PTV Visum 2026

New features at a glance

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part of Umovity

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Content

1 PTV Hub

Visum 2026 is part of PTV Hub, the cloud-based platform that integrates cloud/web apps and desktop applications. New developments in PTV Hub and Visum 2026 expand both worlds equally and include cross-functional collaboration and communication through model-related comments, as well as enhanced options for performing model calculations in the cloud.

This document focuses on the cloud-related features in Visum 2026 – a detailed overview of the many other innovations in PTV Hub 2026 can be found, for example, in the PTV Tech Update.

These features are only available for PTV Hub-ready desktop licenses

1.1 Collaborative Cloud-Based Commenting

PTV Hub 2026 introduces centralized, cloud-based commenting across Visum, Vissim, Viswalk, Vistro, and Hub Dashboards. Users can utilize a unified UI to annotate scenarios, network elements, and visualizations and to get an overview on comments from other users and to react on these. Role-based access ensures controlled collaboration, and a dedicated sidebar streamlines comment tracking, resolution, and model navigation, speeding up review cycles and boosting transparency.

The new comments feature is only available for cloud models saved in PTV Hub and connects teams directly within the Visum model environment. Reviewers can provide feedback without relying on PDFs, emails, or separate documents. All comments remain embedded in the model, ensuring clear, context-rich communication throughout the review process. This is especially valuable for multi-phase projects, public engagement, and agency reviews.

Users can comment on existing network objects or place feedback at any position on the map using the context menu entry **Add comment**. Each comment is visually indicated with an icon and automatically grouped into a thread, allowing multiple users to reply within the same discussion. Replies are timestamped and tagged with the author's name for traceability. Threads can be marked as active or resolved, making it easy to track status throughout the project lifecycle and providing a clear audit trail of feedback, changes, and decision-making.

Existing comments can be shown using the entry **Comments** in the **View** menu.

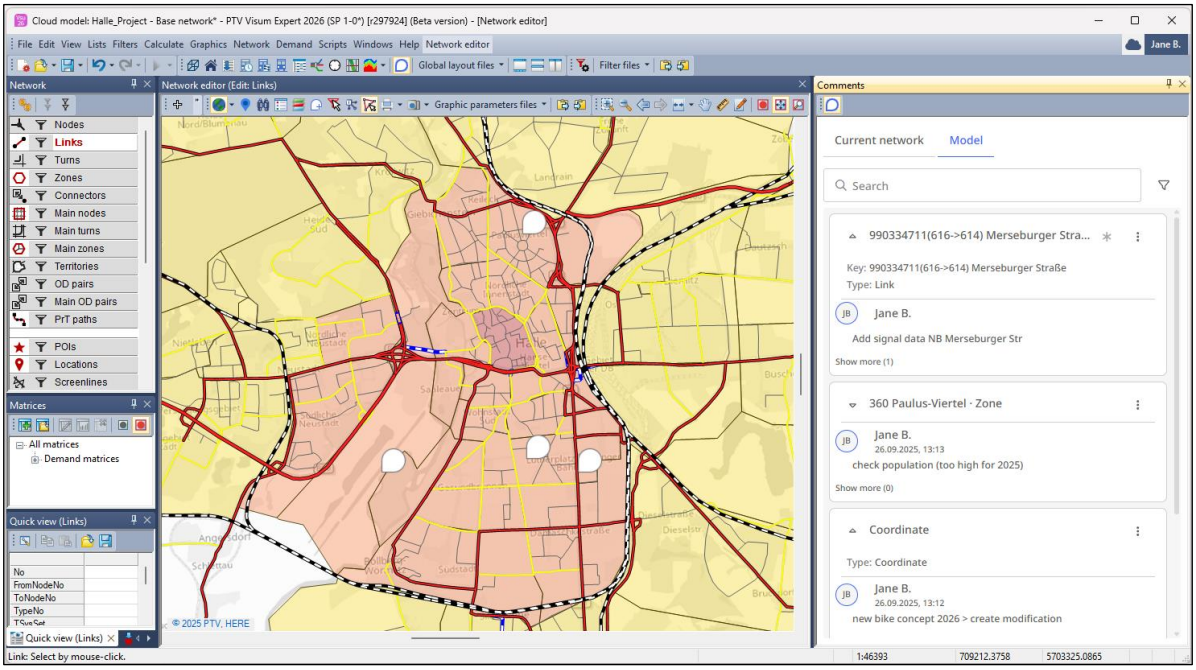

Figure 1: Base network with model comments

1.2 Support for different major release versions

PTV Hub supports working with PTV Visum 2025 and PTV Visum 2026. The version of the desktop software used to open cloud models, or parts of them, must match the version of the cloud model. It remains possible to work with Visum 2025 using cloud models in version 2025, and with Visum 2026 using cloud models in version 2026.

If an older model is to be edited with PTV Visum 2026 in the future, this must be explicitly configured. The change of a cloud model's release version is carried out in PTV Hub within the model list.

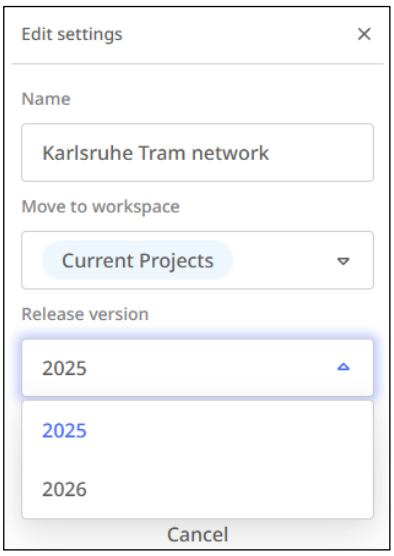

Figure 2: Upgrading a cloud model to new version 2026

1.3 Cloud calculations of models with scripts

Many Visum models use scripts in the procedure sequence. Until now, models using scripts in the procedure sequence could not be computed in PTV Hub because the COM-based scripting API and Python-environment are not supported in the cloud environment. With Visum 2026, a new Python-only scripting API enables scripts in the procedure sequence to run in the cloud with PTV Hub. The new API provides access to the data model and matrices and supports many operations relevant within model calculations. Other functionalities known from the COM-API (e.g. exporting screenshots) are currently not supported by this API and in PTV Hub. See also section 7.3 for information on setting up scripts for PTV Hub cloud calculations.

1.4 Dashboards new movements widget

Dashboards in PTV Hub have the new **Movements** widget. This new widget further enhances reviews, comparisons, and the sharing of intersection details. This interactive tool allows users to explore Visum's intersection results. It visualizes movement volumes, delays, or LOS using customizable bands, labels, colors and thickness. Hover, highlight, and filter functions to enhance result exploration. For a model with intersection results these can be exported from the menu File->Export->Dashboards... and then utilized in PTV Hub.

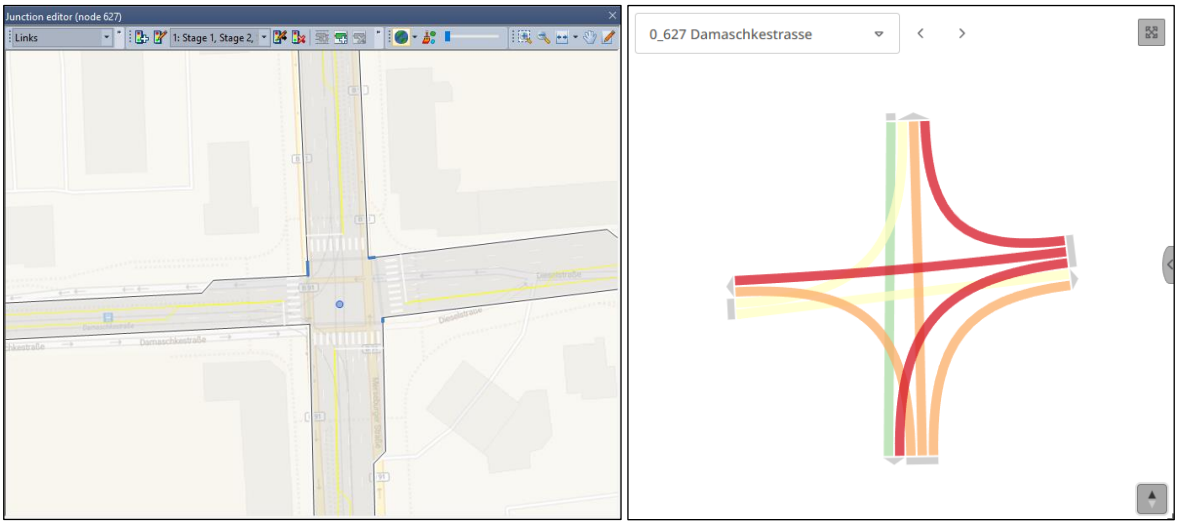

Figure 3: Evaluation of intersections and movements (left: Junction editor, right: Movement widget in dashboards)

2 Procedures

2.1 Mesoscopic Simulation (SBA) of Public Transport Vehicles in Mixed Traffic

When creating public transport (PT) timetables and planning infrastructure, the interactions between road-based PT and general road traffic play an important role. Whether the assumed PT travel times in mixed traffic are realistic, or how strongly stopping PT vehicles affect road traffic, influences the evaluation of different planning scenarios. Even when changes occur in the street layout — for example, due to construction work or the long-term reallocation of traffic lanes to bicycle lanes — the interaction between PT and road traffic often remains a key consideration in planning.

To assess the interactions between road-based PT and road traffic, it will be possible in the future to simulate PT vehicles in the mesoscopic SBA assignment according to their planned timetables. This simulation takes into account both the realistic travel times of PT vehicles caused by general road traffic and the potential queues forming behind moving, stopping, or bus-bay-entering PT vehicles.

In the network model, additional detailed information can be provided to support this analysis — such as the location of stops (on the lane, in a side bay, or in a median lane) and the length of bays and vehicles. In addition to the departure times of trips, the adherence to the timetable can also be specified in the schedule.

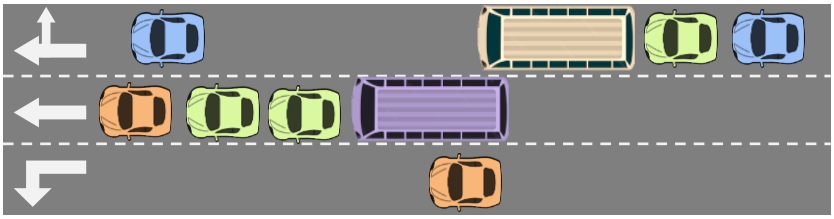

Abbildung 1: Simulated PT-vehicles are ineraction with othr road users

As a result of the simulation, in addition to the usual outputs of the SBA assignment — including vehicle trajectories — the arrival and departure times at the stops resulting from the simulation of the PT vehicles are stored in the new attributes of the timetable trip elements described in Section 4.1. This makes it possible to derive a potential actual timetable from the simulation, which can then be used for further analyses.

Please note: This functionality will only be enabled in a service pack for Visum, expected early in 2026.

2.2 Intermodal assignment

The intermodal assignment – formerly Multimodal assignment – has been fundamentally revised and offers a modern, clearly structured design and numerous new functions.

Combining multiple modes

The intermodal assignment combines several modes that can be used along a single trip. There is always one mandatory mode and one or more optional feeder modes. A classic example is intermodal demand for public transport/air travel: part of the trip is covered by public transport feeders, while the main segment is by airplane. Other combinations are also conceivable, such as local public transport/long-distance public transport.

The assignment does not operate directly on the network but rather on zones: assignment impedances (e.g., travel times) are defined via matrices and transfers occur at zones.

Figure 4: The intermodal assignment combines multiple modes within a single trip. There is always one mandatory mode and one or more optional feeder modes. Transfers occur at zones.

Clearly structured user interface

The newly designed dialog is more intuitive to use; it is clearer and easier to understand.

The assignment impedance for the considered modes is defined directly in the procedure parameters through formulars. Thereby it is now independent of the skims, which are still defined in the General procedure settings.

New functionality at a glance:

- **Differentiated definition of maximum feeder distances**: Ideally, the majority of a path should not be covered by feeder modes. Therefore, the user can define the maximum allowed feeder distance. Previously, this was specified as a percentage and applied uniformly to all paths. Now, the new feature allows you to define the maximum permitted feeder distance in absolute terms per zone. This particularly enables the modeling of regional differences.
- **Additional impedance parameters**: Until now, the assignment impedance of a path was defined solely by skims, which relate to the change of location between two zones. In Visum 2026, transfer impedances as well as origin access and destination egress impedances can also be taken into account. Transfer impedance can also be modeled in such a way that transfers are only possible at selected zones, only for specific mode combinations.
- **Dynamic demand generation**: In the previous implementation of intermodal assignment, the result of the calculation was provided in the form of path sequences. In the revised version, the calculation results can now also be written directly into the demand matrices of the involved unimodal demand segments. Optionally, the time delay of modes occurring later within a path can also be considered, allowing a demand time series to be populated.

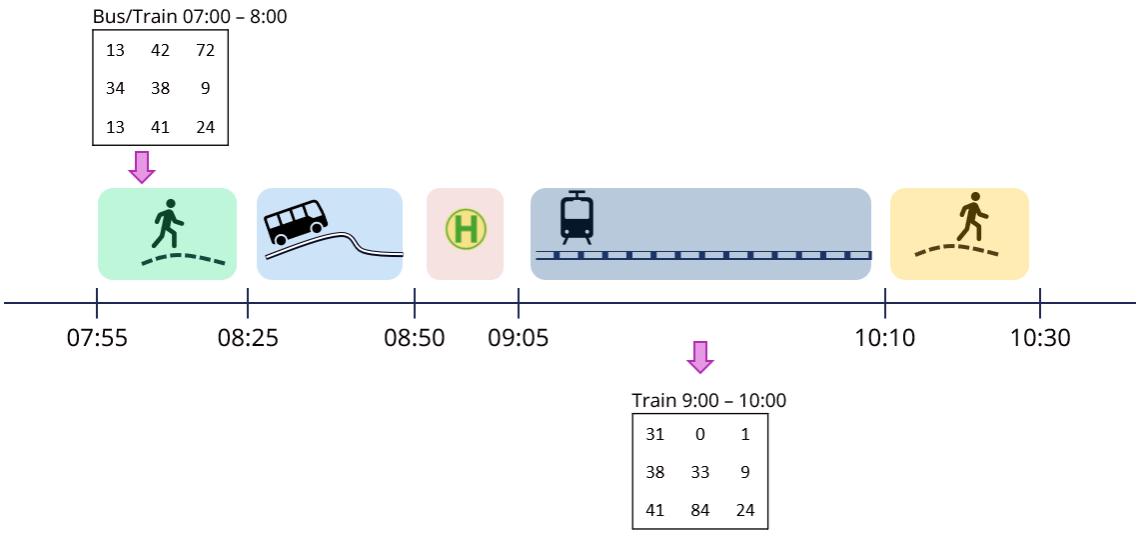

Figure 5: Illustration of the dynamic demand generation of subordinate demand segments taking the travel duration of path sequence items into account

2.3 Must-use mode in timetable-based public transport assignment

Public transport demand is classified in many parts of the world according to the highest-ranking transport system used. This classification serves, among other purposes, to validate demand models and to assess assignment results. Mode choice is also based on this segmentation.

For modelers, this means that both the assignment and the skim calculation must be based on a set of paths where a specific transport service is used on at least one path leg.

A typical example is the analysis of metro demand. This includes all trips that were carried out at least partially using the metro, regardless of whether feeder modes such as buses or walking were also used. The data is often not stored as complete paths but rather in aggregated form as a demand matrix. During the assignment of this matrix, it is therefore important to consider that all included trips used the defined transport service (e.g. metro) on at least one section. Only in this way can the context of the matrix be correctly represented and consistent indicators be generated.

The functionality to make a set of services mandatory for route choice was introduced for the headway-based assignment in Visum 2025. This functionality is now also available for the timetable-based assignment.

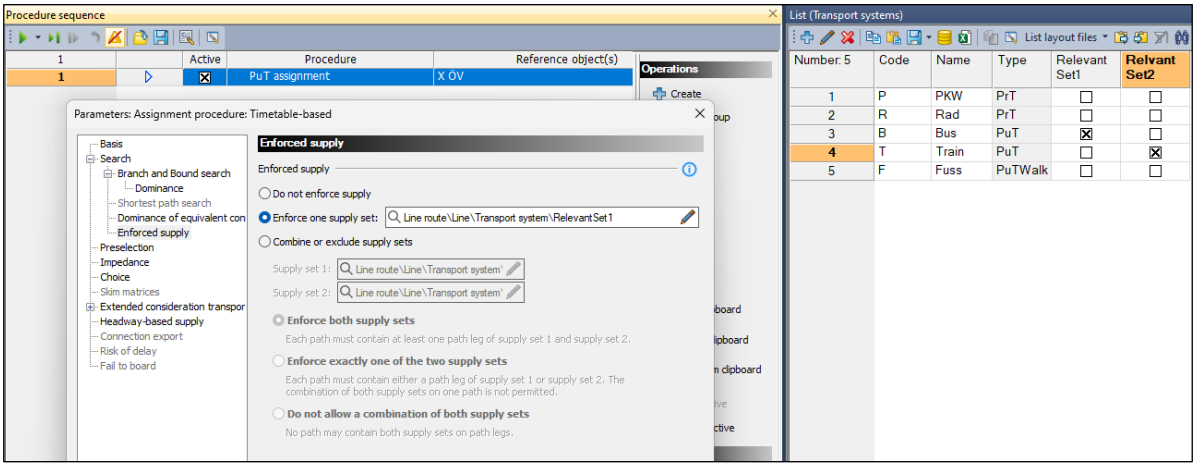

Figure 6: Enforce PT-supply sets in timetable-based assignment

Like the headway-based assignment, the procedure allows two disjoint transport services to be defined and logically linked using the operators AND, AND NOT, or EITHER OR. This makes it possible, for example, to model and assign services in which two competing transport companies do not offer a joint ticket or coordinated trip planning. In such cases, it is realistic to assume that travelers do not switch between providers during a single trip.

2.4 On-demand for public transport: simplified approach

Until now, modeling on-demand services in combination with public transport within Visum was possible in great detail and yielded precise results. However, this came with a correspondingly high modeling and time effort. In the future, it will be possible to model on-demand services in a simplified way, not iteratively and without tour planning. This makes the modeling process significantly simpler.

In Visum 2026, when modeling on-demand transport within the public transport assignment, a simplified algorithm can be selected, with significantly reduced input effort and shorter computation times. Relevant use cases are:

- Supplementary on-demand services at night
- Supply in peripheral locations with poor PT

- Initial estimates of the impact of new on-demand concepts

2.5 Line Blocking: total capacities for stop points

Line blocking or vehicle scheduling is used to determine the number of vehicles required to operate a timetable. To generate valid vehicle tours, the infrastructure conditions must be considered especially at stops points. Visum 2026 introduces a new concept for modeling stop capacities.

The total capacity of a stop defines how many vehicles can be present at the same time. It reflects the available space for a specific vehicle combination, regardless of whether the vehicles are dwelling, charging or parking (in a depot)

To model limited capacities in more detail, three capacity attributes are now available at stop points for each vehicle combination:

1. Total capacity
2. Capacity for user-defined activities (e.g. charging)
3. Depot capacity

The rule is that the capacity must always be greater than or equal to the maximum of the other two capacities.

Example 1: Limited standby capacity at a stop

This can be used to limit the number of vehicles at a stop during short layovers.

Attribute	Value	Meaning
Total capacity	2	Stops points, which can hold 2 vehicles of the same vehicle combination at the same time.
Activity (Charging)	0	
Depot capacity	0	

Example 2: Charging slots used for parking in depots

Attribute	Value	Meaning
Total capacity	5	Depot, with 5 slots of which 3 are equipped with 3 charging slots. All of them can be used for parking as well
Activity (Charging)	3	
Depot capacity	5	

By default, stop capacity is considered ‘unlimited’. This is now represented by an empty value. This is a change from previous versions, where empty values were not allowed and unlimited capacity has been coded as zeros.

Whether a stop is treated as a depot or allows user-defined activities is now determined solely by the capacity values. If the capacity is not zero (i.e. greater than 0 or empty), the corresponding Boolean attributes are set automatically. Data from older Visum versions is interpreted and adjusted accordingly.

Visum 2026 automatically checks whether the total capacity is specified correctly. If it is smaller than the maximum of the other two capacities, the input cell is highlighted. If vehicle scheduling is started in this state, the process is aborted with an error message.

2.6 Matrix estimation in combination with automatic passenger counting (APC)

Public transport vehicles equipped with automatic passenger counting (APC) systems collect valuable data during operation. This includes boarding and alighting counts at stops and occupancy levels along the according trip segments. These are cross-sectional data, recorded at defined times and locations.

Such data can be used to forecast OD-related values or to update demand matrices.

Starting with Visum 2026, the matrix correction procedures TFlowFuzzy, Least Squares, and Least Squares (dynamic) can use count data at the level of vehicle journey items. This corresponds exactly to the level at which APC systems collect data. As a result, no further spatial or content-based aggregation is required, and information loss can be avoided.

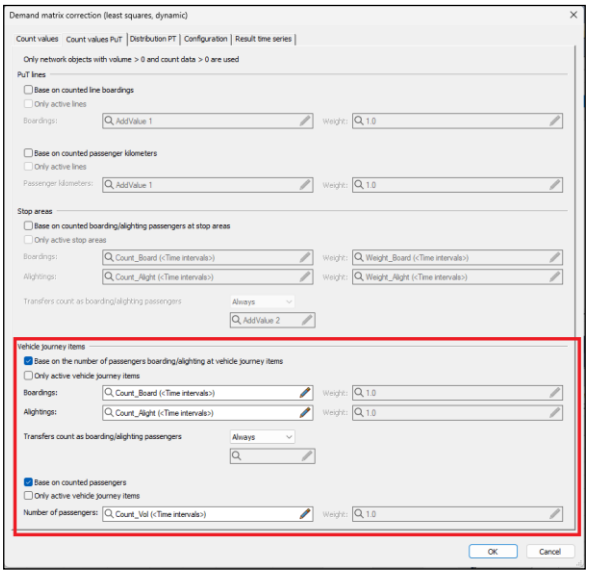

Figure 7: Selection of Count data at vehicle journey items

2.7 Detailed differentiation of walk times in public transport

Some attributes and parameters related to walk times have been renamed to better differentiate between transfer walk times, walk times before the first boarding and after the last alighting. More precisely, the following attributes were renamed:

PuT path legs

- Under Time profile key string the name ‘Origin connector’ is replaced with ‘Origin walk path’. The origin walk path is the walk time before the first boarding, i.e. adds up the walk times on the origin connector and links before the first boarding point.
- Under Time profile key string the name ‘Destination connector’ is replaced with ‘Destination walk path’. The destination walk path is the walk time after the last alighting, i.e. adds up the walk times on links after the last alighting point and the destination connector.

PuT assignment parameters

The renaming concerns attributes of the search impedance of the branch and bound search (timetable-based assignment) and the perceived journey time ‘PJT’ (timetable-based and headway-based assignment).

- The attribute ‘Access time’ has been renamed to ‘Origin walk path time’. It includes walk times on the origin connector and links before the first boarding.

- The attribute ‘Egress time’ has been renamed to ‘Destination walk path time’. It includes walk times on links after the last alighting point and the destination connector.
- The attribute ‘Walk time’ has been renamed to ‘Transfer walk path time’. It includes walk times for transfers after the first boarding and before the last alighting point.

New skim matrices

New skim matrices were introduced accordingly:

- ‘Origin walk path time’ is the walk time on the origin connector and links before the first boarding.
- ‘Destination walk path time’ is the walk time on links after the last alighting point and the destination connector.
- ‘Transfer walk path time’ is the sum of all walk times after the first boarding and before the last alighting point.

The new skim matrices replace the skim matrices ‘Access time’, ‘Egress time’ and ‘Transfer walk time’ in the calculation of the perceived journey time ‘PJT’.

2.8 ABM – Generation of a synthetic population

In activity-based models, demand is represented by individual persons (as opposed to person groups in traditional models). Therefore, a dataset of households and persons that represents the entire population of the region to be modeled is required.

For this reason, a synthetic population is generated, typically using freely available software. Since such software is often difficult to use, Visum now offers a simple way to create a synthetic population.

A sample household survey with travel diaries (usually conducted at a national level) serves as an input, as well as various statistics on person and household attributes at different aggregation levels, such as

- Number of persons per location
- Age distribution per traffic zone
- Number of cars per postal code area
- Number of employed persons per municipality

The procedure then selects suitable households from the sample for each location in such a way that all statistics are matched as closely as possible, while deviating as little as possible from the original sample population. The selected households are then "cloned" into the location, including their household members and their activity plans.

The procedure works from the coarsest to the finest level of aggregation. At each level, the population from the previous level is distributed as appropriately as possible to the objects of the current level. In the example mentioned, a total population for the planning area is first generated, which is then distributed to the municipalities, then to the underlying postal code areas, from there to the traffic zones, and finally to the locations. This approach achieves a very high variability in the synthetic population.

2.9 ABM – incremental time choice

Activity-based models (ABM) in Visum are dynamic demand models, meaning that start times play an important role. The start time of an activity determines the time interval during which the trip to the activity location occurs, thereby influencing the impedance or utility of the destination and the mode choice.

In Visum, start times can be modeled in various ways. The ABM calculation is based on daily

schedule skeletons, which already contain the sequence and durations of activities. These skeletons typically originate from travel diaries collected in mobility surveys.

One way to take into account the start times is by directly using the reported start times from the travel diaries. This approach yields realistic start times but has the limitation that they are fixed and cannot adapt to changes in external conditions.

Another option is to model the start time. This allows changes in start time choice to be modeled as a result of changes in external conditions. However, the calibration of such a model is complex and demanding. The start time of an activity affects the start times of all subsequent activities within the same tour. In addition, detailed segmentation is required, for example by number and sequence of activities, household structure (e.g. childcare), employment status of other household members, etc. Each of these segments has its own time profile. A complete calibration of such a model is therefore demanding and often yields unsatisfactory results.

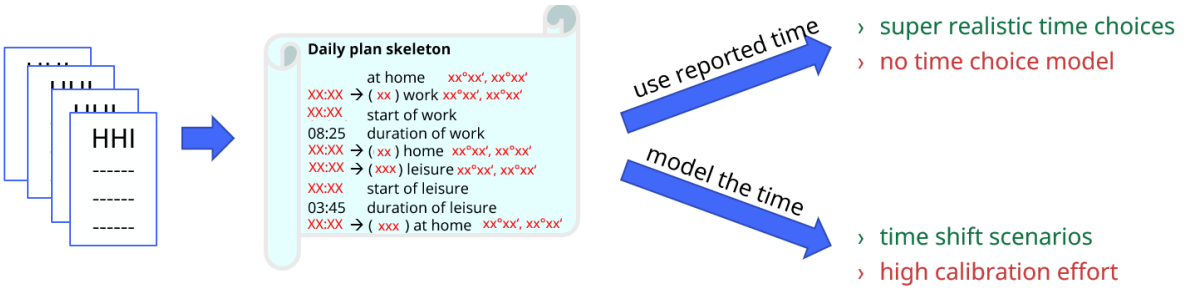

Figure 8: Two approaches to account for activity start times

Visum offers a new option for this case that allows time choice to be modeled both realistically and in a scenario-capable way with minimal effort. The model is configured so that, in the base scenario, the persons are required to choose predefined start times (typically those reported in a survey). However, under changed conditions, the model can adapt and adjust time choice decisions accordingly. It thus remains scenario-capable.

Figure 9: Incremental time choice uses reported start times while remaining scenario-capable

2.10 Emissions calculation: Update to HBEFA 5.1

In October 2025, version HBEFA 5.1 was released.

Version 5.1 represents a comprehensive update of the HBEFA (Handbook of Emission Factors for Road Transport).

The focus of HBEFA 5.1 lies on aspects related to the evolution of vehicle fleets due to regulation and decarbonization. This includes, among other things, further differentiation of non-exhaust emissions and cold-start emissions. Both the number of vehicle categories and pollutants have increased.

Due to the increased amount of data, Visum 2026 provides traffic compositions and emission factors for the years 1990 and from 2019 to 2060. The vehicle categories have been adapted

according to the new HBEFA version. Pollutant names have also been renamed in line with HBEFA. There are notable extensions for PM (particulate mass), where non-exhaust emissions have been further differentiated into brake wear, resuspension, road wear, and tire wear. For greenhouse gases, CO_2 equivalents for tank-to-wheel are now included. The CO_2 equivalents for well-to-wheel, which were available in HBEFA 4.2, will no longer be maintained by HBEFA in the future.

Due to the timing overlap between the release of HBEFA 5.1 and Visum 2026, HBEFA 5.1 will be made available in a future service pack. Until then, emission calculations using HBEFA in Visum 2026 will not be possible.

2.11 Emissions calculation: Update of COPERT

COPERT has been updated to version 5.8.

In this version, the vehicle strata have been expanded, in particular by adding Euro 7 vehicles for light and heavy-duty trucks. In addition, this version includes a revision of the vehicle strata and vehicle compositions, as well as updates and corrections to the emission factors.

3 Interfaces

3.1 Import of OSM data in PBF format

The import of OSM data supports the PBF format (Protocolbuffer Binary Format). Most providers of OSM data are using the PBF-format because the data can be transferred and stored more efficiently. A PBF file is smaller than conventional XML files and can therefore be imported more quickly.

In Visum, you can import both the old XML format (.bz2) and the newer PBF files. The import is faster because of the more efficient data format but is otherwise unchanged. Only the dialog has been modified to make it easier to control the import for a map section.

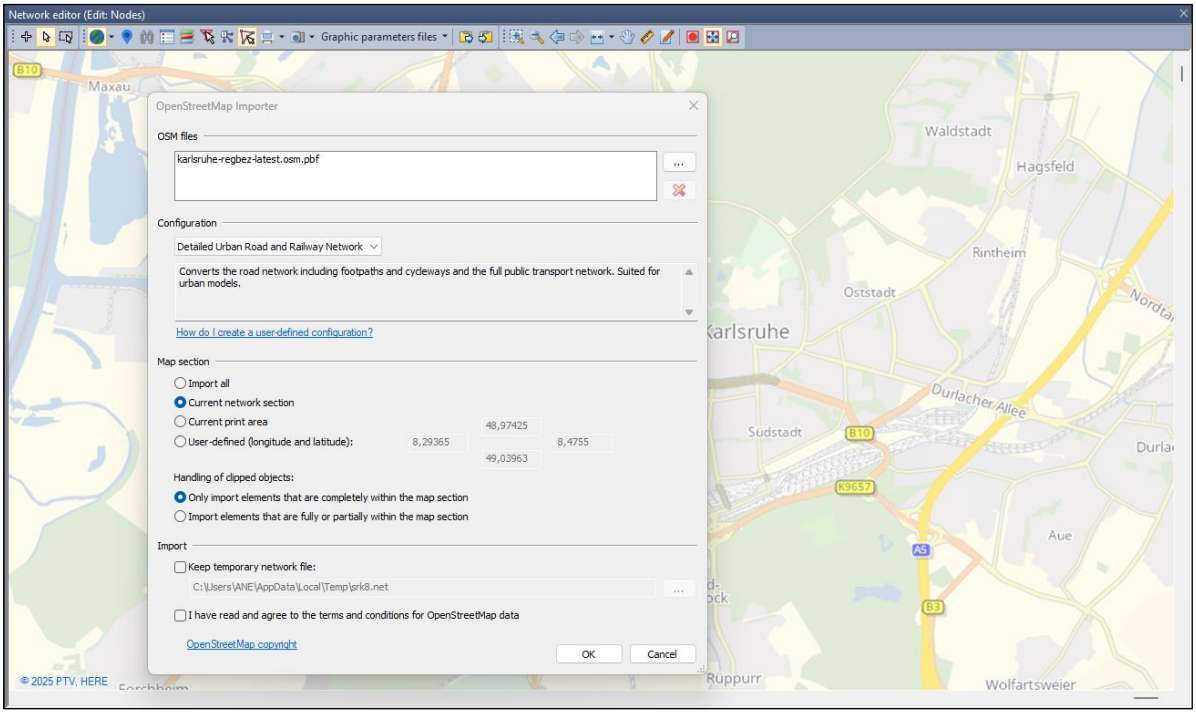

Figure 10: Dialog of the OpenStreetMap Import

3.2 Enhanced initial import of Public Transport Supply

The ‘PuT Supply from Visum’ function enables seamless integration of timetable data from formats such as GTFS, VDV 452 or other sources that have already been imported into a Visum model. These data can be transferred into an existing transport model. Stop points from the source network are matched to corresponding stop points in the target network based on attribute comparison and/or spatial proximity.

With Visum 2026, a new use case is supported: when importing into a target network that does not yet contain a public transport supply, the imported stop points are assigned in a one-to-one relationship to the stop points of the source network. In this mode, no merging or splitting of stop points takes place. This is particularly useful when the data originates from a third-party system and needs to be exported back after planning is completed.

It is also possible to import and merge data from multiple sources sequentially. Stop points with matching attributes are merged. New stop points are created automatically if needed. This ensures that the network structure remains consistent.

Users can now choose whether the assignment of stop points should be based on attribute

comparison or spatial proximity. It is also possible to define whether a new stop point must be created if no match is found.

Manual transfer and integration of stop points is no longer necessary. The import process includes all stop points and places them in the target network based on the route alignment.

3.3 Import of turn movement volumes from Centracs Mobility

With Centracs systems from Econolite deployed in 500+ cities and managing more than 70,000 centrally connected intersections (about one quarter of U.S. centrally managed traffic signals), Visum 2026 introduces a native importer that reads Centracs Mobility CSV data files with counts by approach and turn, bringing measured turn movement volumes directly into Visum, providing a fast path from field observations to a calibrated base model and strengthening planning and operations consistency.

Intersections can be matched by Controller ID to a chosen node or main node attribute. Optionally, WGS84 coordinates in the CSV can be used for map matching instead of IDs. Movement assignment is based on the DirectionMovement field, which combines approach direction and turn type (left, through, right, U-turn). A user-selected link attribute in Visum defines the approach orientation used to interpret DirectionMovement. Counts are then assigned to the corresponding movements.

Timestamps from the CSV files are UTC. The importer aligns each record’s start time and interval with the target time range in Visum and splits intervals at day boundaries. Missing intervals are detected and reported. When a day or week calendar is active, users choose a contiguous date range and the weekdays to import; the importer then averages per selected weekday (week calendar) or per day (day calendar). With a year calendar, data is imported as provided.

4 Evaluations

4.1 Storage and Evaluation of timetable deviations in public transport

In day-to-day operations, deviations between the scheduled and the actual public transport service occur regularly. These deviations are mostly reflected in delayed arrivals at stops but may also include skipped stops or extended dwell times.

Operators and public transport authorities have a strong interest in systematically identifying the causes of recurring disruptions. The goal is to detect and eliminate the underlying causes.

Modern Public transport vehicles transmit their arrival and departure times with precise timestamps. This allows for an exact reconstruction of travel and dwell times for each segment and trip. These data are typically stored in an ITCS (Intermodal Transport Control System) or can alternatively be derived from simulations in planning processes.

Visum 2026 introduces new input attributes at vehicle journey items. These include measured arrival and departure times, post-run times, dwell times, and information on whether a stop was served. These attributes are linked and are automatically completed during data entry. Storing this data enables visualizations that help identify delay hotspots on maps. In addition, Visum calculates the cumulative delays of individual vehicle journey items.

A special function generates vehicle journey based on the measured data and links them to the planned trips. This simultaneous availability of planned and actual timetables allows for comprehensive analysis and visualization in all public transport views and procedures in Visum. This includes the graphical timetable, transfer analysis, or schematic line diagram. Line blocking based on the actual timetable determines vehicle requirements and operating costs.

Besides capturing measured real-world arrival and departure times, the new attributes and functions can also be used in conjunction with the simulation of Public Transport vehicles in SBA (see section 2.1). This allows to consider interactions of PT vehicles and other road users when assessing timetables and test future Public Transport networks for feasibility.

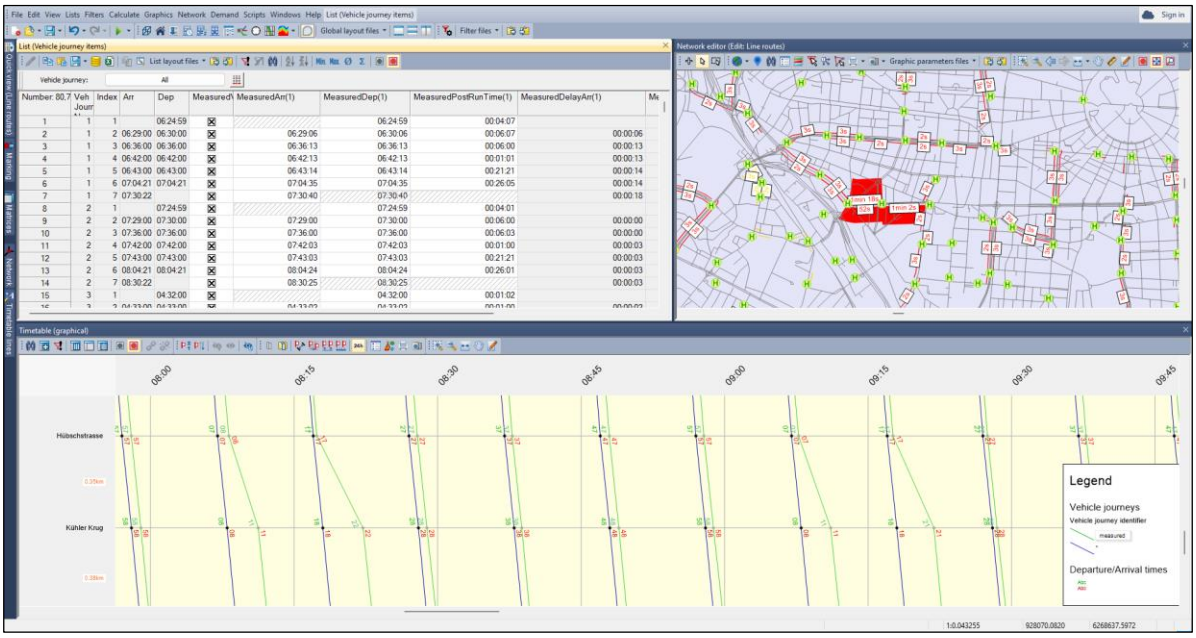

Figure 11: Storing and visualizing delays in public transport

4.2 Improved queue evaluation in the simulation-based assignment (SBA)

The queue evaluation in the simulation-based assignment (SBA) has been improved. It is based on measurements within the simulation, taking vehicle positions into account.

The key changes are:

- Queues always form at the downstream end of the link and are reported as the distance from the link's downstream node. This eliminates the need to sum up the attributes 'SBA queue length' for turns (main turns) and links at modeled junctions with pockets or channelized turns.
- Queue length is determined similarly to Vissim by tracking the end of the queue along the link. This means that even if vehicles at the downstream end of the link are resume driving, the queue end can still move upstream.

For queue definition, the tab 'Output' of the procedure parameters includes additional parameters whose default values are based on Vissim's queue evaluation settings. These parameters define the conditions under which a vehicle is considered to be in a queue.

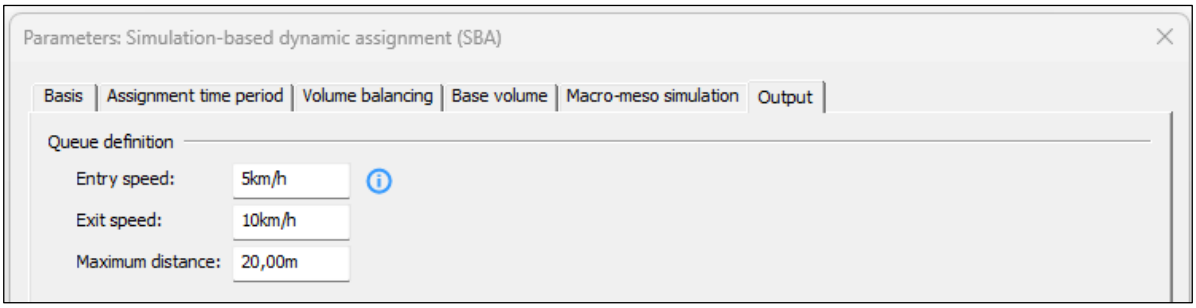

Figure 12: SBA procedure parameters for queue evaluation

During queue evaluation, the end of the queue is detected at short intervals during the simulation. The queue end moves upstream if, during the next measurement, vehicles further upstream are detected that meet the queue conditions. The new queue end is defined by the rear edge of the vehicle located furthest upstream on the link. If no vehicles further upstream meet the queue conditions, the queue end is again determined starting from the downstream end of the link. The link attribute 'SBA queue length' per analysis time interval is derived as the maximum of these measured values. The queue is not tracked beyond the end of the link, meaning the maximum queue length cannot exceed the length of the link.

The attributes 'SBA queue length (lane maximum)' and 'SBA queue length (lane average)' have been removed, as well as the attributes 'SBA queue length' for lanes and turns (main turns). For links, only the attribute 'SBA queue length' remains, representing the maximum queue length within the analysis time interval.

5 Usability and visualizations

5.1 New script editor

The script editor of the ‘Run script’ procedure has been revised. Previously, it was a simple text box that offered no specific support for writing script code. The new script editor has the following improvements:

- Comments are displayed correctly.
- Row numbers are displayed.
- Keywords are highlighted in color.
- Indentation for functions is supported.
- Multi-cursor, i.e. writing in several lines at the same time, is supported.
- There is an autocomplete function for phrases that have already been used.
- Functions can be collapsed and expanded.
- Drag&Drop can be used to enter code from files into the editing field.

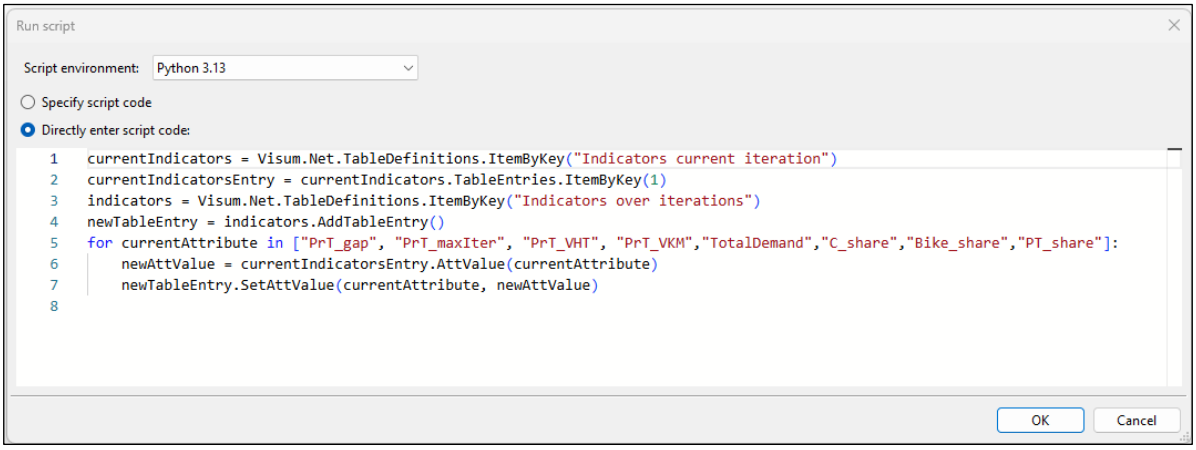

Figure 13: Script editor of the procedure ‘Run script’

The new code editor does currently not support autocompletion for objects, methods or attributes from the COM- and Python-APIs for scripting. This may be added in future versions.

5.2 Extended automatic generation of connectors

The special function “Generate connectors” now takes into account barriers that prevent direct access to stop areas. Regardless of whether the connection is for private or public transport, POIs from a selected category can optionally be used as barriers. In such cases, instead of using the direct distance, the system calculates the shortest path length around the barrier and uses that as the connection length in the network. A short path can only be identified by the fact that their connector’s length exceeds the direct line distance. Visually, the connector is still shown as a straight line, even if it intersects POI areas or polylines. If the detour exceeds the maximum allowed length (either defined directly or via the catchment area radius), the connection will not be generated.

Public transport connectors can still be generated based on distance. Additionally, a new method is available based on catchment areas for stop areas. If the catchment area of a stop area intersects a zone polygon, the access node of that stop area becomes a candidate for connecting the zone. Which access nodes are selected depends on the public transport services available from the stop area. This means that the time profile must allow boarding

and alighting at, at least, one stop point. Each zone connects to each time profile at the nearest possible access node.

5.3 Direct link to Google Street View

As part of modeling transport infrastructure, especially junction details, lane configurations and the alignment of rail infrastructure, a quick and accurate comparison with the real-world situation is often required. In addition to official planning documents, the comprehensive photographic coverage of the road network via Google Street View is a useful tool for this purpose.

To support this process, a direct access option to Google Street View has been added to the context menu of the Network and Node Editor. When this function is selected, an external browser window opens and automatically shows the nearest location based on the clicked mouse position. This function is only available when an internet connection is active.

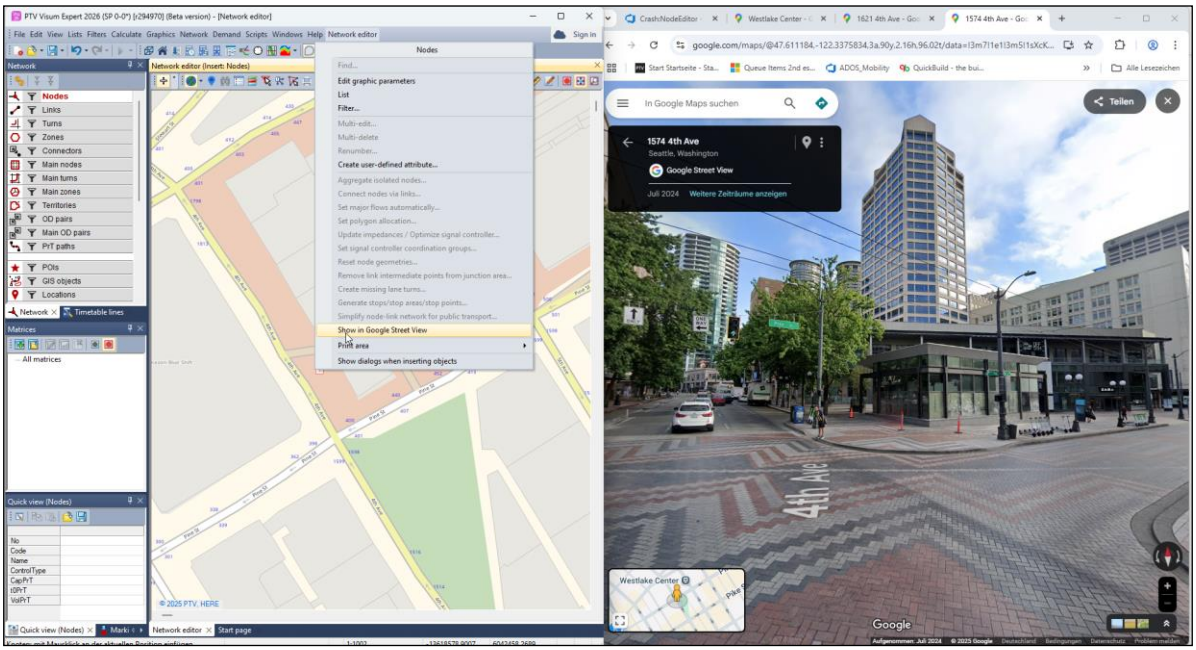

Figure 14: Direct access to Google Street View

5.4 Window configuration

Fast and structured access to all data contained in the transport model enables efficient workflows. Visum provides a wide range of view options for modeling data. Users can arrange and configure windows individually to suit their specific use case.

A frequently used feature is the ability to open multiple views within a single window, making different tabs available. In Visum 2026, the handling of these tabs has been further improved. Tabs now remain more stable when dragged and sorted within the window. In addition, a new context menu entry allows users to insert a tab directly behind another.

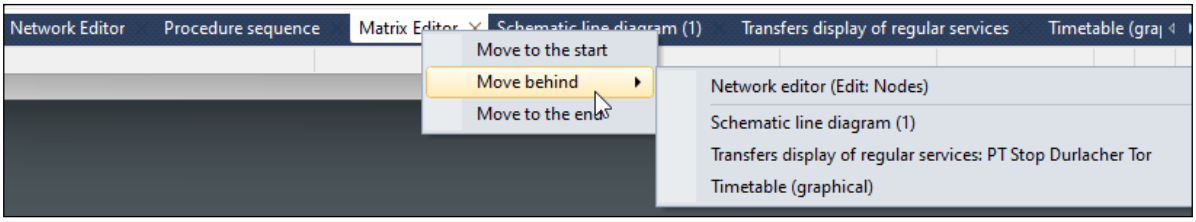

Figure 15: Enhanced sorting of tabs

5.5 Replacements of Add-ins

The Add-ins delivered with Visum have been reviewed. With Visum 2026, some of the Add-ins have been replaced by built-in functionality, while others – those that were rarely used - have been removed.

Create Regular Timetable

This Add-in has been replaced by the new special PT line function ‘Generate regular service based on headways…’. This function is based on the new time profile attribute ‘Headway’. Alternatively, it allows the generation of vehicle journeys based on interactive user input if the option for the headway attribute is disabled.

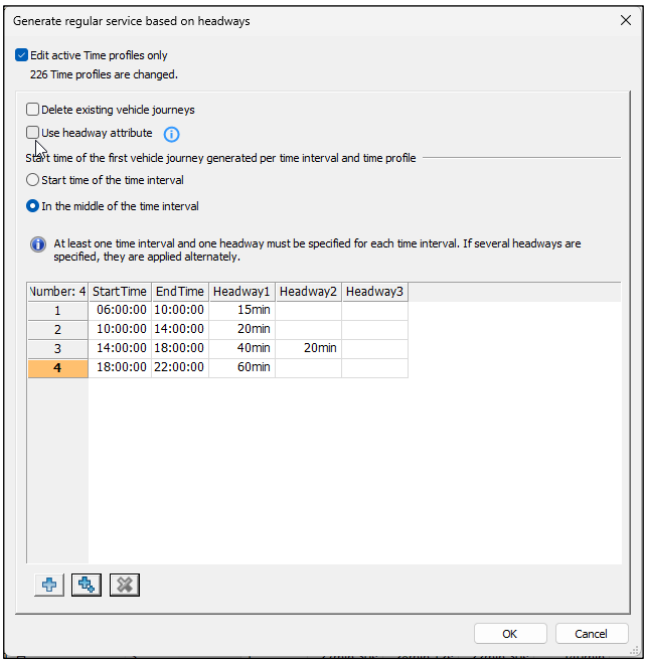

Figure 16: Dialog for special function “Crate regular timetable”

Google maps

This Add-in has been removed. An adequate replacement is provided with the direct access to Google Street View which supports detailed coding of networks, in particular intersections.

Get Matrix Diagonal und Set Matrix Diagonal

The two Add-Ins have been removed and replaced by built-in functionality. When reading versions saved with Visum 2025 or earlier that include these Add-ins in the procedure sequence, the procedures are replaced by the 'Edit Attribute' procedure.

2D-Isochrone -> POI

The Add-In have been removed and replaced by built-in functionality. In the graphics tool

‘Isochrones’, POIs can be generated directly from isochrones, which can then be used for spatial analyses.

Buffers Around PuT Lines

The Add-In has been removed. The functionality is being replaced by built-in functionalities and will be made available in a future service pack of Visum 2026.

Generate PuT Zone Connectors

The Add-In has been removed. Its functionality has been integrated into the special function “Generate connectors”.

OMX Import und OMX Export

The two Add-Ins have been removed. The functionality is being replaced by built-in procedures and will be made available in a future service pack of Visum 2026.

The following Add-ins have been removed from the installation:

- FareZone -> POI
- POI -> FareZone
- Zone Catchment Areas
- Import DIVAGeo
- Run VBA

6 Changes to the data model

6.1 Junction geometry

In Visum, there are two different levels for viewing a transport network. Most users work on the macroscopic level, i.e. they are interested in nodes and links. In addition, there is a further level of detail at the junction level with lanes and lane turns, which plays a role in certain assignment methods (e.g. assignment with ICA, SBA) and in the export of networks to Vissim via ANM. In Visum 2026, it is still possible to model lanes and lane turns, but the underlying data model has changed.

Up to now, the detailed modeling of junctions was often lost during editing operations such as inserting new links at a junction and got replaced by standard geometries. This was partly due to the fact that the data model contained some unfavorable relationships between different object types.

The data model for junction geometries has now been revised, and the editing functions have been adapted accordingly. As a result of this redesign, when performing network modifications such as inserting, splitting, connecting, or relocating links, the data of the affected junctions are largely preserved.

What exactly has changed in the data model?

- Lanes no longer belong to legs but have been moved to links.
  As a result, main nodes no longer have separate lane objects from nodes. In the list of lanes, through lanes now only appear once, and not twice as before, at the from node (from main node) and at the to node (to main node). Some attributes of lanes have changed, in particular the key attributes. This change also results in adjustments to attribute values (e.g. lane width) when reading version files in Visum 2026, as there is only one object for through lanes instead of the separate entry and exit lanes at the to and from nodes as was the case until Visum 2025.

  The new attribute ‘Type’ specifies whether it is a through lane, a pocket at the from node or a pocket at the to node. The attribute ‘Origin lane number’ has been renamed to ‘Reference lane index’. For pockets, the reference lane index specifies the through lane from which the pocket can be reached without a lane change. The list of lanes can optionally be influenced by the link filter.

  The table of lanes is fully written to the network file (.net) if it is selected.
- Lane turns have been moved to turns or main turns.
  The key attributes of the lane turns have changed in the same way as for lanes. The list of lane turns can optionally be influenced by the filters for turns and main turns.

  Other key attributes of tables in the network file related to lanes and lane turns have been adapted (e.g. including tables such as Signal groups to lane turns, detectors to lane turns, time-varying attributes for lanes).

  There are no longer any lane turns at nodes that are allocated to a main node. The node geometries of these nodes are discarded when opening version files that were saved with Visum 2025 or older.
- The node and main node attribute ‘Is default geometry’ has changed.
  This attribute can be edited, i.e. you can assign a default geometry to a node or main node. This means that the lane turns are always created when an adjustment becomes necessary. Default lane turns are created depending on the number of open incoming and outgoing links and their through lanes. If this attribute is set to ‘True’ some objects e.g. signal groups are discarded.

The existence of pockets no longer has an influence on whether or not the node or main node has a default geometry. The attribute ‘Is default geometry’ is automatically set to ‘False’ if lane turns are edited and differ from the default geometry, e.g. a lane turn at a pocket lane is added, or if objects like e.g. signal groups are allocated to lane turns.

A user action is required to reset node geometries to default, either by changing the attribute ‘Is default geometry’ to ‘active’ or by using the special function ‘Reset node geometries’.

When the special function is executed, all pockets are deleted and the leg data is reset to the default values. Optionally, the attributes of the through lanes can be reset to their default values (e.g. lane width) and existing detectors on these lanes can be removed. This special function is also available via the context menu in the junction editor.

Nodes allocated to main nodes get a default geometry. That means when reading version files saved with Visum 2025 or older the node geometries are reset and some other data like signalization is discarded.

- The existence of lanes of a link is no longer dependent on the number of transport systems of the link, i.e. the transport system set can also be empty.
- The meaning of link orientations has changed.
  Orientations are no longer key attributes for legs and the major flow. Instead of the four link attributes, there is now only one input attribute of orientations for links, namely the ‘Preset to orientation’. As with other attributes, orientations are defined using an attribute triple. If the node or main node attribute ‘Use automatic link orientation’ is deactivated at the to node, the link orientation can be changed at the to node (attribute ‘Preset to orientation’). The attributes ‘Used to orientation’ and ‘Used from orientation’ are calculated attributes that display orientations actually used. The attributes can be edited and displayed either in the junction editor, Link view, or in lists. Changing the orientations no longer has an effect on the allocation of links to a leg and the major flow. When reading version files that were saved with Visum 2025 and older, it is checked whether there are deviations of the new calculation compared to the old calculation of orientations. If the calculations of link orientations deviate the node (main node) attribute ‘Use automatic link orientation’ attribute is activated, and the old orientations are read according to the old calculation.

  In rare cases, the omission of link orientations as key attributes can have an effect when applying model transfer files created with Visum 2025 or older versions.
- The calculation of the major flow direction has been improved.
  It is still based on the ranks of the links and the angles between links, whereby the rank of blocked links no longer plays a role. When reading version files that were saved with Visum 2025 and older, it is checked whether there are deviations between the old and new calculations for nodes or main nodes for which the attribute ‘Has automatic major flow’ is active. If this is the case, the (main) node attribute 'Has automatic major flow' is switched off and the major flows are set according to the old calculation.
- Merge opposite one-way road to one leg.
  Previously, opposing one-way roads could be combined into one leg by changing the link orientation. From Visum 2026, this action and the removal of the merge can be carried out manually in the junction editor. If the corresponding links (or legs) are marked, the action can be carried out via an entry in the context menu. This action is only possible for one-way roads in opposite directions. In the most common use case, the insertion of main nodes, the links are automatically combined into one leg, as before.

To illustrate the changes for lanes, consider the following network with link 1 from node 2 to node 1 (Figure 17). In the new data model, there are three different types of lanes, namely through lanes, pockets at the from node and pockets at the to node. Through lanes start and end at nodes (from node and to node). Pockets at the from node are pockets that start at a node (from node) and end on the link. The opposite is true for pockets at the to node. They start on the link and end at a node (to node). The numbering of the lanes (indices) is consecutive from right to left in the direction of travel at the corresponding end of the link.

This applies for right-side traffic as well as for left-side traffic. Lanes are uniquely defined by their key attributes: link number, from node number, to node number, index at the from node, index at the to node. For pockets, depending on the type, the index at the from node (pocket at the to node) or the index at the to node (pocket at the from node) is empty.

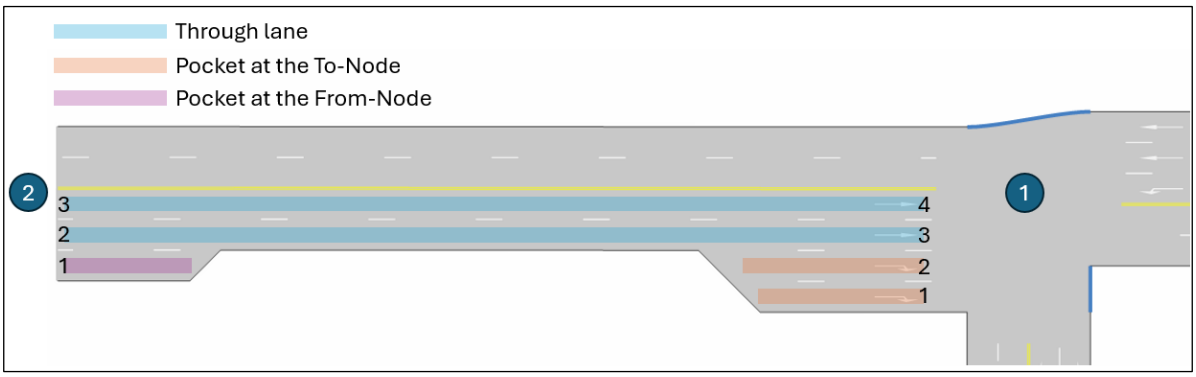

Figure 17: Link with three types of lanes

In the list of lanes, the lanes of link 1 (from node 2 to node 1) are displayed as shown in Figure 18.

List (Lanes)

List layout files

Number: 5	LinkNo	FromNodeNo	ToNodeNo	IndexAtFromNode	IndexAtToNode	Type
1	1	2	1	1		Pocket at from node
2	1	2	1		1	Pocket at to node
3	1	2	1		2	Pocket at to node
4	1	2	1	2	3	Through lane
5	1	2	1	3	4	Through lane

Figure 18: List of lanes for a link with three types of lanes

Pockets have a reference lane (formerly origin lane number). For pockets at the to node, the index is derived from the index of the corresponding lane at the to node, for pockets at the from node, the index is derived from the index of the lane at the from node. Reference lanes are always through lanes. The reference lane index for the two pockets at the to node in Figure 17 is 3, for the pocket at the from node this index is 2.

6.2 Intersections and movements

Two new lists are available: one for intersections and one for movements. These object types are not new network objects in Visum, but rather provide a condensed view of existing nodes and main nodes, or turn and main turns similar to the junction editor.

The list of intersections includes all main nodes as well as those nodes that are not allocated to any main node. The list for movements includes all main turns and those turns whose via node is not allocated to a main node. Both lists can be accessed via the entry ‘Private traffic’ under the menu ‘Lists’.

Within these lists, you can view and edit the attributes of the respective network object types (main nodes and nodes, or main turns and turns). Identical attributes are displayed in the same column. This also applies to user-defined attributes (UDA), provided their definitions are identical for both underlying network object types. Alternatively, attributes can be listed in separate columns via relations to the respective network objects.

The lists optionally respond to filters defined for the respective network objects. It is possible to create UDA for both intersections and movements, but these are always calculated formula attributes. Attribute files can be saved from these lists but cannot be read.

Both object types, intersections and movements, are also suitable for the export to dashboards. This enables a unified view of the underlying network objects in dashboard visualizations.

6.3 Scenario management projects

There are two changes in Visum that affect existing scenario management projects if you want to use them in Visum 2026 or future versions of Visum.

- In Visum 2026, version files and procedure parameters (with the extension *.par) written with Visum 16 and older can no longer be read (see 7.1)
- From Visum 2027, non-English files are no longer supported. This includes model transfer files that represent modifications in scenario management.

If you use old file formats or e.g. model transfer files in a language other than English in your project, then the files of this project must be converted. We offer this functionality in Visum 2025 (from SP 2025.01-03) and Visum 2024 (from SP 2024.01-14). Converting files means that the base version, model transfer files, procedure parameters, global layouts and optionally also calculated result versions are saved with the current version.

If your project contains files that can no longer be read with Visum 2026 because old file formats are used (e.g. *.par), you will be prompted to convert the project in a previous version (Visum 2024 or 2025) before the project database is upgraded to Visum 2026.

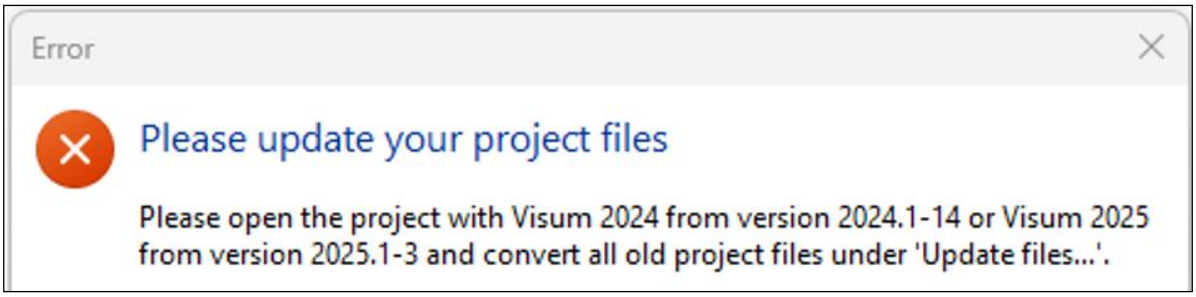

Figure 19: Error message when opening a project with old file formats

If there are non-English files (e.g. model transfer files) in your project, you will already be notified of this in Visum 2025 and 2026 by a message. It is strongly recommended that you convert the corresponding files.

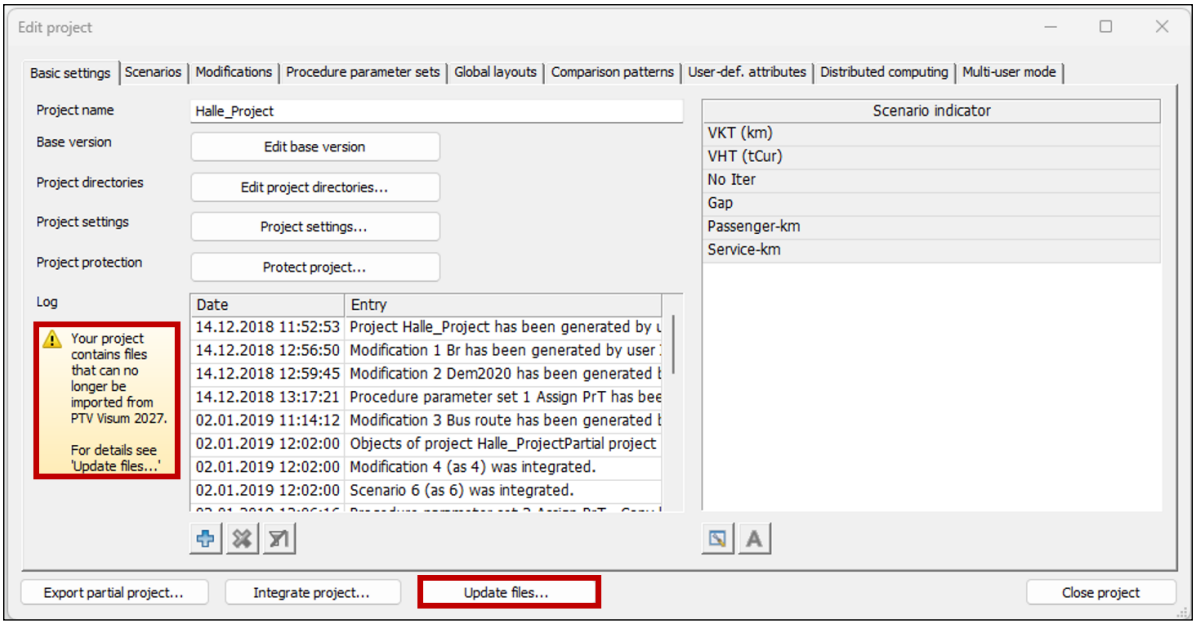

Figure 20: Warning due to the existence of non-English files in the project

Scenario management objects have a new attribute ‘Version number’, which is useful to determine which version the files were last edited with.

6.4 New built-in attribute ‘Headway’

Headway is an important parameter in public transport supply. It is used in many planning processes and influences how passengers perceive service quality.

In Visum 2026, the new attribute ‘Headway’ was introduced at the level of the time profile. This attribute can be used directly in procedures that require headway as an input. It is applied in headway-based assignments, in the calculation of operational indicators, in timetable-based assignment of headway-based services, and in line construction.

To represent time-dependent headways, a time interval set must be defined. This set is marked as a headway time interval set. The Headway attribute then receives the corresponding sub-attributes from the time intervals.

Existing vehicle journeys within a time profile can be used to automatically calculate the headway attribute. Another function allows the generation of timetable trips based on the headway attribute.

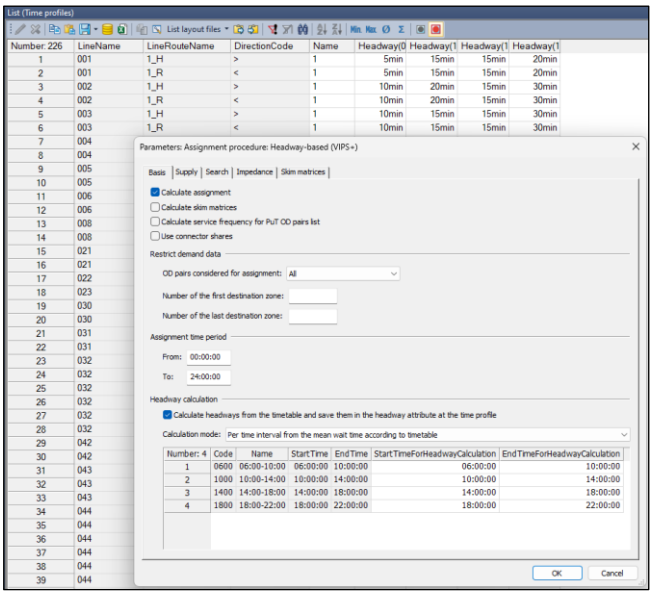

Figure 21: Calculating and applying the headway attribute in headway-based assignment

The new attribute replaces the previously required modeling using user-defined attributes, which was often complex and error-prone. Data from older versions is automatically interpreted and transferred to the new model when it is opened.

If user defined attribute has been used to mimic headways in scenario management, the interpretation and transfer must be done manually by the user.

7 Technical adaptations and other changes

7.1 Telemetry data collection, changes to Data Privacy Statement

Information about usage of the software is important for us to continuously improve the software. For this reason, Visum collects anonymized telemetry information and metrics on software usage and System Environment. PTV does not store personal data for that purpose, and we cannot trace back the data to an individual. In accordance with the recent judgment of the Court of Justice of the European Union of 4 September 2025 (Case C-413/23 P), the collection of telemetry data is therefore continuously active in Visum 2026. To reflect this change, our Data Privacy Statement has been updated to provide more detailed information about the data collected.

7.2 Python environment

The private Python environment used by Visum has been updated to version 3.13.5. At the same time, several libraries have been updated to newer versions. Some libraries have been removed, among those ‘pip’. The add-ins shipped with Visum have been adjusted accordingly.

7.3 Cloud-compatible scripting environment

Many Visum models use scripts in the procedure sequence. Until now, models using scripts in the procedure sequence could not be computed in PTV Hub because the COM-based scripting API and Python-environment is not supported in the cloud environment. With Visum 2026, a new Python-only scripting API enables scripts in the procedure sequence to run in the cloud with PTV Hub. The new API provides access to the data model and matrices and supports many operations relevant within model calculations. Other functionalities known from the COM-API (e.g. exporting screenshots) are currently not supported by this API and in PTV Hub, but may be added in future releases.

The scripting API provides direct, pythonic access to the loaded network. Scripts start with “import visum” and use “visum.net” to access the network loaded in Visum.

The scripting API can be accessed in the **Run Script** procedure, and currently three Python environments are available:

- **Python 3.13 (Default)** supports COM and the new scripting API, suitable for most desktop scripts.
- **PTV Hub Cloud Computing** supports only the new scripting API and is required for scripts that must run in the cloud.
- **Python 3.13 (Legacy)** behaves like earlier versions and is the only option for scripts with UIs.

Existing COM scripts must be adapted to the new API if they are intended to run in PTV Hub. The COM-API will continue to be supported in the upcoming releases, but whenever possible scripts should use the Python-only API for compatibility with PTV Hub.

7.4 Changes to the COM-API

The following section lists changes to the COM-API for Visum 2026 compared to Visum 2025, which may require adjustments to your custom scripts. Please also refer to the Release Notes for a full list of changes.

- Attribute 'Headway'
  The introduction of the time profile attribute 'Headway' makes it unnecessary to specify this attribute in those procedures that previously had to access user-defined attributes. This also eliminates the COM properties used for this purpose in the associated procedure parameter classes, in particular the class *IHeadwayBasedIntervalPara* and all access methods in *IHeadwayBasedBasePara*, *ITimetableBasedHeadwayBasedSupplyPara* and *IPuTOpIndBasePara.*

  However, access to analysis time intervals was also renamed to clearly distinguish them from time intervals used for 'Headway'. For this reason, the two properties

  ```
  ICalendarPeriod::TimeInterval([in] VARIANT AnalysisTimeIntervalCodeOr-
      Index1Based, [out, retval] ITimeInterval ** AnalysisTimeInterval)

  ICalendarPeriod::NumTimeIntervals([out, retval] int *
  NumAnalysisTimeIntervals)
  ```

  are replaced by

  ```
  ICalendarPeriod::AnalysisTimeInterval([in] VARIANT TimeIntervalCodeOr
      Index1Based, [out, retval] ITimeInterval ** TimeInterval)

  ICalendarPeriod::NumAnalysisTimeIntervals([out, retval] int *
  NumTimeIntervals)
  ```

- Data model of node geometries
  The data model for node geometry has been fundamentally changed. This also results in changes to the COM interface, which takes into account the new keys and ownership relationships. For example, lanes and lane turns no longer belong to legs, but to links or turns and main turns.

  The signature has changed (the new signature is specified in each case):

  ```
  INet::Lanes ([out, retval] ILanes ** )

  INet::LaneTurns ([out, retval] ILaneTurns ** )

  ILegs::ItemByKey ([in] VARIANT Node, [in] VARIANT MainNode, [in] VARIANT
  InLink,
      [out, retval] ILeg ** Leg)

  ILanes::ItemByKey ([in] VARIANT FromNode, [in] VARIANT ToNode,
      [in] VARIANT IndexAtFromNode, [in] VARIANT IndexAtToNode,
      [out, retval] ILane ** Lane)

  ILaneTurns::ItemByKey ([in] VARIANT Node, [in] VARIANT MainNode,
      [in] VARIANT FromLink, [in] int FromLaneIndex, [in] VARIANT ToLink,
      [in] int ToLaneIndex, [out, retval] ILaneTurn ** Laneturn)
  ```

```
ILaneTurns::LaneTurnExistsByKey([in] VARIANT Node, [in] VARIANT MainNode,
    [in] VARIANT InboundLink, [in] int IndexAtToNode, [in] VARIANT
OutboundLink,
    [in] int IndexAtFromNode, [out, retval] VARIANT_BOOL * LaneTurnExists)

ILaneTurns::ItemByLanes ([in] ILane * FromLane, [in] ILane * ToLane,
    [out, retval] ILaneTurn ** Laneturn)

ILaneTurns::LaneTurnExistsByLanes ([in] ILane * FromLane, [in] ILane *
ToLane,
    [out, retval] VARIANT_BOOL * LaneTurnExists)

ICrossWalks::ItemByKey([in] VARIANT Node, [in] VARIANT MainNode,
    [in] VARIANT InLink, [in] int Index, [in] VARIANT_BOOL Direction,
    [out, retval] ICrosswalk ** Crosswalk)

ISignalGroup::AllocateLaneTurn([in] ILaneTurn* Laneturn)

ISignalGroup::DeallocateLaneTurn([in] ILaneTurn* Laneturn)

ISignalGroup::AllocateCrosswalk([in] ICrosswalk* Crosswalk)

ISignalGroup::DeallocateCrosswalk([in] ICrosswalk* Crosswalk)

IDetector::AllocateLaneAtToNode([in] ILane* Lane)

IDetector::AllocateLaneAtFromNode([in] ILane* Lane)

IDetector::DeallocateLane([in] ILane* Lane)

IDetector::AllocateCrosswalk([in] ICrosswalk* Crosswalk)

IDetector::DeallocateCrosswalk([in] ICrosswalk* Crosswalk)
```

The following have been omitted:

```
INet::RecalculateLinkOrientations ([in, defaultvalue (TRUE)] VARIANT_BOOL
Nodes,
    [in, defaultvalue (TRUE)] VARIANT_BOOL OnlyActiveNodes,
    [in, defaultvalue (TRUE)] VARIANT_BOOL MainNodes,
    [in, defaultvalue (TRUE)] VARIANT_BOOL OnlyActiveMainNodes,
    [in, defaultvalue (TRUE)] VARIANT_BOOL OnlyAutomaticOrientations,
    [in, defaultvalue (FALSE)] VARIANT_BOOL MergeLinks)

INet::AddLane([in] ILane * OriginLane, [in] VARIANT_BOOL Inside,
    [out, retval] ILane ** Lane)

IGeometry::AddLaneTurn([in] ILane * FromLane, [in] ILane * ToLane,
    [out, retval] ILaneTurn ** Laneturn)
IGeometry::RemoveLaneTurn([in] ILaneTurn * Laneturn)

ILeg::Lanes([in] VARIANT_BOOL Inbound, [in] VARIANT_BOOL Outbound,
    [out, retval] ILanes **)
ILeg::AddLane([in] VARIANT OriginLane, [in] VARIANT_BOOL Inside,
    [out, retval] ILane ** Lane)
ILeg::RemoveLane([in] VARIANT Lane)

ILegs::ItemByLink([in] VARIANT Node, [in] VARIANT MainNode, [in] VARIANT
```

```
Link,
    [out, retval] ILeg ** Leg)

ILane:: AllocateDetector([in] VARIANT Detector)

ILanes::ItemByLeg ([in] ILeg * Leg, [in] int LaneNo,
    [out, retval] ILane ** Lane)

ICrossWalks::ItemByLink ([in] VARIANT Node, [in] VARIANT MainNode,
    [in] VARIANT Link, [in] int Index, [in] VARIANT_BOOL Direction,
    [out, retval] ICrosswalk ** Crosswalk)
```

- Renaming of the multimodal assignment into intermodal assignment
  The renaming also changes the names of all related parameter classes. In each case, the phrase ‘multi’ is replaced by ‘inter’.
- Capacities at stop points
  The meaning of the attributes for specifying capacities at a stop points has changed. The attributes ‘Is depot for vehicle combinations‘, ‘Is depot for standard vehicle combination’, and ‘Activity is feasible for vehicle combination set‘ are no longer input attributes. Permissibility is defined by specifying the respective capacities, whereby the value 0 no longer stands for ‘unlimited capacity’ but for ‘this activity is not permitted’. Unlimited capacity is expressed by specifying an empty value.
- Removal of unnecessary and ineffective options
  The call for zigzag removal for line routes has lost its last default parameter, which could be used to disable repetitive execution.

  ```
  ILineRoutes::RemoveZigZagRoutings([in, defaultvalue(ZigZagRemoveTypeAll)]
  enum ZigZagRemoveType, [in, defaultvalue(TRUE)] VARIANT_BOOL OnlyTrivial)
  ```

  Reading the version file has lost the second, optional parameter, which had been ineffective since many major release versions.

  ```
  IIO::LoadVersion([in] BSTR VersionFile)

  IVisum::LoadVersion([in] BSTR VersionFile)
  ```

7.5 Discontinued functionality

The following functions have been removed:

- Reading of old file formats
  Visum 2026 does not support reading old version files that were written with a release version older than Visum 16.01. Similarly, old procedure parameter files with the extension *.par are no longer supported.
- The following graphics file formats can no longer be used for backgrounds: Shapefile, TGA, MrSid
  The reason is the removal of outdated 3rd party components with security threats (Common Vulnerabilities and Exposures - CVE).
- Air pollution emissions
  The calculation of air pollution emissions (Pollution-Emis calculation method) has been removed because the calculation bases are outdated and newer methods such as HBEFA and COPERT are available.
- PuT assignment
  The option ‘coordination everywhere’ in the headway-based public transport assignment has been removed.

- Network scale
  The network attribute ‘scale’ has been removed.
- Scripting languages
  The scripting languages JScript, TCL, Ruby and Perl are no longer supported.
- Link to ‘Personal Geodatabase’
  This functionality was removed as it requires a version of ArcGIS which is no longer supported.

7.6 Discontinuation of functionality in future releases

The following functionality will be removed in future versions:

- Export to DXF
  Visum supports exporting graphics (network editor, junction editor, …) to the DXF format used by CAD programs. As the export is rarely used and Visum only supports an old version of the format, this option will be removed in future releases to reduce security threats from 3rd party components.
- Matrix formats
  Exporting matrices to rarely used legacy formats like $E, $S, $V etc. and reading from these formats will be disabled in future releases. Future versions will continue to support the binary format, the OMX-format and the text-based $O format. Please adapt Your processes soon if they use one of the legacy formats.
- VBA for internal scripting
  The VBA scripting language is no longer supported by Microsoft. Therefore, support for scripts written in VBA will also be discontinued in future releases of Visum. Text scaling
  The graphics option for scaling all texts in the network editor may be removed in future version.
- Text scaling may be changed from ‘mm’ measurements to ‘pt’ for better alignment with other software.