

2023.01-01 [250553]

2022-10-12

+ New Features and Changes

Demand Procedures

- + Generate path sequences from ActivitySim tours: The procedure 'Generate path sequences from tours' previously rejected tours as input where only the activity locations matched, but not the activities themselves on successive trips. The procedure has been extended so that it can now also process tours that only fulfill the weaker condition. In particular, tours created with ActivitySim can now be processed. **(24536)**
- + Mode choice accelerated in ABM example: The mode choice in the ABM example code has been accelerated, which is particularly effective in large networks. **(22616)**

I/O Interfaces

- + Calculate slope after OSM import: As the import of OpenStreetMap data uses existing elevation data since ID 23726 (where applicable), the input attribute 'Slope' at links is now also calculated correctly from this during the import. **(24199)**

PrT Assignment

- + Extended route import faster: The procedure 'Extended route import' has been accelerated. **(24258)**

PuT Line Blocking

- + Consideration of operating times for e-mobility: In line blocking with recurring user-defined activities ('e-mobility'), desired durations of the vehicles' operations, defined as the time span between leaving the depot and the next entry into the depot, can now be specified and the deviation from this can be weighted against other properties in the objective function. **(20658)**

✔ Fixed Bugs

Data Model

- ✔ Maximum slope/gradient did not consider network scale: The attributes 'Maximum positive slope' and 'Maximum negative slope' did not consider the network scale. The values were therefore incorrect if no projection was used and the network scale was not 1. This error has been fixed. **(24551)**

Graphics

- ✔ Displaying non-conform WMS services: Some Web Map Services (WMS) which do not completely conform to the WMS standard of version 1.3.0 are handled more gracefully, enabling them to be used in PTV Visum. **(24607)**

I/O Interfaces

- ✔ Blanks during synchro import: During synchro import, cells of data tables whose numerical content consists only of blanks are no longer interpreted as 0, but as empty. For cells containing strings (e.g. names), leading or following blanks are removed. This may change node names in the imported networks. **(24395)**
- ✔ Export of SIG file did not work with special characters: Using UTF8 special characters in strings (e.g. controller name) resulted in a corrupted *.sig file during export. This error has been fixed. **(24633)**

Installation

- ✔ Visum did not start on Windows server 2019 and Windows 8.1: PTV Visum did not start on the Windows server 2019 and Windows 8.1 operating systems. Already during the installation, an error message could occur. This error has been fixed. **(24570)**

Junction Editor

- ✔ Missing pedestrian detectors for RBC signal controllers: When opening the RBC dialog, detectors should be created in the Visum sense for detectors existing in the RBC data model. However, no detectors assigned to the respective crosswalks were created for pedestrian detectors. This error has been fixed. **(24565)**

Network Editor

- ✔ Inserting of faces incorrect: If several new faces were inserted into an existing surface one after the other when editing a polygon, the end result could be incorrect. This error has been corrected. **(24284)**

PrT Assignment

- ✔ Vehicles incorrectly positioned in SBA visualization at very low speeds: Vehicles on links whose speed v_0 was less than 1m/s ($\approx 3.6\text{km/h}$) in the unloaded network were incorrectly positioned in the visualization of the results of simulation-based dynamic assignment (SBA). This error has been fixed. **(24605)**

Procedure Sequence

- ✔ Missing check for merge procedure: When starting a procedure sequence, Visum did not check whether there was also an (also active) 'Merge procedure results' procedure step for each active procedure step executed on a compute node. This error has been fixed. **(24604)**

Subnetwork Generator

- ✔ Crash when cutting a subnetwork: A crash no longer occurs in cases where cutting a PrT path includes only two connectors and the node connecting them enters the subnetwork only indirectly. **(24493)**

Timetable Editor

- ✔ Formatting error in line block editor: A formatting error occurred in the line block editor when displaying the header data of a line block at which the consideration of the orientation was not enabled. This error has been fixed. **(24582)**

Visum Files

- ✔ Keyboard shortcuts are not read from script menu file: If the settings for the script menu were saved as a file and later reloaded (e.g. in another Visum instance), the provided keyboard shortcuts were not restored. This error has been fixed. **(24631)**

2023.01-00 [249702]

2022-09-21

+ New Features and Changes

ANM

- + New RBC data format: The ANM export for networks with controllers of type RBC makes use of the new RBC data format, i.e. exports files with the extension .prbc. These can be imported using the ANM import in PTV Vissim 2023. **(23094)**
- + RBC and detectors: When opening and closing the RBC dialog, the previously automatic generation of queue detectors is omitted. Usually, these were unused detector objects. **(24478)**

COM-API

- + Discontinued COM methods removed: Various COM methods that have been discontinued for some time have been removed. In detail, these are the following methods and properties: `IVisum.GetWorkingFolder`, `IVisum.CreateAddNetReadController`, `IVisum.CreateNetReadRouteSearch`, `IVisum.CreateNetReadRouteSearchTSys`, `IVisum.IsJunctionEditorRunning`, `IVisum.CreateJunctionEditor`, `IVisum.GenerateModelTransferFileUsingLayout`, `IVisum.GenerateModelTransferFileBetweenVersionFilesUsingLayout`, `IVisum.CreateVersionComparisonBasedOnAttributesUsingLayout`, `IGraphic.Plot`, `IIO.SaveNetUsingLayout`, `IIO.SaveDemandFileUsingLayout`, `IIO.SaveAccessDatabaseUsingLayout`, `IIO.SaveToMsSqlServerDatabaseUsingLayout`, `IIO.SaveSQLiteDatabaseUsingLayout`, `ILists.CreateLineBlockingBaseList`, `ILists.CreateLineBlockingItemList`, `IEvaAssessmentType.ID`, `IEvaAssessmentType.Modes`, `IEvaAssessmentType.AddMode`. Notes on how to replace these methods can be found in the description of the respective method in the COM help of PTV Visum 2022. **(22987)**

Data Model

- + Changed handling of RBC detectors: When using RBC controls, detectors on lanes that are identified with an RBC detector via the RbcNo attribute are now retained, even if they do not cover all relevant lanes from RBC's perspective. As a result, detectors remain in the network if they fit the RBC data model. **(24484)**
- + RBC and detectors: When opening and closing the RBC dialog, the previously automatic generation of queue detectors is omitted. Usually, these were unused detector objects. **(24478)**

Demand Procedures

- + ABM: The input data for a demand calculation with the software ActivitySim can be exported from Visum with the new procedure "Export ActivitySim input data". ActivitySim is not developed by PTV and is not part of the Visum installation. **(12132)**
- + ABM: The procedure "Generate path sequences from tours" now also sets the attribute PostDSegCode to the path sequence items. **(23676)**
- + Enhanced export of ABM trajectories to PTV Visum Publisher: The export of trips and tours from an ABM model to PTV Visum Publisher has been enhanced. In particular the option of spatial filtering has been enabled. **(20901)**
- + Output of number of required iterations for EVA: The number of actually required iterations of the procedure 'EVA distribution/mode choice' can now be stored in a selectable attribute of the demand stratum. **(24452)**

Dialogs

- + Use own virtual Python environment: An own virtual Python environment can be selected in the user preferences (under working environment) and then be used for the execution of scripts. **(24226)**

I/O Interfaces

- + Enhanced export of ABM trajectories to PTV Visum Publisher: The export of trips and tours from an ABM model to PTV Visum Publisher has been enhanced. In particular the option of spatial filtering has been enabled. **(20901)**
- + Export of SBA trajectories from a hybrid application: SBA trajectories from a macro-meso simulation with multiple meso areas can be exported to PTV Visum publisher. **(24391)**
- + Order of imported line routes for PuT supply from Visum: The import of a PuT supply from Visum now imports the line routes in the order of the average distance between the relevant locations (depending on the option stop point, nodes and intermediate points of links), i.e. line routes whose route course is determined very precisely by many relevant locations are imported first. This is relevant because the evaluation of subsequent routes takes into account the route courses of the already existing line routes. **(24348)**
- + Reading empty 'formation' elements during railML import: If a railML file contained a 'formation' without any reference to 'vehicles', during import (with vehicle data) it became a vehicle combination without vehicle units. Since such a combination can exist in Visum but has no permissible transport system and therefore cannot be used for vehicle journey sections, the information about the vehicle used was previously lost in this case. Now a placeholder vehicle unit is created in this case so that the vehicle information can be used in the target network. **(23821)**
- + Use of latest Access Database Engine: To access MS Access databases (reading and writing), the latest installed MS Access Database Engine is now used. In particular, this can be a newer version than the one installed with Visum. **(24245)**

Installation

- + Academic packages as product variants: Academic licenses are now configured differently than before. **(24428)**
- + Microsoft SQL Server Compact (SQLCE): The installation of SQLCE 4.0 is optional because it is required for the Safety module only. **(24283)**
- + Update CodeMeter Runtime: The CodeMeter Runtime deployed with PTV Visum has been updated to CodeMeter 7.50. **(24421)**

Junction Editor

- + Display of links: Options to restrict the display of links in the geometry view have been added in the graphic parameters of the junction editor. **(24181)**
- + Vissim previewer update: PTV Vissim node previewer has been updated to PTV Vissim version 2023. **(24356)**

Lists

- + More line breaks in column names: Line breaks in the column names of lists are now also possible within the individual components of the names, considering only useful separation points (hyphens, CamelCase identifiers). **(23240)**

Miscellaneous

- + Update of memory allocator: The memory allocator has been updated to a newer version. This improves the performance of some procedures and frees memory more quickly. **(21266)**

Network Comparisons

- + Output of synchronization status when copying to clipboard: When copying the structure of a model transfer file from the Tra viewer to the clipboard, the synchronization status is now also output for each node in the tree, i.e. the empty or filled circle, which indicates whether the 'same' object exists in the 'other' network or not. **(24442)**

Network Editor

- + Link orientations: The special function at links for recalculating link orientations has been removed (see ID 22550 and ID 21965). **(24138)**
- + Projections: PTV Visum supports the China Geodetic System 2000 (EPSG:4490 – EPSG:4555) **(23037)**

PrT Assignment

- + Ring Barrier Controller (RBC): For controllers of signalization type RBC the RBC DLL developed by PTV is used. This means that less data is displayed in the dialog of the controller. When saving the signal data, the extension .rbcd is used. **(24177)**

Safety

- + Check of the SQL Server CE installation: For the PTV Visum Safety module, the optional installation of MS SQL Server Compact Edition V4.0 must be switched on during the installation of PTV Visum. If this installation is missing, the Safety module now indicates this fact. **(24385)**

Visum Files

- + Version files: Reading and writing of line costing results for vehicle journey items have been accelerated. **(24150)**

Fixed Bugs

COM-API

- ✔ Shortening of a line route deletes the route course: If one of the two ending line route elements were not specified when calling the ILineRoute.Shorten method, the complete course of the line route was deleted instead of taking the line route from its start or to its end. This error has been fixed. **(24349)**

Data Model

- ✔ Deleting a node results in invalid PrT paths: Deleting a node could result in invalid (userdefined) PrT paths. This error has been fixed. **(24351)**
- ✔ Deleting nodes too slow: Deleting nodes was too slow and has been accelerated. **(24435)**
- ✔ Deleting nodes with a lot of legs too slow: Deleting nodes with a lot of legs was too slow and has been accelerated. **(24453)**

Demand Procedures

- ✔ Crash when outputting path sequences in the Tour-based model: No more crashes when executing the 'Tour-based model - Combined trip distribution/mode choice' procedure if it outputs path sequences with a partitioning size (= number of persons represented by a path sequence) greater than 1. **(24332)**

Dialogs

- ✔ Access node of a stop area is not drawn as marked: When allocating an access node via the search in stop area dialog, the node selected was not drawn as marked in the network. This error has been fixed. **(24325)**
- ✔ Crash when creating a From-to zone based fare: No crash when creating a From-to zone based fare in the dialog 'Edit ticket type' if the fare is already complete, i.e. an entry already exists for all combinations of fare zones. **(24345)**
- ✔ Dialog 'Edit Symbol' too small: The dialog 'Edit Symbol' was too small to show all control in case of symbols allowing the display of additional characters. This bug has been fixed. **(24504)**
- ✔ Parameters for path search for line routes are not saved: The parameters for the path search as part of editing the course of a line route were not saved. This error has been fixed. **(24416)**

Graphical Procedures

- ✔ Public transport flow bundles for zone conditions with limited supply: The meaning of a PuT flow bundle condition for an origin/destination zone with limited supply was not consistently defined with regard to transport systems of type PuTWalk. This has changed. The condition is checked if PuTWalk is not allowed, but a link has been used for the access or egress. An access or egress is not considered as footpath if only connectors or walk links between stop areas within a stop have been used. **(24269)**

Graphics

- ✔ Graphic scale not correct when exporting as raster graphic: When exporting the network editor as a raster graphic, the graphic scale was not displayed in the correct size. This bug has been fixed. **(24448)**
- ✔ Infinite loop when drawing: When drawing the view in the network editor, Visum could enter an infinite loop. This error has been corrected. **(24413)**

I/O Interfaces

- ✔ Boarding or alighting permissibility sometimes incorrect when importing GTFS: When importing GTFS data, the boarding or alighting permissibility was set incorrectly in certain cases, in both directions, i.e. a boarding/alighting permitted according to the data could be prohibited as well as a boarding/alighting not permitted. This error has been fixed. **(24447)**
- ✔ Export to PTV Visum Publisher does not work with Proxy: Export to PTV Visum Publisher did not work if a proxy server with authentication was used for network communication. This error has been fixed. **(24360)**
- ✔ Incorrect element name in railML export: The railML export output an incorrectly named railML element 'passengers' (instead of 'passenger') for the description of vehicle units. Therefore, the underlying indications for seats and total seats could not be processed by reading systems. This error has been fixed. **(24516)**
- ✔ Number of lanes when importing OpenStreetMap: If a link in the OSM data has different numbers of lanes for one direction and the opposite direction, the link attribute Number of lanes was allocated incorrectly. In particular, the import could fail in certain cases. This error has been fixed. **(24387)**

Junction Editor

- ✔ Display when moving a node: When moving a node or main node, those parts of the network that were not affected by the change were no longer displayed. This error has been fixed. **(24466)**
- ✔ Options 'Leg template definition' and 'Define geometry template' missing: In the geometry view of the junction editor, the options 'Leg template definition' and 'Define geometry template' were missing in context menus. These are now restored. **(24257)**

Lists

- ✔ Crash when removing grouped columns: A crash no longer occurs when removing a column that is currently grouped from the column selection of a list. **(24483)**

Main Window

- ✔ Main menu could become inactive: Certain click sequences, especially in connection with editing signal programs, could cause the main menu to become inactive. This error has been fixed. **(24399)**
- ✔ Visum freezes on certain actions: On some computers, Visum seemed to freeze during certain actions (e.g. 'Network new' or loading a version file). This error has been fixed. **(24379)**

Network Comparisons

- ✔ Comparisons of objects from RBC controls incorrect: In network comparisons, objects belonging to RBC controls were not correctly identified with each other, causing incorrect differences between networks with RBC controls to be displayed in the network comparison. This error has been fixed. **(24434)**
- ✔ Simple network comparison also compares version comparisons: If the 'Compare all attributes' option was selected for the 'Compare current network with version file' function, this previously also included attributes that already belonged to an existing network comparison. Since comparison networks are not loaded transitively for the second network, this leads to unexpected differences even if identical networks containing a version comparison are compared. Therefore, as a rule, attributes belonging to version comparisons will be excluded from the selection in the future. **(24433)**
- ✔ Update note does not disappear: If the version file of the background network changes during a version comparison with the network loaded in the background, a notification bar appears in the main window with the option to reload the background network. This notification bar no longer disappeared when a new network was loaded in this situation, which removed the version comparison. This bug has been fixed. **(24446)**

Network Editor

- ✔ Opening turns when repairing zigzag routes: If zigzag routings were searched and turns had to be opened for a transport system when repairing these routings, the query appearing in this context did not have a 'Yes for all' button, so the question had to be answered for each turn. This bug has been fixed. **(24294)**
- ✔ Route course layer too slow: The calculation of the 'Route course' layer was too slow in complex networks and has been accelerated significantly. **(24441)**
- ✔ Simplifying the network creates incorrect time profiles: Under certain circumstances, the network editor's special function 'Simplify node-link network for public transport' could result in time profiles that did not follow the conventions in Visum (departure at the first time profile item at 00:00, no dwell time at the last time profile item). This error has been fixed. **(24300)**

PrT Assignment

- ✔ Crash during SBA for nodes with more than 16 legs: A crash no longer occurs when running a simulation-based dynamic assignment (SBA) if there are nodes with more than 16 legs in the network. **(24376)**
- ✔ Crash during SBA in network with invalid node geometry: A crash of the simulation-based dynamic assignment (SBA) no longer occurs in networks containing nodes with invalid node geometry. **(24492)**

Procedure Sequence

- ✔ Actions on procedure steps not possible: Various actions on procedure steps in the procedure sequence (e.g. "Create") were grayed out in certain situations. This error has been fixed. **(24469)**
- ✔ Incomplete application of procedure variables in the event of an error: If a procedure variable could not be applied, e.g. because the value was not within the permissible value range of the target attribute, this circumstance was pointed out with a warning, but further procedure variables were then not applied at all. This error has been fixed, i.e. invalid procedure variables with a warning are now ignored and all valid ones are applied. **(24485)**

PuT Assignment

- ✔ Service frequency incorrect in case of passenger trip chain and circle line transfer: The calculation of the timetable-based service frequency and the derived adjusted start wait time was incorrect if transfers were used on the relation that followed a passenger trip chain or a circle line transfer. This error has been fixed. **(24494)**

PuT Operating Indicators

- ✔ Times from passenger trip chains allocated incorrectly: The time of a passenger trip chain was previously allocated inaccurately if the passenger trip chain did not start or end at the beginning or end of the vehicle journey, but at one of the middle vehicle journey items (at which a vehicle journey section must then start or end). This affected the following indicators: Service time at vehicle journey item as well as at territory PuT detail vehicle journey item; stop time at stop point PuT detail. Also affected was the projection of passenger trip chain times to the analysis horizon and the distribution of passenger trip chain times to vehicle combinations in evaluations at detail levels with vehicle combinations. This error has been fixed. **(22840)**

PuT Passenger Survey

- ✔ Crash on check-in/check-out data: Crashes no longer occur when processing a single check-in/check-out record with incorrect timing. **(24436)**

Visum Files

- ✔ Correction of wrong node geometries from version files: When loading version files, node geometries for which the number of through lanes for a leg differs from the number of lanes of the underlying link are reset to the default geometry. They are then consistent in themselves, but may no longer be consistent with the desired modeling. Therefore, a warning is issued for the affected nodes and main nodes. **(24389)**
- ✔ Crash after loading a global layout with signal time-space diagram: Crashes no longer occur after loading a global layout file that produces a view that includes a signal time-space diagram. **(24458)**
- ✔ Crash when reading network files: Under certain circumstances, a crash could occur when reading a network file non-additively. This bug has been fixed. **(24291)**
- ✔ Double prompt for saving changes: If there were unsaved changes to data and, for example, the opening of a version file was started via the menu, the prompt whether the changes should be saved as a version file appeared twice. This bug has been fixed. **(24465)**
- ✔ Format change for timestamps in the version file: The internal format in which timestamps are written to the version file has changed. As a result, the timestamps of the individual iterations could no longer be read in the various PrT assignment quality lists if the assignment was carried out with PTV Visum 2022 or earlier and then saved as a version file. **(24438)**

❗ Breaking Changes

Visum Files

- ❗ Format change for timestamps in the version file: The internal format in which timestamps are written to the version file has changed. As a result, the timestamps of the individual iterations could no longer be read in the various PrT assignment quality lists if the assignment was carried out with PTV Visum 2022 or earlier and then saved as a version file. Running the assignment again once with PTV Visum 2023 fixes the problem. **(24438)**

2023.00-00 [247197]

2022-07-25

+ New Features and Changes

ANM

- + ANM import with negative link offset: Files that contain negative values for link offsets can now be imported. More specifically, negative values for the attributes ELO and SLO are now possible. **(24030)**
- + Improvement of the procedure PDV: The procedure 'Pseudodynamic Volumes (PDV)' has been improved. This allows the use of the dynamic results in other procedures of postprocessing, especially for the dynamic matrix estimation as well as the export of routes to PTV Vissim (via ANM). **(23489 ❗)**
- + Transport systems for lanes and lane turns: For the definitions of transport systems on lanes and lane turns the following conventions apply: All transport systems permitted for a lane (lane turn) must also be permitted on the link (turn or main turn). Accordingly, adjustments are made automatically when the TSysSet of the link (turn or main turn) changes. The transport system set allowed on through lanes must be identical at the FromNode and at the ToNode. Transport systems of type PuTWalk are no longer allowed on lanes. **(23930 ❗)**

COM-API

- + Add or Delete Operations: Due to the introduction of nested groups, the semantics of the COM functions IOperations::AddOperation and IOperations::RemoveOperation have changed. **(24079 ❗)**
- + COM access to the parameters of PuT Isochrones: At IIsochrones a new method ExecutePuTWithParameterObjects([in] INetElements * NetElms, [in] IPuTIsochroneBasePara * BaseParameters, [in] IPuTIsochroneRequestPara * RequestParameters) has been implemented. The methods CreatePuTIsochroneBaseParameters and CreatePuTIsochroneRequestParameters for creating the parameter objects were also added there. **(22004)**
- + COM list interface: Releasing a COM list interface no longer causes the associated list to be closed if Show() was previously called. The Detach() method is thus unnecessary and has been removed. Close() can be used instead to explicitly close a list. **(23290 ❗)**
- + Renaming of directions: To resolve naming conflicts, the 'Direction' enumeration type, which specifies the direction of connectors, has been renamed to 'ConnectionDirection', and the network object type 'PuT direction' (ID 'Direction') has become 'PuTDirection'. **(22905 ❗)**

Data Model

- + Elimination of the Start time in the demand description: The attributes 'Start time' and 'Start day index' in the demand description have been removed. This means that the Start day/Start time and the End day/End time of time series are considered as absolute times. When reading version files saved with Visum 2022 or earlier, in which start times not equal to zero were used in the demand description, copies of the time series are created taking the start time into account. The new time series then are allocated to demand segments. **(22367)**
- + Generate zones for stop areas: Converting stop areas into zones allows to reallocate data from stop area matrices. The function creates the corresponding zones without deleting the existing ones and adjusts the dimensions of each matrix accordingly. The connection of the new zones is also done automatically. **(22011)**
- + Parameters of signal offset optimization: The parameters of the signal offset optimization have been removed from the General procedure settings. They have been integrated into the new procedure 'Network-wide signal optimization' (see ID 11327). **(23103)**
- + Recalculation of link orientations: For the recalculation of link orientations implemented in Visum 2022 (ID 22550), the conditions for combining two links into one leg have been extended. Two links are combined into one leg if the absolute angle between the links is less than 10 degrees or the two links lead to the same main node. **(23453)**
- + Renaming of directions: To resolve naming conflicts, the 'Direction' enumeration type, which specifies the direction of connectors, has been renamed to 'ConnectionDirection', and the network object type 'PuT direction' (ID 'Direction') has become 'PuTDirection'. **(22905 ❗)**
- + Userdefined Groups: A new network object 'Userdefined groups' has been added with its own list. Userdefined attributes (UDA) can be allocated to one userdefined group to improve the overview of userdefined attributes in a model. **(24132)**

Data Model, COM-API

- + Attribute groups: Attribute groups are defined enumerations that now have ID status. English identifiers are to be used with the COM interface. **(22770 🚫)**

Demand Procedures

- + ABM: A synthetic population generated with the software PopulationSim can be read into Visum with a new importer. PopulationSim is not developed by PTV and is not part of the Visum installation. **(23759)**
- + ABM: The new procedure "Start ActivitySim" starts the ABM software ActivitySim. ActivitySim must be installed on the computer beforehand. ActivitySim is not developed by PTV and is not part of the Visum installation. **(23758)**
- + ABM: The result data of a demand calculation with the software ActivitySim can be read into Visum with a new importer and alternatively with the new procedure "ActivitySim Import". ActivitySim is not developed by PTV and is not part of the Visum installation. **(24065)**
- + Path sequence activities: New path sequence activities can be created in the List (Path sequence activities). **(24014)**

Dialogs

- + Better explanation of the options for connector shares (PrT): In the general procedure settings, the user interface has been improved so that the meaning of the various options is clearer. Furthermore, messages are issued if the selected option is not effective or only effective to a limited extent due to overrides of individual zones. **(20464)**
- + Easier access for editing time-varying attributes: Editing of time-varying attributes is now accessible from the context menu in the lists of the respective network objects as well as from the context menu in the network editor, as well as from context menus in the embedded lists in the lower part of the junction editor and on a selection of a corresponding network object (e.g. for a marked leg) in the geometry view of the junction editor. **(23732)**
- + Moving classes in the graphic parameter dialog: For the classified display with alphanumeric attributes classes can be moved upwards and downwards using new buttons ('Move marked classes upwards / downwards'). If numeric attributes are selected, the buttons are greyed out. **(22831)**
- + New control: A new control for managing global layouts, filter and graphic parameter files has been added. This control makes it easier to add new files, delete or rename existing files. **(19123)**
- + Preview in the attribute selection dialog: The attribute selection dialog for lists and other tabular views has a 'Preview' button that displays the currently selected layout in the respective window as it will appear when confirming with OK. **(21671)**
- + User-defined attributes in the attribute selection dialog: In addition to creating user-defined attributes (UDA) in the attribute selection dialog, it is also possible to edit and delete UDA in this dialog. **(19020)**

Filters

- + Formulas as filter condition: In filters boolean formulas can be used as condition. These can also be combined with other conditions. The condition of the formula row is fulfilled if the value 'True' is returned. **(22602)**

Formulas

- + Formulas as filter condition: In filters boolean formulas can be used as condition. These can also be combined with other conditions. The condition of the formula row is fulfilled if the value 'True' is returned. **(22602)**

Graphics

- + Fill Style: For object hatching, both the foreground and background colors can be set. Transparent colors are still possible. **(22373)**
- + Line route course display: Line routes can be aggregated by any attributes and displayed classified in the network editor. **(22497)**
- + Line route course display: The order of the displayed line routes in the legend can now be defined in the graphic parameters of the route course display. The order can be changed by sorting by any attribute in the dialog and thus influences the display in the legend. **(19245)**
- + Rotation of bar labels: Bar labels of links can be rotated interactively. In addition, there is a new link attribute 'Bar text angle' that can be used to specify the angle and a new special function 'Initialize rotation angle' to restore the default. **(22426)**
- + Route course: The aggregation level of the displayed route course can be subdivided by user-defined groups. If possible, the route courses of a grouping are not mixed with other groups during display. The legend label inserts a separate subheading for each grouping. **(22600)**

I/O Interfaces

- + GTFS Import: The General Transit Feed import has been accelerated. **(23680)**
- + GTFS Import: The optional courses of the line routes are now read in as intermediate link points and no longer as nodes. This simplifies and speeds up the import process. **(23701)**
- + GTFS Import: The optional file 'frequencies.txt' contains headways and time periods for certain journeys in the timetable. This file is now taken into account in the import and copies of the vehicle journeys are inserted according to duration and headway. **(18252)**
- + GTFS import with selectable calendar: When importing GTFS, it is possible to explicitly specify the type of calendar of the resulting network. In particular, this enables the import of a selected week into a network with a weekly calendar. Importing a key date into a network without a calendar is still possible. **(24148)**
- + HAFAS Import: The optional file 'Line' contains various meta-information about the line. This file will now be considered in the HAFAS import. **(20316)**
- + Open Street Map Import: Elevation data, stored at nodes in OSM format (key:ele), will be transferred to the z-coordinate of the node and via points in PTV Visum during the import. **(23726)**
- + Open Street Map Import: In rare cases, elevation data is modeled as 'tags' at the nodes in OSM. The provided configurations "Detailed Urban Road and Railway Network" and "Detailed Urban Bicycle Network" read these data and write these elevation data to the node in PTV Visum. **(19034)**
- + Open Street Map Import: The configuration "Detailed urban bicycle network" additionally transfers links and attributes that are relevant for the route search and bicycle assignment. **(23014)**
- + Open Street Map Import: The configuration "Detailed urban bicycle network" additionally transfers the information about the official classified cycle route network **(23446)**
- + PuT supply from Visum: Base data from the target network can be assigned to the data to be imported. If there is an object with the same key and attributes in the target network, the object from the target network is used. **(17430)**
- + PuT supply from Visum: For improved routing of line routes in the target network, the location of intermediate points of links from the source network is used optionally. **(23488)**
- + PuT supply from Visum: If direct walk links between stop areas exist in the source network, e.g. from the transfer.txt of the GTFS format, it is checked after the import whether such a path also exists in the target network. If not, such a connection will be created. **(23783)**
- + PuT supply from Visum: Turns over acute angles and especially U-turns are uncommon in public transport routing. Therefore, such maneuvers receive a malus during routing. A different course becomes more likely. **(23598)**
- + Replace boundaries from shape file for POI: When importing shape files additively, the boundaries of POIs can now also be replaced, analogously to other two-dimensional network object types. **(20201)**

Installation

- + Python: Python is only installed as part of the Visum installation below the Visum EXE directory. Python is no longer installed separately from Visum. The corresponding parts have been removed from the Visum setup. **(22437)**
- + Update of Python libraries: The Python libraries of the Python installation under Visum have been updated to newer versions. **(24050)**

Lists

- + Path sequence activities: New path sequence activities can be created in the List (Path sequence activities). **(24014)**
- + Userdefined Groups: A new network object 'Userdefined groups' has been added with its own list. Userdefined attributes (UDA) can be allocated to one userdefined group to improve the overview of userdefined attributes in a model. **(24132)**

Main Window

- + New buttons for tool window Network: The tool window 'Network' has new buttons to switch the visibility of the rows in the tool window as well as all filters. **(22188)**
- + Open working directory in Explorer: An entry 'Open working directory' has been added under Menu File to open the current working directory in the Explorer. **(23768)**

Matrix Estimation

- + Improvement of the procedure PDV: The procedure 'Pseudodynamic Volumes (PDV)' has been improved. This allows the use of the dynamic results in other procedures of postprocessing, especially for the dynamic matrix estimation as well as the export of routes to PTV Vissim (via ANM). **(23489)**

Network Editor

- + Determine Couplings: A new special function is searching within active vehicle journeys for plausible couplings. Couplings are created between vehicle journeys that run on a common section with the same departure and arrival time. Additional conditions are optional. **(21668)**

- + Legend: The width of the legend is optionally adjustable. For this purpose, the width of a legend element can be set via drag and drop. It is possible to specify an exact width in the legend dialog. Line breaks are inserted automatically. Minimum widths are compiled. **(19424)**
- + Simplify Node-link network for public transport: The function for simplifying a node-link networks for public transport takes the intermediate points of links into account. **(24004)**

Other Procedures

- + Drawing of random numbers: In line blocking with vehicle interchange and in headway offset optimization, random numbers are drawn within the genetic algorithm. This drawing has been improved. **(22605 !)**
- + Network-wide signal optimization: The procedures 'Signal offset optimization' and 'Signal offset analysis' have been integrated into the new procedure 'Network-wide signal optimization'. This procedure can be used to optimize and analyze offset times for all type of controllers. In addition, it is suitable for the network-wide optimization, i.e. green time, cycle time and offset optimization, for Vissig controllers with stage-based signal programs as well as controllers of type RBC. **(11327 !)**
- + Noise protection on roads: The new version of the German FGSV guideline for noise protection on roads (RLS 19) replaces the guideline RLS 90. PTV Visum calculates the emission value of the length-related sound power level per direction of travel. This replaces the calculation of the average noise level according to RLS 90. **(21158)**
- + Parameters of signal offset optimization: The parameters of the signal offset optimization have been removed from the General procedure settings. They have been integrated into the new procedure 'Network-wide signal optimization' (see ID 11327). **(23103)**
- + Settings for t0 of main turns: There is an additional option to set t0 of main turns. This option allows to sum up the time from the shortest path search and the default value from turns standards. **(10976)**
- + Update of HBEFA to version 4.2: The emission calculation according to HBEFA has been updated to the current version HBEFA 4.2. To use this calculation, the corresponding HBEFA data package version 4.2 must be installed. **(24007 !)**
- + Value of diagonal for skims from path sequences: The value of the diagonal for skims from path sequences can be set. The corresponding options are similar to other skims. **(21350)**

PrT Assignment

- + BFW with impedance method ICA for nodes: For the assignment method Bi-conjugate Frank-Wolfe (BFW) an option has been added to enable the node impedance calculation (ICA) during assignment. **(23364)**
- + Blocking back in combination with MPA: The blocking back calculation in networks where connector shares are used for each individual relation (MPA) is now performed on the actually calculated assignment paths and thus consistent with a subsequent calculation. Furthermore, the combination of the blocking back model with dynamic assignments is now explicitly prohibited. **(23122 !)**
- + Calculation of PrT skim matrices: The procedure 'Calculate PrT skim matrix' has been modernized. This results in a reduction of memory consumption and run time. **(20670 !)**
- + Evaluation of OD pair filter: The evaluation of the OD pair filter has been accelerated by improving iterations over assignment paths. **(23572)**
- + Improvement of the procedure PDV: The procedure 'Pseudodynamic Volumes (PDV)' has been improved. This allows the use of the dynamic results in other procedures of postprocessing, especially for the dynamic matrix estimation as well as the export of routes to PTV Vissim (via ANM). **(23489 !)**
- + Incremental assignment: The incremental assignment has been modernized. **(23078 !)**
- + Macro-meso hybrid simulation: The simulation-based assignment (SBA) has been extended to allow for a macro-meso hybrid simulation. If this option is selected, the links on which a mesoscopic simulation is performed are identified by a non-zero attribute value. On the remaining links, vehicles are propagated with the travel time determined by the VD functions. **(23849)**
- + Modeling of roundabouts for SBA: The behavior of vehicles in roundabouts has been improved. The modeled lane turns for roundabouts, which so far were ignored in the simulation, determine which lanes are used by vehicles on the approach and exit. Within multi-lane roundabouts, unnecessary lane changes and conflicts between vehicles entering and vehicles in the roundabouts are avoided. **(23306 !)**
- + Modeling of temporary lane closures in SBA: In the simulation-based assignment (SBA), temporary lane closures for one or more transport systems can be modeled by using the time-varying attribute Transport system - Set for lanes. **(23639)**
- + Parameters for calculating skim matrices: Simplifications have been made in the dialog for the calculation of skim matrices. The column 'Open' has been removed. Also, the options to save the means of transport number and 'Confirming overwriting (both PrT only)' are removed. **(23550)**
- + Reset of assignment results: Under certain circumstances, assignment results were automatically discarded by Visum before executing the procedure sequence, even without running the 'Delete assignment results' procedure. **(24108 !)**

- + SBA with evaluations for lanes: In SBA, additional results for lanes are provided. These are results from the simulation and can be found in the list for lanes. A distinction is made between results for the junction area and the remaining part of the link. **(22262)**
- + Transport systems for lanes and lane turns: For the definitions of transport systems on lanes and lane turns the following conventions apply: All transport systems permitted for a lane (lane turn) must also be permitted on the link (turn or main turn). Accordingly, adjustments are made automatically when the TSysSet of the link (turn or main turn) changes. The transport system set allowed on through lanes must be identical at the FromNode and at the ToNode. Transport systems of type PuTWalk are no longer allowed on lanes. **(23930 !)**
- + Usage of weights for connectors: The usability of methods for connectors has been improved, in particular, unused attributes such as the weights of connectors are grayed out if they are not relevant. **(21494)**

Procedure Sequence

- + Groups: Several groups can be duplicated and moved within the procedure sequence. **(20861)**
- + Nested groups: The previous possibility to divide procedures into groups has been extended to subgroups. Groups can now be nested with each other to any depth. **(23218)**

PuT Assignment

- + Headway-based Assignment: In rare cases, when two connection options have very high costs, their utility is numerical '0'. Previously, none of these options were then chosen. Now, this is reported to the user and the volume is distributed equally between both connections. **(23580 !)**
- + Parameters for calculating skim matrices: Simplifications have been made in the dialog for the calculation of skim matrices. The column 'Open' has been removed. Also, the the options to save the means of transport number and 'Confirming overwriting (both PrT only) are removed. **(23550)**
- + Usage of weights for connectors: The usability of methods for connectors has been improved, in particular, unused attributes such as the weights of connectors are grayed out if they are not relevant. **(21494)**

PuT Line Blocking

- + Convert line block item to empty trip: The line block item of a vehicle journey can be converted into an empty trip. The vehicle journey itself remains unaffected. **(23140)**
- + Drawing of random numbers: In line blocking with vehicle interchange and in headway offset optimization, random numbers are drawn within the genetic algorithm. This drawing has been improved. **(22605 !)**

PuT Passenger Survey

- + Plausibilization: The maximum deviation of survey data to the real departure time can now be specified separately to positive and negative deviation. Thus, different time periods can be defined here. **(15649)**
- + Processing of check-in & out ticket data: Two dedicated modes are now available for the plausibilization of mass data from access control systems (Check-In & Check-Out). Those allow performing the necessary short path searches much more performant and thus to save runtime. The minimum required information of one dataset has been reduced to start and end stop, as well as a time stamp. **(22747)**
- + Rename 'Read survey data' / 'Plausibilization of survey data': The two procedures have been renamed in some languages 'Read survey data' / 'Plausibilization of survey data' to clarify their purpose. **(23628)**

Scenario Management

- + Database of the calculation server: The database of the calculation server was changed to SQLite. **(24038)**

Timetable Editor

- + Access via the context menu: Access to both timetable editors, graphical and tabular, is available via the context menu for additional network elements. **(23556)**

Umlegung ÖV

- + ÖV Relationsanalyse: Aus dem Verfahren 'ÖV Relationsanalyse' werden aus bestehenden Wegen Kenngrößen als Haltestellenbereichsmatrizen abgeleitet. Matrizen die Personenfahrten repräsentieren werden nun als Nachfrage- und nicht mehr als Kenngrößenmatrizen erzeugt und gespeichert. **(23813)**

! Breaking Changes

COM-API

- ❗ Add or Delete Operations: Due to the introduction of nested groups, the semantics of the COM functions `IOperations::AddOperation` and `IOperations::RemoveOperation` have changed. If groups exist, the behavior of these functions may change. **(24079)** [+](#)
- ❗ COM list interface: Releasing a COM list interface no longer causes the associated list to be closed if `Show()` was previously called. The `Detach()` method is thus unnecessary and has been removed. `Close()` can be used instead to explicitly close a list. Scripts may need to be adjusted. **(23290)** [+](#)
- ❗ No OR group when adding Active net objects conditions for flow bundles: When inserting an Active net objects condition using `CreateConditionActive...` or `CreateConditionSelected...` to `IFlowBundle`, a new OR group was always created until now. This prevented such conditions from being combined with other conditions using AND. This error has been fixed. This changes the behavior when several conditions, including an Active net elements condition, have been inserted one after the other via COM. To achieve the OR combination of conditions as before, a new group must be explicitly created by calling `CreateNewGroup`. In addition, the `ExecuteActiveTimeProfiles` method has been removed. **(24296)**
- ❗ Renaming of directions: To resolve naming conflicts, the 'Direction' enumeration type, which specifies the direction of connectors, has been renamed to 'ConnectionDirection', and the network object type 'PuT direction' (ID 'Direction') has become 'PuTDirection'. **(22905)** [+](#)
- ❗ SEH exception handling: COM methods previously contained exception handling for SEH exceptions. This has been removed to make severe exception visible to the user, i.e. result in a program crash. **(23110)**

Data Model, COM-API

- ❗ Attribute groups: Attribute groups are defined enumerations that now have ID status. English identifiers are to be used with the COM interface. Since it also affects the return value of the attribute group, scripts must be adapted. **(22770)** [+](#)

Data Model, PrT Assignment

- ❗ New logic for attribute 'TurnedOff' of signal controllers: The attribute 'TurnedOff' of signal controllers is no longer an input attribute, but is derived directly from the selected signal program. The signal controller is considered to be turned off if the signal program 0 (for Vissig controller) or 99 (for RBC controller) is selected or if an invalid signal program number is set. Signal controllers that previously had a valid signal program number but the signal controller was explicitly turned off are now no longer considered turned off, which correspondingly changes the results of all procedures that use that signal controller. **(23993)**

Data Model, Visum Files

- ❗ Attribute link number at lanes: The attribute for the link number of lanes used to always contain the number of the incoming link of the leg, even if the leg combines two opposite links and thus the relevant link of the lane for incoming and outgoing lanes are different. This bug has been fixed, i.e. the attribute now always outputs the number of the relevant link of the lane. This also affects network files because the interpretation of the key changes. Network files written with PTV Visum 2023 and later are therefore misinterpreted by PTV Visum 2022 and earlier when there are legs with opposite links combined. **(23697)**

Other Procedures

- ❗ Network-wide signal optimization: The procedures 'Signal offset optimization' and 'Signal offset analysis' have been integrated into the new procedure 'Network-wide signal optimization'. This procedure can be used to optimize and analyze offset times for all type of controllers. In addition, it is suitable for the network-wide optimization, i.e. green time, cycle time and offset optimization, for Vissig controllers with stage-based signal programs as well as controllers of type RBC. The results of the offset optimization will change. **(11327)** [+](#)
- ❗ Update of HBEFA to version 4.2: The emission calculation according to HBEFA has been updated to the current version HBEFA 4.2. To use this calculation, the corresponding HBEFA data package version 4.2 must be installed. Due to a change in the distribution of vehicle strata, the adjustments made to the fleet compositions when reading version files from previous release versions of Visum should be checked. The results of the emission calculation change due to the update. **(24007)** [+](#)
- ❗ Analysis of the offset times of signal controllers reacts to a constant shift: The results of the procedure 'Signal offset analysis' (now part of the procedure 'Network-wide signal optimization') depended on the absolute amount of the offset, i.e. the procedure resulted in different values if the offsets of all involved signal controllers were changed by the same value. This error has been fixed. This changes the results of the analysis of the offset times. **(24005)**

PrT Assignment

- ❗ Blocking back in combination with MPA: The blocking back calculation in networks where connector shares are used for each individual relation (MPA) is now performed on the actually calculated assignment paths and thus consistent with a subsequent calculation. This changes the PrT assignment results of static assignments in combination with the blocking back model. Furthermore, the combination of the blocking back model with dynamic assignments is now explicitly prohibited. **(23122 +)**
- ❗ Calculation of PrT skim matrices: The procedure 'Calculate PrT skim matrix' has been modernized. This results in a reduction of memory consumption and run time. As a result, calculation results may change slightly. **(20670 +)**
- ❗ Improvement of the procedure PDV: The procedure 'Pseudodynamic Volumes (PDV)' has been improved. This allows the use of the dynamic results in other procedures of postprocessing, especially for the dynamic matrix estimation as well as the export of routes to PTV Vissim (via ANM). This changes the calculation results of the procedure. **(23489 +)**
- ❗ Incremental assignment: The incremental assignment has been modernized. This may change assignment results. **(23078 +)**
- ❗ Modeling of roundabouts for SBA: The behavior of vehicles in roundabouts has been improved. The modeled lane turns for roundabouts, which so far were ignored in the simulation, determine which lanes are used by vehicles on the approach and exit. Within multi-lane roundabouts, unnecessary lane changes and conflicts between vehicles entering and vehicles in the roundabouts are avoided. These improvements will change results of SBA. **(23306 +)**
- ❗ Removal of the option 'Ignore turns' in the dynamic stochastic assignment: The dynamic stochastic assignment offered previously an option 'Ignore turns' to save memory. This option has been removed. The impedances of turns are now always considered correctly. This changes the results of the dynamic stochastic assignment if the option was set (default). **(23211)**
- ❗ Reset of assignment results: Under certain circumstances, assignment results were automatically discarded by Visum before executing the procedure sequence, even without running the 'Delete assignment results' procedure. This is now no longer the case. The procedure 'Delete assignment results' must be inserted to reproduce the behavior. **(24108 +)**
- ❗ Transport systems for lanes and lane turns: For the definitions of transport systems on lanes and lane turns the following conventions apply: All transport systems permitted for a lane (lane turn) must also be permitted on the link (turn or main turn). Accordingly, adjustments are made automatically when the TSysSet of the link (turn or main turn) changes. The transport system set allowed on through lanes must be identical at the FromNode and at the ToNode. Transport systems of type PuTWalk are no longer allowed on lanes. When reading models saved with release versions of Visum 2022 and older, transport systems on lanes and lane turns are adjusted automatically to follow these conventions. **(23930 +)**

PuT Assignment

- ❗ Headway-based Assignment: In rare cases, when two connection options have very high costs, their utility is numerical '0'. Previously, none of these options were then chosen. Now, this is reported to the user and the volume is distributed equally between both connections. This can change assignment results in rare cases. **(23580 +)**
- ❗ Incorrect calculation in the headway-based assignment using Logit as a choice model: The calculation of the shares when using a discrete choice model between stay on board and alight in the headway-based assignment was incorrect. This error has been fixed. The results of the headway-based assignment change when using this choice model. **(22658)**

PuT Line Blocking

- ❗ Drawing of random numbers: In line blocking with vehicle interchange and in headway offset optimization, random numbers are drawn within the genetic algorithm. This drawing has been improved. As a result, results can change. **(22605 +)**

PuT Operating Indicators

- ❗ Incorrect projection of indicators related to line blocking for AH: In certain situations, the projection of indicators related to line-blocking (empty time, empty km, number of vehicles in proportion to length and time) to the analysis horizon (AH) was not correct. Affected are the indicators at the line hierarchy as well as at area PuT detail objects. Furthermore, link costs at the objects of the line hierarchy can also be affected. This error has been fixed. **(23596)**

Visum Files

- ❗ Attribute 'Transfer priority' at stop areas missing in version file: The attribute 'Transfer priority' of stop areas was missing in the version file so far, i.e. after writing and subsequent reading all stop areas had the default value. This error has been fixed. **(23346)**

ANM

- ❗ Improvement of the procedure PDV: The procedure 'Pseudodynamic Volumes (PDV)' has been improved. This allows the use of the dynamic results in other procedures of postprocessing, especially for the dynamic matrix estimation as well as the export of routes to PTV Vissim (via ANM). This changes the calculation results of the procedure. **(23489 +)**
- ❗ Transport systems for lanes and lane turns: For the definitions of transport systems on lanes and lane turns the following conventions apply: All transport systems permitted for a lane (lane turn) must also be permitted on the link (turn or main turn). Accordingly, adjustments are made automatically when the TSysSet of the link (turn or main turn) changes. The transport system set allowed on through lanes must be identical at the FromNode and at the ToNode. Transport systems of type PuTWalk are no longer allowed on lanes. When reading models saved with release versions of Visum 2022 and older, transport systems on lanes and lane turns are adjusted automatically to follow these conventions. **(23930 +)**

Data Model

- ❗ Renaming of directions: To resolve naming conflicts, the 'Direction' enumeration type, which specifies the direction of connectors, has been renamed to 'ConnectionDirection', and the network object type 'PuT direction' (ID 'Direction') has become 'PuTDirection'. **(22905 +)**

Matrix Estimation

- ❗ Improvement of the procedure PDV: The procedure 'Pseudodynamic Volumes (PDV)' has been improved. This allows the use of the dynamic results in other procedures of postprocessing, especially for the dynamic matrix estimation as well as the export of routes to PTV Vissim (via ANM). This changes the calculation results of the procedure. **(23489 +)**

Other Procedures

- ❗ Drawing of random numbers: In line blocking with vehicle interchange and in headway offset optimization, random numbers are drawn within the genetic algorithm. This drawing has been improved. As a result, results can change. **(22605 +)**