WHAT IS NEW IN PTV VISSIM/ VISWALK 9
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This document provides an overview of the most important changes in PTV Vissim/Viswalk 9 compared to version 8 in handling and behavior. Functionality which has been added already in a version 8 service pack is not included in this document. Please see the version 8.00-xy release notes for these features. Please see the version 9.00-00 release notes for several additional new features which are not covered in this document.

A detailed description of how to use the new functionality can be found in the Vissim 9 HTML help and in the document “Vissim 9 - Manual.pdf”.
1 Evaluation

1.1 Scenario Comparison

In the project structure dialog, you can assign one or more other scenarios (to compare with) to each scenario. All attributes from these scenarios of objects which exist in both scenarios are accessible as indirect attributes of these objects in the currently loaded scenario.

In the attribute selection dialog for a network object, the attributes of that object in a scenario to compare are accessible in the tree view under "Scenario comparison:" with the name of that other scenario. For each attribute, you can use its value, or the difference between the values in the two scenarios (A-B) or (B-A), or the relative difference as percentage (A-B)/B or (B-A)/A, or the minimum or maximum of both values. In order to add one attribute from all scenario comparisons to the right side with one click, you can use the new arrow button with the scales icon.
The scenario comparison attributes can be used everywhere like direct attributes, i.e. they can be shown in lists and result lists and visualized in chart windows and in the network editor (for color schemes and link bars).

In normal lists (not result lists) an additional calculated boolean attribute is available for each scenario comparison: "Exists in scenario ...". This can be used to show if the current object exists in that specific scenario to compare.
1.2 LOS Results for Nodes

Node movements have three new attributes for level of service:

- "Level of service" (with subattributes simulation run and time interval) is a letter from A to F, listing the LOS of the movement calculated similarly to the LOS definition from the HCM 2010. See the Vissim 9 manual for details.
- "Level-of-service value" (with the same subattributes) is an integer value from 1 (for A) to 6 (for F) which is better suited for user-defined formula attributes and for color schemes (which can use only numerical attributes).
- "Level-of-service scheme type" (without subattributes) lists the LOS type of the node as determined by Vissim: "Signalized" or "Non-signalized". ("Diverge", "Merge" and "Weaving" will become available in a later version.)

The virtual movement "Total results" can be used to show the aggregated LOS for the complete node.

1.3 New Result Attributes for Travel Times and Data Collection

Vehicle travel time measurements have the new attribute "Distance traveled" which contains the average distance traveled per vehicle from the start section to the end section. In the raw data file, the distance traveled is listed for each individual vehicle.

Data collection measurements have the new attributes "Occupancy rate" (percentage of the time that a vehicle has been on at least one of the data collection points) and "Speed (harmonic average)" (harmonic average of all detected vehicle speeds). The previous attribute "Speed" is named "Speed (arithmetic average)" now.

1.4 Persistent Results for Pedestrian Grid Cells

Result attributes for pedestrian grid cells are saved in the results database and can be used for visualization of areas even after a simulation run. Thus, it is now possible to compute, display and save a heat map from multi-run simulations.
Note that the evaluation file can grow larger than 1 GB if grid-based evaluations are done for a large model with small grid cells and many time intervals. For that reason it is now possible to restrict grid based evaluations to specific sections of the network.

### 1.5 User-Defined Attributes (UDAs)

User-defined formula attributes are now available for movements (node evaluation), segments (link evaluation), OD pairs and pedestrian grid cells.
2 Visualization

2.1 Background Maps in 3D

Background maps (Bing, OSM) can be shown in 3D mode as well.

2.2 Driver's Perspective in AVI

Keyframes for storyboards can now use camera positions from a driver's / pedestrian's perspective. As long as such a keyframe is active, the 3D view travels with the respective vehicle / pedestrian. Such a camera position can be added by writing its name into the drop-down box for the camera positions while the driver's / pedestrian's perspective view is visible in the network editor window. Parameters as the head position over ground and the vertical viewing angle can be modified in the attributes PosZ respectively PitchAngle in the camera positions list window.
2.3 Animation Replay

In the Presentation Menu, there is the new checkable item "Animation with ANI File" (default: checked). This allows to define if animation replay is run with or without *.ani file. If you don't use an *.ani file, only aggregated result values (written to the results database in previous simulation runs) are visualized, e.g. as link segments or link bars.

The Animation toolbar (which can be activated in the context menu of the main toolbar) has a new control: The edit field "go to second" allows to navigate to a simulation time during animation replay (with or without *.ani file).

2.4 Horizontal 3D Signal Heads

Horizontal 3D signal heads can be flipped (set attribute "flipped" in the coupled list "3D Traffic Signals / 3D Signal Heads"), so that the green light is at the left side. (This is not yet visible or editable in the 3D signal dialog.)

2.5 3DS and DWF in 64 Bit

*.3ds and *.dwf files can be imported directly into the network as static 3D objects in the 64 bit edition, too.
### 3 Handling

#### 3.1 Matrix Editor

Matrices are now network objects which are stored in the *.inpx file. Each matrix is quadratic and contains all defined zones. From time and to time are the relevant attributes of a matrix.

When an old *.inp or *.inpx file with matrix file references is opened, the respective matrix objects are created (with the filename as matrix object name) and filled with the values from these files. If the matrix file has a Factor different from 1, it is directly applied to all matrix cells. After this, the file reference is not used anymore.

The list of matrices can be opened from the menu (Traffic / Dynamic Assignment or Lists / Private Transport). The matrix editor for an individual matrix can be opened through double click on the row header in the matrix list or through the context menu or the toolbar button "Edit matrix values".

In the matrix editor, row and column totals are automatically displayed in the additional "Sum" row/column. The total sum is shown as tooltip on the "Sum" cell. The layout (cell size and number of decimals) can be modified via the toolbar button "Matrix editor graphics parameters". Editing of cells works similarly to editing list cells. Copy & paste functionality is available, as are "+=2" and other mathematical operations.
### 3.2 Check Network & Messages Window

Several checks which previously had been always executed upon reading a network file or at the start of the simulation run have been moved into the function "Check Network". This function can be run manually from the Simulation menu, and/or automatically at the start of a simulation run if the respective new setting is active in the user preferences.

![Messages Window](image)

All messages are shown in the new Messages window which contains grouping and filtering by error levels. Additionally, it allows synchronization, so when you click on a message, the related network object is selected in the network and list windows. Through a right click on a message in the Messages window, options to fix the issue, e.g. to complete a broken route or PT line (or the whole group) are available.

### 3.3 Save as Default Network

The new menu item "File / Save as Default Network" allows to save the current network as default network which will be subsequently loaded initially when Vissim is started. This is typically used to include base data like region-specific 2D/3D models and 2D/3D model distributions as well as a suitable default unit selection but no links or areas. The file is saved as c: \Users\<Username>\AppData\Roaming\PTV Vision\PTV Vissim 9\defaults.inpx. If this file is deleted, Vissim uses the delivered file defaults.inpx from the Exe\ directory again.

The same handling applies to the default layout. As long as the user has not saved a personal default layout through "File / Save Layout as Default", the file defaults.layx from the Exe\ directory is used. As long as a defaults.layx exists in the Roaming directory, that one is used.

Two possible default networks for North America are included in the Vissim 9 examples: "Examples Training\Vehicle Fleet & Settings Defaults\USA\defaults.inpx" and "..\Canada \defaults.inpx".

### 3.4 Context-sensitive Help

In most dialogs, the specific HTML help page for that dialog can be opened through F1 or a click on the ‘?’ icon.
3.5 Coupled Lists for Distribution and Function Data Points

The individual data points of distributions and functions can be edited in the child list of the coupled list ".. Distributions / Data Points" / ".. Functions / Data Points". This allows to specify the numerical values exactly. Graphical editing in the distribution / function dialog is still possible, too.
4 Vehicle Simulation

4.1 Conflict Areas

Conflict areas have the new boolean attribute "Avoid blocking the major flow" (default: true). If this is switched off, a vehicle in the minor flow (red) can enter and stop inside a lane conflict even if a subsequent lane conflict is blocked by a prioritized vehicle. (When this happens, the major flow of the first lane conflict can be blocked.)

This is especially useful for modeling a long conflict area with a pedestrian link with many narrow lanes and pedestrian priority. If the attribute is switched off, the vehicle can enter the lane conflicts lane by lane and so eventually pass the area. Previously the vehicle had to wait until it could pass the whole conflict area (and any subsequent closely spaced conflict areas) in one continuous move.

The attribute "Avoid blocking" has been renamed to "Avoid blocking the minor flow" and applies to the major flow (green) of a conflict area. It still shows a percentage.

4.2 Distribution for CC1

The desired headway parameter CC1 of the Wiedemann 99 car following model is drawn for each vehicle from a time distribution now (instead of the same fixed value for all vehicles), so variance in desired headways between vehicles can be modeled more easily. If an old file is read, a constant time distribution is automatically created from the fixed value.
4.3 Input Delay for PT Lines

PT Lines have the new optional attribute "Entry time distribution" which contains a reference to a time distribution. For each vehicle on this PT line, a time is drawn from this distribution which is added to the calculated input time (departure time minus time offset). There is no need anymore to use a dummy PT stop.
5 Pedestrian Simulation

5.1 Elevators

Elevators are a new type of network object which can be added in the network editor like areas. Each elevator can have multiple doors, and each door can have different active levels (on which the door opens). An elevator must belong to an elevator group which has a common control for all elevators in its group.

If an elevator group includes only one elevator it processes all requests in one direction until there are none left ("SCAN" algorithm for elevators) to then turn around if there are further requests. If an elevator group consists of more than one elevator, the requests are distributed on these automatically.

The configuration of routes to use elevators is similar to route for pedestrians as PT passengers. On each level there is at least one waiting area for an elevator group. If a pedestrian route location is placed on that area, all pedestrians on that route use the elevator(s). If there is not route point on the waiting area, the path choice (i.e. stairs or elevator) is computed automatically. Pedestrian route locations have a new attribute which can forbid to use an elevator on the way to this route location. See the Vissim 9 manual for details.
5.2 Walking Behavior on Ramps/Stairs

On stairs and ramps, different area behavior types can be used for upstairs / downstairs. For (almost) horizontal ramps, the area behavior type "(flat)" can be assigned.

5.3 Conflict Areas

Conflict areas between vehicle links and pedestrian links now prevent pedestrians from walking laterally into a blocked lane conflict, too. This is important for modelling of shared space with a wide pedestrian link with many lanes crossing a vehicle link.

5.4 Faster Simulation

The method previously used for the static potential field calculation has been replaced by the much faster method which is used for dynamic potential fields (but only once and without looking at other pedestrians, of course). In combination with other improvements this is especially noticeable for interaction of pedestrians with public transport.
Technical Changes

SQLite replaces SQLCE

The results database is now stored as SQLite database (*.db). This allows file sizes of up to 140 TB (instead of only 4 GB with SQL Server Compact Edition).

Systemwide License Selection

In addition to the user-specific license selection, a systemwide configuration can be defined (e.g. for operation in a Remote Desktop Services environment). Changing systemwide settings requires administrative user rights. Use the program “PTV Vissim License Manager” (which is accessible through the Windows Start Menu) for managing systemwide settings. These are stored in the file %ProgramData%\PTV Vision\PTV Vissim 9\licenses.data. If this file exists, the settings defined there are enforced for all users and no individual license configuration is possible. Use the button “Delete stored license list” in order to reset the central settings and allow individual license configuration by the users again. The systemwide configuration can also be activated during the software installation. This is achieved by selecting licenses already during the installation process. Of course, this requires an activated license to be available during the installation.

Codemeter Driver

The CodeMeter Runtime shipped with Vissim 9 has been updated to version 6.20. This doesn’t cause any relevant changes for the handling.

Diagnostics & Usage Data Collection

Vissim 9 can optionally collect diagnostics and usage data, e.g. the number of clicks on menu items, the size of networks, the time for network editing versus simulation runs and so on. This data is sent anonymously to our servers, so we cannot trace it back to you. It allows us to better prioritize future features, where to improve the user experience and maybe even to decide which functions to remove because nobody uses them at all. After the third start of Vissim 9, you will be asked if you want to help us in this by allowing Vissim 9 to collect your usage data. You may decide not to do so, at the risk that a feature used only by you is removed in a future version.

Beta Version

Before the final release of Vissim 9 in autumn, there is an open beta phase. Starting in July, users can apply to take part in this beta phase. The beta version of Vissim 9 uses a normal Vissim 8 license and has a fixed expiration date of September 30th.
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