

## Release Notes

Last modified: 2022-12-12

<https://www.ptvgroup.com/en/support-vissim>  
<https://www.ptvgroup.com/en/support-viswalk>

2022.00-09 [252898]

2022-12-12

### + New Features and Changes

#### Installation

- + Component zlib updated: The zlib library, which was affected by a security vulnerability, has been updated. **(17729)**

#### Signal Control

- + The fixed time controller (Vissig) also includes the signal sequence Green - Amber - Off now. **(17764)**
- + The fixed time controller (Vissig) also includes the signal sequence Green - Red - Off now. **(17765)**

#### SignalController.DLL Interface

- + Strings of arbitrary length can now be transferred to and from Vissim using the GetStringValueW functions of the signal controller API. **(17609)**

### ✓ Fixed Bugs

#### ANM Import

- ✓ Desired speed decisions are now also created at the exit and bypasses of roundabouts if the speed of the respective ANM links differ from that of the roundabout. **(17689)**

#### Data Model

- ✓ The attributes 'Surcharge1' and 'Surcharge2' of links now have a maximum value of 1,000,000 to prevent numerical issues in the shortest path search during dynamic assignment. Larger values will be automatically reduced to the maximum value when reading networks. **(17723)**

#### Graphics

- ✓ DWG background images containing rasterized images are now displayed correctly in 3D mode again. **(17747)**
- ✓ The Traffic Signs of 3D Traffic Signals now remain visible when viewed from large distances in 3D network editor. **(17741)**
- ✓ WMS services with server-specific attributes in the URL not usable: WMS services with server-specific attributes in their URL could not be included as a background map via the dialog. This error has been corrected. **(17735)**

#### Lists

- ✓ Lists of network objects are now much more responsive, if they contain attributes which are file references and point to network drive locations. **(17644)**

#### OpenDRIVE Import

- ✓ Vissim no longer crashes when importing an OpenDRIVE file containing spirals with equal curvature at start and end of the spiral. **(17802)**

#### Scenario Management

- ✓ Loading scenarios or applying model transfer files, which include modifications of emission class distributions, will not cause errors anymore. **(17717)**

#### Signal Control

- ✔ Fixed Time:  
Switching between signal programs using daily signal program lists does not cause unintended time shifts in the resulting signal times tables anymore. (17707 🚫)

## Workspace

- ✔ Copying numerous network objects to the clipboard is now much faster. (17423)
- ✔ Several cases where incomplete routes were not detected now cause proper error messages when checking the network or starting a simulation. (17653)

## 🚫 Breaking Changes

### Signal Control

- 🚫 Fixed Time:  
Signal controllers of type 'fixed time' using daily signal program lists may behave differently when compared to previous versions. (17707 ✔)

2022.00-08 [250654]

2022-10-14

## + New Features and Changes

### Workspace

- + We have improved the runtime of creating the dynamic assignment or evaluation graph in large networks containing edges consisting of many link segments. (17687)

## ✔ Fixed Bugs

### COM Interface

- ✔ The COM function SuspendUpdateGUI now also causes diagrams with vehicle data to suspend updates. (17658)
- ✔ Use of the COM functions 'MoveLinkDuringSimulation' and 'MoveLinkToPointDuringSimulation' will not produce large amounts of errors related to conflict areas anymore. (13904)

### Charts

- ✔ Attributes with subattributes are now available in the attribute selection for scatter plots, even if only result attributes of the current (multi-) run are kept. (17036)

### Dialogs

- ✔ Crash when exiting the WMS dialog: A crash no longer occurs when exiting the 'WMS map layer' dialog via the OK button if no connection has been created or selected yet. (17497)

### DriverModel.DLL Interface

- ✔ An active lane change is never completed by Vissim if DRIVER\_DATA\_SIMPLE\_LANECHANGE was set to 0, even if a vehicle is already with its full width on the target lane when the middle of the front end reaches the target lane. (17569)
- ✔ DRIVER\_DATA\_LANE\_WIDTH: Vissim now sends the correct lane width for each lane. Previously, the width of the vehicle's lane was sent for each lane. (17584)

### Evaluations

- ✔ SSAM: Filtering the output by sections now correctly reduces the dimension of the analysis zone, preventing the error "Safety analysis zone is too large." from the SSAM tool. (17570)

### File Handling

- ✔ Vissim no longer crashes when reading networks with duplicated conflict areas, that have their link pair exchanged. This problem occurred when reading very old networks into Vissim 2022 SP7 or Vissim 2023 Beta. (17598)

### Graphics

- ✔ Textures assigned to object groups in SketchUp files (\*.skp) are now displayed correctly in Vissim. **(17589)**

## Presentation

- ✔ Reversing in vehicles are now exported to ANI text files (\*.txt) correctly. **(17541)**

## Signal Control

- ✔ The cycle second of signal controllers with type 'Fixed Time (simple)' is now computed relative to midnight instead of relative to the start time of the simulation. **(17567 ❗)**

## Vehicle Simulation

- ✔ A problem causing parking-in vehicles to block each other has been resolved. **(17345 ❗)**
- ✔ In simulations with dynamic traffic assignment enabled, vehicles that miss their destination parking lot will not cause a crash anymore. **(17681)**

## Viswalk

- ✔ Pedestrians do not have to evade invisible obstacles at the start and end of ramps with a shape other than 'Straight' anymore. These obstacles were created erroneously at the start of a simulation depending on the orientation and geometry of ramps. **(17510 ❗)**
- ✔ Several issues during the BIM import (\*.ifc) were fixed. This also reduces the number of warnings produced by the BIM import. **(15730)**

## Workspace

- ✔ 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 Vissim. **(17642)**
- ✔ To prevent Vissim from deadlocking or running out of memory, trying to create the dynamic assignment graph in large networks with very few nodes or a single node will now cause an error. These previously mentioned problems were caused by the huge number of parallel edges between nodes in such networks. Please refer to the documentation how to correctly model nodes for dynamic traffic assignment. **(16367)**
- ✔ Trying to create the dynamic assignment or evaluation graph in large network with only a few nodes or a single node will not cause crashes anymore. This also applies to starting the simulation dynamic assignment or node evaluation enabled. **(13238)**
- ✔ Vissim is now much more responsive when selecting very large amounts of objects in lists or the network editor. **(17422)**

## ❗ Breaking Changes

### Signal Control

- ❗ In networks containing signal controllers with type 'Fixed Time (simple)', simulation results can differ to those of previous versions. **(17567 ✔)**

### Vehicle Simulation

- ❗ In networks where vehicles reverse into parking lots, simulation results can differ to those of previous versions. **(17345 ✔)**

### Viswalk

- ❗ In networks containing ramps with shapes other than 'Straight', simulation results can differ to those of previous versions. **(17510 ✔)**

2022.00-07 [248090]

2022-08-15

## + New Features and Changes

### Application Examples

- + Bosch emission calculation: There are new exemplary emission class distributions for England, Scotland, and Wales. **(16993)**

## Dialogs

- ⊕ License management improvements: The settings for license servers and license containers have been moved from the 'License management' dialog to a separate settings dialog. The new dialog provides extended functions, especially for containers. **(17500)**

## Installation

- ⊕ Academic packages as product variants: Academic licenses are now configured differently than before. **(17556)**
- ⊕ The CodeMeter Runtime deployed with PTV Vissim has been updated to CodeMeter 7.50. **(17547)**
- ⊕ Vissim Viewer is no longer available. Instead, an installation of the common Vissim version can be used with the included demo license. **(17523)**

## ✓ Fixed Bugs

### Dialogs

- ✓ The dialog for the dynamic assignment cost coefficients of vehicle types now displays the correct unit for the distance, which is always meters. The cost coefficient was always interpreted as costs per meter. **(17495)**

### Lists

- ✓ Attribute modifications: Invalid values for the attribute "target attribute" are now shown in strike-through. **(16872)**

### Network Editor

- ✓ Create car park: the geometry of generated connectors was improved in specific cases. **(17332)**
- ✓ Editing the start position of a PT line now preserves intermediate route locations of the PT line. **(17443)**
- ✓ When dragging the start of a conflict marker onto overlapping links, the link containing the end position of the conflict marker is now preferred. **(16846)**

### Scenario Management

- ✓ Vissim no longer sporadically crashes when loading a scenario containing conflict areas with links that are pedestrian areas. **(17407)**
- ✓ When simulating multiple scenarios, pressing the space key will no longer crash Vissim. Pressing the Esc key will cancel the current simulation and all remaining simulations. **(17508)**

### Signal Control

- ✓ The fixed time controller (Vissig) now correctly handles signal states with duration zero. **(17496 ⚠)**
- ✓ Vissig: Several issues during the import of SIG files (\*.sig) have been fixed. In addition, the menu and toolbar entries for explicitly saving Vissig data have been removed. Vissig data is instead transferred to the Vissim data model after closing the Vissig dialog with the OK button. **(17498)**
- ✓ When changing the manual actuation state of standard detectors from "Continuous" to "None", a wrong number of vehicle rear ends had been reported to the signal controller. Therefore, SCATS signal controllers could not react to the end of the manual actuation. This problem has been fixed. **(17517)**

### Viswalk

- ✓ Fixed an issue that prevented the BIM import (\*.ifc) from starting in certain cases. **(17529)**
- ✓ Installing updates of Viswalk now also updates the application examples. **(17563)**

## ⚠ Breaking Changes

### Signal Control

- ⚠ Signal controllers of type 'Fixed Time' with signal states of duration zero will behave differently in simulations compared to previous versions. **(17496 ✓)**

2022.00-06 [246413]

2022-07-06

⊕ New Features and Changes

## Application Examples

- + A new example file with (un-)coupling of semi-trailers at a warehouse was added to the "Logistics Center" example collection at "\\Examples Training\Parking\Truck Reversing\Logistics Center\Logistics Center v2 with Uncoupling.inpx".  
In addition, the assignment of HGVs to loading bays of the example "Logistics Center - AttMod" was simplified and is now stored with the new name "Logistics Center v2.inpx". **(17493)**

## Evaluations

- + Bosch emission calculation is now available for vehicles inside sections used for microscopic simulation during hybrid simulations. **(17400 🚫)**
- + Bosch emission calculation now times out if no further emission data is received instead of blocking all further simulation runs. The already collected emission data will be available for evaluations. The share of vehicle trajectory without emission data will be reported. **(17403)**
- + Bosch emission calculation now uses windows proxy server settings. **(16753)**

## Installation

- + The CodeMeter Runtime deployed with PTV Vissim has been updated to CodeMeter 7.40b. **(17168)**

## Network Editor

- + No conflict areas are created anymore, if one of the links contains a parking space with direction not equal to "forward > forward", or if one of the links is a connector leading to such a link. This significantly improves network editor performance and reduces \*.inpx file size for networks containing large car parks. **(15404)**
- + The Car Park Creator sets the attribute "Smoothing distance" also for routes into reverse parking spaces outside of dead end situations for improved visualization of parking vehicles. **(17372)**

## Signal Control

- + A new signal controller type "Fixed Time (simple)" is now available, which is also supported by Vissim Kernel running on Linux platforms. **(17144)**
- + New V2I (vehicle to infrastructure communication) values, which are already used by the SC-API, are now available in VAP. A list of all new VAP functions can be found in the VAP manual. **(17494)**

## Viswalk

- + To accelerate boarding and alighting, the preferred dwelling position of pedestrians inside the elevator cabin can be adjusted with the new attribute "Relative distance for dwelling" of elevator doors. **(17394)**
- + Viswalk now supports signal controllers of type "Fixed Time (simple)" and "2-Stage Controller". **(17382)**

## 🟢 Fixed Bugs

### COM Interface

- 🟢 Start of Python interpreter sets LC\_CTYPE: The start of the Python interpreter in Visum changed the LC\_CTYPE, i.e., a language setting with influence on the interpretation of strings. This could cause undesired behavior in executed script code. This bug has been fixed. **(17444)**

### Charts

- 🟢 Negative values are visualized correctly again. **(17388)**
- 🟢 The legend is now positioned according to the legend graphic parameters again. The legend position of previously created charts may change accordingly. **(17151)**

### Dialogs

- 🟢 Functions and Distributions dialog: Setting the x value of the first point to a non-zero value is now possible for functions and distributions that allow such a value. **(17418)**
- 🟢 Pavement markings dialog: the dialog continues working after editing directions. **(17256)**

### Evaluations

- 🟢 Emissions calculated by Bosch are now mapped more precisely onto link segments. **(17470 🚫)**

## Installation

- ✔ Vissim now prefers the system language after installation, if no settings from a previous installation are present. **(17287)**

## Network Editor

- ✔ Adding or Deleting lanes of connectors does not modify the position or length of network objects on that connector anymore. **(16839)**
- ✔ Car park creator: settings for dead ends are now ignored if no opposite direction exists. **(17333)**
- ✔ Creating a connector between two links now sets the connector's display type to that of the From-link. **(16996)**
- ✔ Creating a link now uses the level of a previously created link, if that level is still visible in the network editor. **(16968)**
- ✔ Enabled auto zoom does not cause any unexpected zoom to the network origin anymore. **(17263)**
- ✔ The route adaption and completion after editing a routing decision's position now yields better results, especially when the decision is moved along one of its routes. **(15791)**
- ✔ The status bar will not be cropped anymore when using high DPI displays or a large scaling factor in the windows display settings. **(16793)**
- ✔ Turn visualization: Several Issues of the visualization have been fixed. **(16798)**

## OpenDRIVE Import

- ✔ The performance of the OpenDRIVE Import for networks with numerous roads and junctions was improved. **(17380)**

## Presentation

- ✔ Vissim no longer crashes when stopping an animation with parking vehicles. **(17361)**

## Scenario Management

- ✔ Fixed various minor issues when editing scenario or modification names in the project explorer. **(16779)**
- ✔ Read additionally of networks not under scenario management into scenarios will not prevent subsequent loading of the scenario anymore. The same applies to model transfer files generated from network not under scenario management. **(17104)**
- ✔ The size of \*.layx files will not automatically grow extremely large anymore when switching scenarios. **(17136)**
- ✔ Upon changing the type of signal controllers between scenarios, Vissim now provides the correct supply data or supply files to these signal controllers. **(17344)**

## Signal Control

- ✔ In vehicle to infrastructure communication, Vissim sends now -1 as value for SC\_DLL\_DATA\_V2I\_VEH\_STOP\_ETA to the controller (instead of simulation period + 1 - simulation time) if the expected travel time of the vehicle to the signal head is unknown or doesn't end during the simulation period. **(17343 🚫)**
- ✔ RBC: When barrier groups had a different number of rings and the start up signal groups were in the barrier group with fewer rings, the message 'Some rings are without a signal group with Start Up.' wrongly appeared. This issue was fixed.  
When an rbc signal controller cannot be initialized and started, Vissim now only issues an error message for this controller. This fixes the issue that before error messages for all controllers were issued, that had not yet been started, even if they did not have any errors.  
Messages of the type 'In pattern 1, the Splits value (33s) of SG 8 must be greater than or equal to the sum of Walk and Flashing Don't Walk and the maximum time required to cross the barrier' were improved. Now the values and the expected minimum value is also mentioned.  
When changing the pattern, the new setting for Ped Recall was not considered. This issue was fixed. **(17413)**

## Simulation

- ✔ Starting a simulation with an open list "Parking Lots" and coupled list "Paths" no longer crashes. **(17244)**
- ✔ The simulation speed was improved significantly in certain cases when the Signal Times Table is open. **(16951)**
- ✔ Vehicles now consistently park in parking lots with parking direction "Reverse > forward", "Forward > reverse" and "Any > opposite" if they start at exactly the same position as the connector leading to the link of the parking lot ends. Vissim does not crash in these situations anymore. **(17464)**

## Vehicle Simulation

- ✔ Improved driving behavior of reversing-in vehicles when resolving deadlock situations. **(17414 🚫)**

## Viswalk

- ✔ BIM import (\*.ifc) now uses the language settings of PTV Viswalk. **(17200)**
- ✔ If no "VOLUME FRACTION (OXYGEN)" is provided by a Plot3D Quantity of a fire event, then a constant default oxygen volume fraction of 20.9% is assumed. **(17410 🚫)**
- ✔ Various issues of the BIM import (\*.ifc) have been fixed. **(16887)**

## 🚫 Breaking Changes

### Evaluations

- 🚫 Results of the Bosch emission calculation may change when a vehicle on a link with deactivated emission calculation enters a link with activated emission calculation. **(17400 ➕)**
- 🚫 The link segments associated with emissions calculated by Bosch may change. Total emissions calculated by Bosch may also change by a few percentages. **(17470)**

### Signal Control

- 🚫 Simulation results can differ from those of previous versions due to different behavior of signal controllers using infrastructure communication. **(17343 ✔)**

### Vehicle Simulation

- 🚫 Simulation results of networks using parking lots for reversing-in can differ from those of previous versions. **(17414)**

## Viswalk

- 🚫 Calculated values for the pedestrian attribute "Fractional effective dose (asphyxia)" will change if no "VOLUME FRACTION (OXYGEN)" is provided by a Plot3D Quantity. **(17410 ✔)**
- 🚫 Known problem: Formula routes using aggregated attributes over pedestrians on an area can cause a crash during a simulation run using multiple cores. It is recommended to run such networks only with 1 core. **(13455 ✔)**

2022.00-05 [243811]

2022-05-04

## ➕ New Features and Changes

### Data Model

- ➕ There are two new attributes for parking routes regarding the choice of the direction of parking. Whether a vehicle on a parking route parks in forwards or in reverse is determined by the attribute "Parking direction". It is calculated from the attribute "Parking direction" of the destination parking lot and the attribute "Reverse parking" of the last connector of the route and can be invalid if the combination of these attributes is not compatible. Invalid routes are ignored during the simulation. Which share of vehicles choose a specific parking route whenever a parking routing decision has multiple routes to the same parking lot is determined by the new attribute "Relative flow for same parking lot". This allows to adjust the share of vehicles which park in forwards or in reverse. **(16378)**
- ➕ There is a new attribute "Reverse parking" on connectors, which must be active whenever the connector leads from a main link to a link containing a parking lot which shall be used for reverse parking. **(16354)**

### Documentation

- ➕ The standalone license management help is now available also in French language at [https://cgi.ptvgroup.com/vision-help/LicenseMgt\\_FRA/](https://cgi.ptvgroup.com/vision-help/LicenseMgt_FRA/). **(17302)**

### Graphics

- ➕ The camera transition when switching in 3D mode to a different camera position was improved for certain situations. **(17018)**

### License Handling

- ➕ If loading a network requires certain license modules, which are missing in the current license, a message is shown now which lists all missing modules. **(13875)**



## Meso Simulation

- ⊕ The shutdown of hybrid simulations is much faster now for large networks. **(17191)**

## Network Editor

- ⊕ During the special action "Create car park", it is now possible to specify a percentage of vehicles which want to park in reverse. The action can now create parking lots for which both directions of parking are possible at the same time. How to use the extended feature is described in more detail in the document "What is new in PTV Vissim/Viswalk 2022". **(16018)**

## Public Transport

- ⊕ Public transport vehicles now ignore all parking routing decisions. Previously, this could cause undefined behavior. Please contact the PTV Vissim support if you need to model parking public transport vehicles. **(17156 🚫)**

## Signal Control

- ⊕ The signal controller DLL can activate and deactivate the vehicle-to-infrastructure communication (V2I) also during a simulation run and not only during the initialization of the signal controller. **(17074)**

## Vehicle Simulation

- ⊕ Multiple parking routes from one parking routing decision to the same parking lot don't increase the probability of parking spaces in this parking lot to be selected anymore over the probability of parking spaces with the same attraction value in a different parking lot with fewer parking routes. **(16468 🚫)**
- ⊕ The desired speed of vehicles which reversed out of a parking lot is now set to zero while the vehicle is waiting at the turning point. Previously, the desired speed was already set to the value which is valid when driving forwards after waiting. **(16735 🚫)**
- ⊕ Vehicles can now reverse into parking lots. The attribute "Parking direction" was extended by the new values "Reverse > forward" and "Any > opposite". A more detailed description of the required modelling can be found in the document "What is new in PTV Vissim/Viswalk 2022". **(16649)**

## Viswalk

- ⊕ The initialization of the simulation is faster now if the pedestrian grid cells evaluation is active. **(15633)**

## 🟢 Fixed Bugs

### COM Interface

- 🟢 The parking lot protection is now also released whenever a vehicle is deleted via the COM interface while it is parking into or out of a parking lot used for reverse parking. Hence, it is no longer possible that the surrounding traffic gets blocked forever. **(16234)**

### DriverModel.DLL Interface

- 🟢 Vissim no longer crashes when the DLL requests a lane change to the right for a vehicle which is already on the right-most lane, similarly also for lane changes to the left for vehicles on the left-most lane. **(17296)**

### Dynamic Assignment

- 🟢 The value of the attribute "Surcharge 2" of links is now also applied correctly during path choice if the link is not part of the first edge of a path. **(17261 🚫)**

### Evaluations

- 🟢 The attributes "Vehicles (active)", "Vehicles (arrived)" and "Travel time (total)" of the vehicle network performance evaluation are now calculated correctly for backwards driving vehicles. Emissions and delay are not calculated for vehicles while they are reversing out of a parking lot and while they are reversing in or parking out of a reversing-in parking lot. **(17154 🚫)**

### External Programs

- 🟢 The internally used programming library zlib was updated to version 1.2.12 to close a security vulnerability. **(17295)**

### File Handling



- ✔ Opening the file selection dialog can no longer cause a crash on computers with Windows 11 on which the desktop is synchronized with OneDrive (or presumably other cloud services). **(17138)**

## Lists

- ✔ Changing the simulation duration can no longer cause a crash when lists with certain attributes are displayed at the same time. **(17044)**

## Meso Simulation

- ✔ The attribute "Meso additional look ahead distance (Lane Choice)" of Meso edges is now also correctly applied in rare situations where it did not have an impact on the simulation before due to numerical inaccuracies. **(17205 🚫)**

## Network Editor

- ✔ Adding a lane to a connector via the context menu can no longer cause unintended changes of intermediate link points. **(16959)**
- ✔ It is no longer possible to cause a crash when a flow bundle is selected during the simulation shutdown. **(17037)**
- ✔ The action "Create car park" can no longer cause a crash when the new car park is too short to contain parking spaces. **(17060)**
- ✔ The destination cross section is now also drawn for parking routes to allow easier selection of the parking route. **(16759)**

## Public Transport

- ✔ It is now possible to create new time intervals for partial PT routes even if the network contains partial PT routing decisions where the attribute "Route choice method" is set to "Formula". **(17301)**

## Scenario Management

- ✔ Changes to the attribute "Uses modification" of a scenario are now correctly saved in the scenario management project. **(17032)**
- ✔ Changing the scenario after a network editor layout was saved can no longer cause a crash. **(17006)**
- ✔ It is now possible to open an old scenario management project which was created by versions before Vissim 2020 even if the file path to the project file contains a semicolon. **(17169)**
- ✔ Pedestrian grid cells are now displayed correctly after switching to another scenario. **(17134)**

## Signal Control

- ✔ RBC (old):  
An issue was fixed regarding editing transit input parameters. Called Transit SGs values could accidentally be deleted when editing other values.  
RBC:  
When pressing F1 in the dialog, the online help is opened at the location corresponding to the selected position in the dialog.  
The coordinated flag is no longer checked for signal groups that are not in the sequence. **(17290)**

## Vehicle Simulation

- ✔ A vehicle on a parking route waiting at a stop sign can no longer cause a blockade in the network when a second vehicle drives across a parking routing decision where the attribute "Full occupancy behavior" is set to "Wait". The second vehicle can no longer pick up a route to the same parking lot as the first vehicle and cannot block it there. Instead, the second vehicle ignores the routing decision. **(17167 🚫)**
- ✔ If the option "Observe adjacent lane(s)" is active in a driving behavior, vehicles can now drive past other vehicles on a different lane even if there is no link at the rear edge position of a vehicle. **(16663 🚫)**
- ✔ The attribute "Jerk limitation" of driving behaviors no longer applies to vehicles while they are driving backwards. For this reason, it is no longer possible that vehicles accelerate to speeds larger than their desired speed when driving backwards. **(17315 🚫)**
- ✔ The attributes of a vehicle are now reset correctly after the vehicle missed its destination parking lot or public transport stop. Due to this, it is no longer possible that vehicles take a wrong turn after missing their parking lot. **(17070 🚫)**

- ✔ The behavior of parking vehicles and public transport vehicles was corrected whenever there is a stop sign inside the parking lot or public transport stop. The vehicle now stops at the stop sign and waits according to the dwell time defined at the parking routing decision or line stop. Afterwards, it resumes driving and leaves the parking lot or line stop without an additional stop. The dwell time of the stop sign is ignored. Previously, vehicles behaved the opposite way and ignored the dwell time of the parking routing decision or line stop instead. **(16801 🚫)**
- ✔ The link gradient is now applied correctly for backwards driving vehicles. **(16943 🚫)**
- ✔ The rear correction of the lateral position now also works correctly on links with multiple lanes of different widths. **(16992 🚫)**
- ✔ Vehicles which must give way now stop close to merging conflict areas, even if there is another vehicle on the prioritized arm of the conflict area which extends beyond the upstream end of the conflict area. **(17232 🚫)**
- ✔ Vehicles which want to stop in a parking lot, or a public transport stop no longer start indicating due to a connector downstream of the parking lot or public transport stop, before or while they wait in the parking lot or public transport stop. **(16837 🚫)**
- ✔ When reversing out of a parking lot, the stop of a vehicle at its turning point is now counted as a stop in various attributes and evaluations. **(17159 🚫)**

## Viswalk

- ✔ Fire events can now also read \*.fds-files containing floating point numbers in scientific notation (4.2E-1 instead of 0.42) or without a leading zero (-.42 instead of -0.42). **(14425)**
- ✔ Fire events do not support \*.fds-files containing meshes with cells which have edges of different length. Reading such files causes a failure now and can no longer create a valid-looking fire event. **(16575)**
- ✔ The action "Check network" now shows a warning if the network contains pedestrian types which use 2D/3D models with an unusually large length or width. It is possible that such pedestrians will not be able to enter very short ramps or stairs during the simulation. **(17072)**

## 🚫 Breaking Changes

### Dynamic Assignment

- 🚫 If the attribute "Surcharge 2" of a link is non-zero, the path choice of vehicles can be different when compared to previous versions. **(17261 ✔)**

### Evaluations

- 🚫 If a network contains parking lots that are used for reverse parking, the results of the vehicle network performance evaluation can be different when compared to previous versions. **(17154)**

### Meso Simulation

- 🚫 In rare cases, simulation results can be different when compared to previous versions. **(17205)**

### Public Transport

- 🚫 In networks containing public transport lines and parking routing decisions, simulation results can be different when compared to previous versions. **(17156 ➕)**

### Vehicle Simulation

- 🚫 If the option "Observe adjacent lane(s)" is active in a driving behavior, the behavior of vehicles can be different when compared to previous versions. **(16663 ✔)**
- 🚫 If the rear correction of the lateral position is active in a driving behavior, the behavior of these vehicles can be different when compared to previous versions. **(16992 ✔)**
- 🚫 If there are stop signs inside parking lots or public transport stops, the behavior of vehicles can be different when compared to previous versions. **(16801 ✔)**
- 🚫 If there are vehicles reversing out of parking lots, the value of the vehicle attribute "Number of stops" can be different when compared to previous versions. This also affects the attribute "Stops" in the delay results and the attributes "Stops" and "Fuel consumption" of node results. In rare cases, also the driving behavior of vehicles reversing out of parking lots can be different when compared to previous versions. **(17159 ✔)**
- 🚫 In a network where vehicles ignore the parking blockage to resolve a deadlock while parking into a parking lot, simulation results can be different when compared to previous versions. **(17193 ➕)**
- 🚫 In all networks in which vehicles drive backwards, simulation results can be different when compared to previous, provided that the attribute "Jerk limitation" was not disabled in the driving behaviors of these vehicles. **(17315 ✔)**
- 🚫 Multiple parking routes from one parking routing decision to the same parking lot can cause simulation results to differ from those of previous versions. **(16468 ➕)**

- ❗ Simulation results can be different when compared to previous versions for all networks containing stop signs and parking routing decisions which have their attribute "Full occupancy behavior" set to "Wait". (17167 🟢)
- ❗ The behavior of backwards driving vehicles can be different when compared to previous versions if there are links which either have a non-zero value of their "Gradient" attribute or which have a gradient based on their z-coordinates (depending on the network settings). (16943 🟢)
- ❗ The behavior of vehicles can be different when compared to previous versions if overtaking on the same lane is activated in a network containing connectors for which the attribute "Direction" is set to "Left" or "Right". (16837 🟢)
- ❗ The behavior of vehicles during a lane change can be different when compared to previous versions. Additionally, the value of the vehicle attributes "Following distance (net)", "Safety distance (net)" and "Clearance" can be different during the simulation when compared to previous versions whenever there are reversing-out vehicles or merging conflict areas. (17030 ➕)
- ❗ The behavior of vehicles in all networks with merging conflict areas can be different when compared to previous versions. In rare cases, the behavior of a vehicle can also be different without relation to a conflict area if the vehicle completely overlaps with a connector. (17232 🟢)
- ❗ The value of the attribute "Desired speed" can be different for vehicles reversing out of a parking lot when compared to previous versions. This can also change the behavior of other vehicles which overtake the waiting vehicle at its turning point on the same lane. (16735 ➕)
- ❗ Whenever vehicles miss their parking lot or public transport stop, simulation results can be different when compared to previous. (17070 🟢)

2022.00-04 [240461]

2022-02-28

## ➕ New Features and Changes

### Application Examples

- ➕ New example "Park lift" added in \Examples Training\Parking\Park Lift which shows a simple park lift application with a double parker. (17109)
- ➕ The cableways example in \Examples Demo\Cableways was updated to include an easier way to model the reversing of the cablecars with Vissim's built-in feature of changing the direction at PT stops. In addition, the scene is now converted into an island which is served by boats. (17110)

### Evaluations

- ➕ The emission class distributions for the add-on module "Bosch Emissions" were extended by additional US vehicle configurations. (17038)

### Lists

- ➕ In lists it is now possible to open the list of other network objects through the context menu of the column header. This is available for attributes which refer to other network objects that have their own list. For example, you can open the list of vehicle types from the list of all vehicles in the network by right clicking on the column header of the attribute "Vehicle type" and selecting "Show Vehicle Types" from the context menu. (13579)

### Network Editor

- ➕ There is a new dialog in the user preferences under "GUI" and "Background map", which provides a convenient way to insert and modify user-defined Web Map Services (WMS). A detailed manual specification of a URL is no longer necessary. (11528)

## 🟢 Fixed Bugs

### Dialogs

- 🟢 Alias and UDA actions in attribute selection dialogs can be canceled now. If actions for aliases or user-defined attributes are executed in the attribute selection dialog (small or large variant), i.e. primarily aliases or attributes are created or deleted, and the dialog is then exited with "Cancel", the changes to the aliases or user-defined attributes are now discarded and they are no longer applied to the network. (17069)
- 🟢 The dialog for desired speed distributions now correctly handles changes to the lower and upper limit when imperial units are used. (17016)

### Dynamic Assignment

- ✔ Anticipating the routes of other vehicles near conflict areas was improved for simulations using dynamic assignment. (16995 🚩)

## Evaluations

- ✔ An incorrect modeling of evaluation nodes can no longer cause database errors when running multiple simulation runs. (16317)

## Graphics

- ✔ For escalators and moving walkways, the balustrade, handrail, and socket now use the attribute "Texture horizontal length" of their corresponding display types instead of the value from the general display type. (16964)
- ✔ The simulation time label is now correctly displayed on High-DPI screens in 3D mode. (16975)

## Network Editor

- ✔ Duplicating a ramp with multiple flights can no longer cause a crash. (16965)

## Presentation

- ✔ The recording of a 2D video with a background map no longer shows a red coloring when the attribute "Map intensity" of the network editor graphic parameters is set to a value smaller than 100 %. (17022)

## Signal Control

- ✔ RBC:  
In the RBC dialog window, 'Yellow' was renamed to 'Amber', to be consistent with the name in Vissim. 'Yellow Lock' was renamed to 'Amber Lock'. (17117)
- ✔ VAP:  
A crash was fixed caused by supply files with many nested expressions and activated trace mode. (17097)
- ✔ VisVAP:  
It is again possible to open .vv files in VisVAP directly from the Windows explorer. This file type is again correctly associated with VisVAP after a fresh installation of VisVAP. (16976)

## Simulation

- ✔ Vehicles now continue to change their lane without interruption if a new vehicle type is assigned to them along the way. (16966 🚩)
- ✔ When combining static routes, vehicles with active vehicle routing decisions look ahead ignore static vehicle routing decisions which are not valid for the vehicle type of the vehicle. It is no longer necessary that both routing decisions are valid for the same set of vehicle classes. (15122 🚩)

## 🚩 Breaking Changes

### Dynamic Assignment

- 🚩 When using dynamic assignment, vehicles near conflict areas can show a different behavior when compared to previous versions if they anticipate the routes of other vehicles. (16995 ✔)

### Simulation

- 🚩 Simulation results can be different when compared to previous versions if the network contains static vehicle routing decisions that are not valid for all vehicle classes and for which the attribute "Combine static routing decisions" is active. (15122)
- 🚩 The driving behavior of vehicles can be different when compared to previous versions if the vehicle type changes during a lane change. (16966 ✔)

2022.00-03 [238688]

2022-01-18

## 🔍 New Features and Changes

### Evaluations

- + The add-on module "Bosch Emissions" now supports calculations for US passenger cars. Appropriate shares can be assigned to the respective emission class distribution elements. The elements are now categorized by the new "Emission Standard" attribute into elements for the US and the EU. **(16695)**

## Installation

- + The update package is now shared between regular and university installations. Service packs for commercial and university installations can now be updated with the same update package. If both types of installation are present on the same computer, both types of target installations are offered to be updated. **(16805)**

## OpenDRIVE Import

- + Roads are now also imported if they contain elements which start after the end of a road or a lane section. The import issues a warning for such elements and ignores them. **(16267)**
- + The calculation of lane widths for widenings and narrowings was improved. **(16896)**
- + The import can now create networks with left-hand traffic. Since Vissim supports the OpenDRIVE file format 1.4, which does not contain information about traffic regulations, it is now possible to select the suitable regulations during the import. **(13689)**
- + The import can now use geo references from the input file to locate the network on the background map. **(14572)**
- + The import tolerates small inconsistencies in geometry and lanesection elements of the input file. **(16266)**

## Signal Control

- + Vehicles with the active item "SC Communication" in their attribute "Equipment" which approach a signal head of a controller having asked for V2I data on their route now also send the first MAPlane (UDA of the lane with type "int") downstream of the signal head to the controller which is different from the MAPlane of their current lane. If there is no MAPlane value on the route within 100 m downstream of the signal head, the value zero is passed to the controller. **(16918)**

## Simulation

- + Free distributions can now be used in attribute decisions and attribute modifications to set references to other objects. The random value drawn from the free distribution is rounded and interpreted as a key of the object to set at the target attribute. **(16557)**

## Workspace

- + The new global keyboard shortcut Ctrl+L swaps the main language and the fallback language in the user preferences. **(16894)**

## Fixed Bugs

### Charts

- ✓ Changing a scenario management project can no longer cause a crash when a scatter plot is displayed. **(16906)**

### Dialogs

- ✓ In dialogs with an embedded table, it is again possible to change the height of the table header without causing a crash. **(16875)**
- ✓ In some dialogs changes were not applied when leaving the dialog by pressing the Enter key. **(16781)**
- ✓ The checkboxes for directions in the pavement markings dialog can now be selected with a single click. **(16868)**

### Lists

- ✓ Simultaneously editing multiple values in a list using a formula could lead to wrong results, for example for data points of functions. **(14145)**

## Network Editor

- ✓ Duplicating network objects can no longer cause a crash when a chart with movements is displayed at the same time. **(16881)**
- ✓ It is no longer possible that the context menu entry "Zoom To Selection" causes a crash when used on a partial vehicle route. **(16915)**
- ✓ Several specific problems that occurred when using the WMS service at <https://wms.nlsc.gov.tw/> as a background map have been solved. **(16703)**

## OpenDRIVE Import

- ✔ The geometry created for OpenDRIVE roads was improved in cases where the road contains points which are very close to each other. **(16171)**

## Simulation

- ✔ Starting a DTA simulation while the 3D mode is active can no longer cause a crash. **(16941)**

## User-Defined Attributes

- ✔ Reading networks with many formulas in user-defined attributes is faster now. **(16817)**

## Viswalk

- ✔ It is no longer possible that a crash related to the license selection dialog occurs when importing BIM files (\*.ifc). **(16898)**
- ✔ Pedestrians can no longer get into situations where they are not able to determine the direction to their destination. In these circumstances, they no longer get stuck near walls, obstacles or endings of ramps and stairs. **(16659 🚫)**
- ✔ The z position of pedestrians on complex ramps is now calculated correctly when the end level is lower than the start level. **(16844 🚫)**

## 🚫 Breaking Changes

### Viswalk

- 🚫 Minor changes to the pedestrian behavior near walls and obstacles are possible. **(16659 ✔)**
- 🚫 The z positions of pedestrians on complex ramps can be different when compared to previous versions. **(16844 ✔)**

2022.00-02 [237243]

2021-12-02

## + New Features and Changes

### DriverModel.DLL Interface

- + The handling of user defined attributes is faster now. **(16734)**

### Signal Control

- + RBC:  
When converting old RBC signal controllers, their detector record configuration is preserved if possible. **(16768)**

### Viswalk

- + Fire Events now support .q-files that were created with FDS starting from version 6.7.6 and which are no longer required to contain leading zeros in the file name. **(16667)**

## ✔ Fixed Bugs

### Data Model

- ✔ The default network was changed, so that the driving behavior attribute "Minimum longitudinal speed for lateral movement" now has a value of 1.0 km/h instead of 3.6 km/h for all driving behaviors when creating a new network. **(16856)**

### Formulas

- ✔ Converting strings to numbers with the function StrToNum previously ignored decimals when the decimal separator was different from a point in the system settings. Now, the function only accepts digits and a dot as a decimal separator as input. Spaces at the beginning and the end of the string, as well as other non-numeric characters (except +, -, e/E), are invalid. Invalid inputs are interpreted as an error and result in an empty value. Before, it was possible that invalid parts of the input were silently discarded. **(16766 🚫)**



## Graphics

- ✔ A wrongly configured color scheme in the graphics parameters of nodes can no longer cause a crash at the start of the simulation. **(16858)**
- ✔ Background graphics in the DWG file format cannot cause crashes anymore. **(16713)**

## Network Editor

- ✔ It is again possible to change the length of pavement markings of the type "Zebra crossing" via dragging in the network editor. **(16760)**

## Public Transport

- ✔ Vissim no longer crashes when a pedestrian enters an area which is configured both as a waiting area for public transport and as a queue. **(16747)**

## Signal Control

- ✔ RBC:  
When the name of a row with drop-down lists (f.e. 'Called SGs') is clicked, this no longer leads to the selection of all cells and that the first drop-down list is opened; this prevents accidental changes of all values in the row. (469)  
An issue was fixed regarding signal groups, that can be switched on outside of their permissive period. This only happens in situations with more than two signal groups in one ring barrier group. (567)  
An error message is now issued in a special case, where the walk time of a pedestrian group is too long, so that it can never be switched on. This situation previously was not detected in all cases. This only happens, if there are different red clearances in a barrier group. (575) **(16861 !)**

## User-Defined Attributes

- ✔ The assignment of values to user-defined attributes of the network settings is faster now. **(16435)**

## Vehicle Simulation

- ✔ On conflict areas for merging conflicts with an additional stop distance, vehicles in the major flow see other vehicles of the minor flow at the correct position, even if the other vehicle is on a different link than the conflict area. **(14481 !)**

## Viswalk

- ✔ Areas that are entered by Pedestrians directly after leaving an elevator can now be cut by obstacles into multiple pieces. This no longer prevents the start of the simulation. **(16015 !)**

## ! Breaking Changes

### Formulas

- ! Formulas containing the function StrToNum now lead to different results when they are applied to strings that are now invalid. **(16766 ✔)**

### Signal Control

- ! RBC:  
RBC controllers with more than two signal groups in a ring barrier group can behave differently. **(16861 ✔)**

### Vehicle Simulation

- ! Networks with merging or branching conflict areas can lead to different results compared with previous versions. **(14481 ✔)**

### Viswalk

- ! Minor changes to the pedestrian behavior when leaving an elevator are possible. In rare cases, the pedestrian route choice can be different in networks containing elevator groups with multiple elevators or elevators with multiple doors. **(16015 ✔)**



## + New Features and Changes

### ANM Import

- + The ANM import from Visum now assigns the meso penalty for merging vehicles to nodes. **(15957)**

### Graphics

- + Active PT line stops now include an arrow showing the driving direction of the PT vehicle. In addition, active line stops with direction change are drawn with a different color which can be set by the new graphics parameter "Active direction-change-stop color" for vehicle routes and PT lines. **(16418)**
- + Signal heads can now be hidden in 3D mode while still being visible in 2D mode outside the simulation (during simulation in 2D they are always visible). Therefore a new option "invisible" was added to the signal head graphics parameter "signal head display mode 3D". This setting does not affect 3D traffic signals. **(16396)**
- + The 3D mode now uses Anti-Aliasing by default. **(16641)**

### Installation

- + If Vissim 2021 is installed on the computer, a setup (or update) of Vissim 2022 tries to copy the old rbc\_controller.dll from the old installation directory to the new one. **(16696)**
- + The CodeMeter Runtime deployed with PTV Vissim has been updated to CodeMeter 7.30a. **(16702)**

### Signal Control

- + The setup package of the controller Econolite ASC/3 has been updated to version 1.5.1.6. **(16755)**

### Vehicle Simulation

- + The vehicle behavior was improved when lane changes, overtaking on the same lane and the observation of adjacent lanes occur simultaneously. Thus, vehicles now block each other less frequently during lane changes. **(16662 🚫)**

### Viswalk

- + The new attribute 'PTBoardPassChoice' for PT waiting areas with multiple PT stops allows to select if pedestrians only choose a PT line or a PT line and a fixed PT stop. **(16527 🚫)**

## ✔ Fixed Bugs

### Driving Simulator Interface

- ✔ Simulator vehicles can now find links on levels with a non-zero z-coordinate. **(16681)**

### File Handling

- ✔ Doors of a 2D/3D Model Segment are now deleted when changing the 3D model file to a new file without door information. **(16589)**
- ✔ Loading a network which contains references to files on network shares that are not available cannot cause a crash anymore. **(16583)**

### Lists

- ✔ The column widths of coupled lists are adapted automatically once as soon as content is shown (except the layout was read from a layout file or at least one column width was set manually). **(16561)**

### Network Editor

- ✔ Block signals can now be added without the definition of a signal control. **(8239)**

### Signal Control

- ✔ RBC:  
There now is an attribute called 'Lead', which affects the order of the signal groups in the sequence.  
In certain cases, signal groups are now switched on outside of their permissive period. This reproduces a behavior of the old RBC controller.  
An issue in the transition was fixed, which could lead to crashes.  
An issue was fixed in relation to the Ped Recall flag on coordinated controllers.  
An issue was fixed on coordinated controllers, where signal groups sometimes were wrongly switched on when there was no call.  
RBC (old):  
Controllers with explicit force-offs can now be simulated correctly again. **(16716 🚫)**
- ✔ The user interface for RBC controllers no longer clears values in selected cells during the import of a file. **(16278)**

## Vehicle Simulation

- ✔ The diffusion of vehicles could cause non-deterministic behavior in rare cases, either if platooning was enabled or if a simulation used dynamic assignment. The problem was fixed. **(14041 🚫)**

## Workspace

- ✔ New lists are now opened in the last active list window. **(16315)**

## 🚫 Breaking Changes

### Signal Control

- 🚫 RBC:  
Coordinated controllers may behave differently. **(16716 ✔)**

### Vehicle Simulation

- 🚫 Simulation results might differ compared with previous versions if vehicles drive side by side on the same lane (or drove into each other) and want to change lanes. **(16662 ➕)**
- 🚫 Simulation results might differ in rare cases compared with previous versions, either if more than one vehicle diffuses in the same time step during dynamic assignment, or if a vehicle approaches another diffusing vehicle to form a platoon. **(14041 ✔)**

### Viswalk

- 🚫 For networks with PT waiting areas with multiple PT stops, simulation results can differ from those of previous versions. In previous versions, PT stops of a waiting area were chosen with an equal probability. Now, all boarding volumes are considered equally, and their relative volumes are used to distribute boarding passengers. **(16527 ➕)**

2022.00-00 [234335]

2021-09-24

## ➕ New Features and Changes

### COM Interface

- ➕ Every collection has the new method AttrExists() to check if the objects in the collection have a specific attribute (optionally with subattributes). **(14601)**
- ➕ Python 2.7 isn't supported anymore for event-based scripts but only Python 3.9. **(15964 🚫)**
- ➕ The container IAttributes (containing the attributes of the object type inside a container) has the method ItemByKey now to access an attribute object through its attribute ID. **(16410)**

### Data Model

- ➕ Attribute modifications accept only object types which have at least one attribute which can be modified during a simulation run. **(15329 🚫)**

### Driving Simulator Interface

- ➕ This interface has changed. See the specific documentation. **(15843 🚫)**

### Evaluations

- + New add-on module "Bosch Emissions". See the document "Vissim 2022 - what's new.pdf" for details. **(15762)**
- + The writing of evaluation data to the evaluation database at the end of a simulation run can be cancelled now. In this case, the evaluation data of this run in memory (visible in lists) is also deleted. **(15440)**

## File Handling

- + UTF-32 encoded text files are not supported anymore. **(15726 🚫)**

## Graphics

- + \*.pdf files can now be used as background image objects. **(3785)**
- + In 3D mode, when a new camera position is selected manually (including changing into or out of cockpit mode), a short camera movement is now shown. **(7816)**
- + New window type "Scatter plot". See the document "Vissim 2022 - what's new.pdf" for details. **(12693)**

## Lists

- + If a list column contains empty cells, it can now also be filtered by "empty" or "not empty". **(15605)**
- + The drop-down list for the attribute "Distribution" of attribute decisions and attribute modifications have the option "Add" now to create a new free distribution. **(16558)**

## Network Editor

- + Geolocation search. See the document "Vissim 2022 - what's new.pdf" for details. **(9225)**
- + The movement direction which is affected by stop signs, signal heads and priority rule stop lines is now indicated by a small arrow pointing from upstream to the selected network object. **(15862)**
- + User-Defined Web Map Services: See the document "Vissim 2022 - what's new.pdf" for details. **(8077)**

## Presentation

- + Keyframes have the new attribute "Camera movement (3D)" to select from two possible tracks to the camera position of the next keyframe: "Direct line" uses linear interpolation for both camera position and view angle, moving the camera on a straight line, "Track view point" uses linear interpolation of the view point (= intersection of the mid-camera ray with land level of the network) and moves and rotates the camera accordingly (so the camera is moved on an arc between the two camera positions and keeps focus on the view point track). **(15753 🚫)**
- + Video recording doesn't use the codecs installed in Windows anymore but always the free library ffmpeg. See the document "Vissim 2022 - what's new.pdf" for details. In the COM interface, the IPresentation attribute "RecordAVIs" has been renamed to "RecordVideos". **(7819)**

## Reversing at PT stops

- + A PT vehicle departing from a PT stop can be "beamed" to an overlapping link in reverse direction thus enabling shuttle services like people movers or reversing trains in terminus stations. Reversing links (or even link sequences) can be generated by the new context menu command "Create Reverse Direction for all Links". The new attribute "Change of driving direction" in a PT line stop triggers the reversing. See the document "Vissim 2022 - what's new.pdf" for details. **(338)**

## Scenario Management

- + Modifications have two new Attributes: "Scenarios" lists all scenarios containing this modification explicitly, and "Scenarios (complete)" lists all scenarios containing this modification explicitly or containing a modification which depends on this modification. **(16178)**

## Signal Control

- + The old rbc\_controller.dll built by a third party has been replaced by rbc\_controller\_ptv.dll. See the document "Vissim 2022 - what's new.pdf" for details. **(16519)**

## Simulation

- + More options for attribute decisions and attribute modifications. See the document "Vissim 2022 - what's new.pdf" for details. **(16048 🚫)**

## Viswalk

- + Adding a route location to multiple selected pedestrian routes at once is now possible. See the document "Vissim 2022 - what's new.pdf" for details. **(15528)**

- + For the calculation of the distribution of alighting passengers over the doors of a PT vehicle, parts of the vehicle not containing any passengers can be specified now. See the document "Vissim 2022 - what's new.pdf" for details. **(14439)**
- + Formula-based PT line selection. See the document "Vissim 2022 - what's new.pdf" for details. **(5949)**
- + New area attribute "Distance to PT waiting position distribution". This references the distance distribution from which the distance is drawn between the position where a pedestrian enters the waiting area and their waiting position. See the document "Vissim 2022 - what's new.pdf" for details. **(15522)**
- + Straight Stairs With Multiple Landings. See the document "Vissim 2022 - what's new.pdf" for details. **(14325)**
- + The file format lfc4 is supported now. **(11490)**

## Workspace

- + GUI improvements for High-DPI screens. **(14579)**
- + Improved user interface in the dialogs for functions and distributions and in the list of distributions. **(13445)**
- + Tooltips for full path and filename for the files in the most recently used list in the "File" menu. **(16540)**

## ! Breaking Changes

### COM Interface

- ! Python 2.7 isn't supported anymore for event-based scripts but only Python 3.9. **(15964 +)**
- ! The property "Category" at IAttribute begins with a capital C now. **(16286)**

### Data Model

- ! Attribute modifications accept only object types which have at least one attribute which can be modified during a simulation run. **(15329 +)**
- ! Some attributes of attribute decisions and attribute modifications have been renamed. See the document "Vissim 2022 - what's new.pdf" for details. **(16048 +)**
- ! The enum type "CameraMovement" has been renamed to "CameraTransitionType". **(15753 +)**

### Driving Simulator Interface

- ! This interface has changed. See the specific documentation. **(15843 +)**

### Evaluations

- ! Vehicle delay results can differ from previous versions. **(16582)**

### File Handling

- ! UTF-32 encoded text files are not supported anymore. **(15726)**

### Simulation

- ! Results differ from those of previous versions due to a completely new random number generator. **(15773)**

### Vehicle Simulation

- ! Networks with vehicles unparking backwards using driving parameters with changed values for minimum look ahead or minimum look back distance can have different results compared with previous versions. **(16539)**
- ! Simulation runs with platoons widening can have different results compared with previous versions. **(16576)**

### Viswalk

- ! Results can differ from those of previous versions due to a new geometric calculation of the walkable ground. **(15485)**