an error message if there are entries under 'assignment time interval' which have a deviating number of time intervals. (6076)
- ▶ *PuT assignment DUE*: VISUM no longer crashes when saving paths if demand originates in the last interval and the respective path does not terminate in the same interval. (6080)
- ▶ *PuT assignment DUE*: The program sometimes crashed when paths were saved. The error has been fixed. (6074)

#### PuT Assignment

- ▶ *Headway-based assignment*: A crash no longer occurs if a headway of zero is attributed to a time profile. Such an entry does not make sense anyway. (6071)

version number 10.00-05 is omitted

10.00-04	Corrections, Bug Fixes and New Features (ID)	2007-06-06
<b>Graphics</b>		
▶ VISUM no longer crashes (reporting a memory shortage) if a background or other image file cannot be opened. (6070)		
<b>I/O</b>		
▶ <i>Read PAR files</i> : The attribute set for the basic volume of turns is no longer lost when reading in PAR files. (6067)		
▶ <i>Read network/database</i> : The import is now as powerful as in VISUM 9.5. (6060)		
▶ <i>Paste attributes from clipboard</i> : Open listings are no longer refreshed continually during the import. (6050)		
▶ The list of recently saved files is now refreshed immediately and saved in the registry (6015)		
<b>PuT Assignment</b>		
▶ <i>Connection import</i> : VISUM now also provides the zone and overall statistics of the PuT assignment during a connection import. (6055)		

10.00-03	Corrections, Bug Fixes and New Features (ID)	2007-06-04
<b>Attributes</b>		
▶ The new relation line route -> stop points provides a direct navigation between these types in the network browser. (6013)		
<b>COM Interface</b>		
▶ <i>Clear</i> : Net.Clear does not cause a program crash anymore. (6020)		
▶ <i>Close VISUM</i> : The command "Set Visum = nothing" now returns only when the operation is actually completed, i.e. when all resources are released. (6043)		
<b>Timetable Editor</b>		
▶ <i>Svg export of timetable editor</i> : The IDs of "StopEntry" and "StopLine" elements were corrected. (6059)		
<b>Graphics</b>		
▶ <i>Read version</i> : VISUM no longer crashes on reading in a version file if no printer is installed.		

(6029)

- ▶ *Screenshot*: VISUM no longer crashes on exporting a high-resolution screenshot. (6039)

## I/O

- ▶ *Read network files*: VISUM can now read in network files that begin with a comment or with an empty row. (6061)
- ▶ *Read par files*: VISUM no longer crashes when reading in PAR files if a PrTSys is not contained in the network. (6037)

## Listings

- ▶ Changing the filter now immediately triggers a refresh of open listings. (6042)
- ▶ *Marking cells in 'new' listings*:
  - a) Copy & paste now works on any rectangular selection.
  - b) Clicking the first and shift-clicking the last column head selects all columns.
  - c) VISUM no longer crashes when the entire list is copied via Ctrl-C. (6041)

## PuT Operating Indicators

- ▶ The new attribute *IsEffCoupled* tells you if a coupling is really effective on the level of vehicle journeys, i.e. when valid days and filters are taken into consideration. (5783)

## Multi User

- ▶ *Edf import*: Detector-related tables are now labelled "Device...". (5999)

## Network Editor

- ▶ The program now suggests saving the current network if, after opening a network, the user executes a Multi-Delete operation and immediately opens a different network. (6017)
- ▶ Multi-editing TSysSets (e.g. of links) is now much faster. (6025)
- ▶ *Font style*: All network editor windows now use Arial as the default font. (6053)

## Other Operations

- ▶ *Read survey data*: VISUM now also permits datasets with a departure time > 24:00. (6031)
- ▶ *Read survey data*: The import does not cause a crash anymore if the network contains skim matrices saved on file. (6026)

## PrT Assignment

- ▶ *PrT assignment 'Equilibrium\_Lohse'*: Using the Lotka-Volterra option no longer produces bad results. (6045)

## PuT Assignment

- ▶ *Headway-based assignment*: When assignment and skim matrix computation are carried out in one step, paths will only be stored for OD relations with positive demand. So far, a fictitious demand of 10.000 was erroneously assigned to the network. (6062)