PTV Vissim & Viswalk 9
Release Notes

Last modified: 2017-05-04

9.00-08 [65708]	2017-05-04

⊕ New Features and Changes

COM Interface

- ⊕ Generic property FilteredBy(<formula>) on all container objects. This property returns a subset of the container with all objects from the container for which the passed formula (string value, same syntax and semantics as in the formula editor for user-defined attributes) results in true (if bool) or non-zero (if numerical). VBS Example: Vissim.Net.Vehicles.FilteredBy("[VehType\No]=100") contains all vehicles with vehicle type 100 in the network. **(7105)**
- ⊕ New Vissim attribute "MaxNumberOfCOMRefs". This can be set from a COM script to define the maximum number of references to COM objects that may be used at the same time from one Vissim COM server, in order to limit the memory consumption of a script file. The default value is 1,000,000 up to Vissim 9, and 100,000 from Vissim 10, empty value means "no limit". If that limit is exceeded, a suitable COM error is returned to the script. **(11045)**

File Handling

- ⊕ The Vissim version and path to the .exe file are now written to the log file %tmp%\VISSIM\vissim_msgs*.txt as well. **(11731)**

Signal Control

- ⊕ PTV Balance:
  The error checks for starting times of Balance interstages have been improved.
  Signal plan changes can be carried over to the Balance interstage parameters.
  Balance maximum green time checks have been improved.
  A search function has been added to the Balance Web-GUI.
  The Balance OD correction is now multi-threaded.
  Added a loading symbol to the Balance Web-GUI.
  Improved main node positioning in the Balance Web-GUI.
  The Balance Web-GUI now also shows the status of the signal controllers.
  Balance is now able to handle turns without signal groups.
  Improved genetic algorithm in combination with long min/max-durations.
  Added unicode support for file names and attributes. **(11772)**
- ⊕ PTV Epics:
  Unnecessary long interstages for Epics are highlighted.
  Epics traffic demands can now be activated/deactivated with a checkbox.
  The Epics interface now also offers the next stage.
  The Balance Web-GUI now also shows the status of the signal controllers.
  The error checks for Epics intervals of duration 0s have been improved.
  Epics traffic demands can now be created with buttons.
  The assistance when selecting signal groups in a Epics traffic demand has been improved.
  Added unicode support for file names and attributes.
  Consistency checks between the fixed time program and Epics parameters have been improved. **(11771)**

Vehicle Simulation

- ⊕ New parking lot attribute "Detect blockage"/"DetBlock". This is by default true but can be set to false in order to prevent detection of (almost) standing vehicles which don't actually park on a specific parking space but block the access to it, e.g. by parking on an upstream parking space on the same single-lane link. By this, such a (normally blocked) parking space can still be assigned to a vehicle passing the parking lot routing decision, and fewer vehicles ignore the decision completely because of the lack of available parking spaces. **(10480)**

Viswalk

⊕ Before the simulation of a large network with active grid cell evaluation, the expected amount of required RAM is checked now, and a warning message is issued if the available RAM might not be sufficient. **(11647)**

✅ Fixed Bugs

ANM Import

✅ Multiple improvements, e.g. for networks containing roundabouts. **(11787)**

COM Interface

✅ AddVehicle*() functions use the occupancy distribution of the vehicle type correctly now. (Previously, the occupancy was always zero which is still the case for PT vehicles because these cannot get their occupancy from a course of their line.) **(11814)**

Dialogs

✅ A desired speed distribution with only two points with the same x value and y values 0 and 1, respectively, doesn't cause the distribution dialog to crash anymore. **(11631)**

✅ In the dialog "Driving Behavior" (tab page "Lane Change"), the edit field for the accepted own deceleration is not bound wrongly to the attribute for the accepted deceleration for the trailing vehicle anymore. (Before this fix, both fields were always changed together, and the new value was only written to the attribute for the trailing vehicle. The accepted own deceleration was not visible nor could be changed through the dialog.) **(11762)**

DriverModel.DLL Interface

✅ The lateral coordinate of the rear end of the vehicle is now always determined from the trajectory and a correct value for DRIVER_DATA_VEH_LANE_ANGLE is passed to the DriverModel.DLL even if there is no driving behavior in the current link behavior type which has "Keep lateral distance to vehicles on next lane(s)" active. **(11758)**

Dynamic Assignment

✅ Vehicles on matrix trips don't use an expected parking duration of the whole simulation period anymore, so they can select any destination parking lot which is open at the time of departure. **(11713)**

Graphics

✅ Switching the vehicle drawing mode from "color scheme" to "color distribution" works correctly now in 3D view as well. **(11778)**

Network Editor

✅ Dragging the start/end point of a connector within the borders of the original origin/destination link doesn't suggest other (smaller) links as origin/destination anymore at the current mouse position. **(11198)**

Signal Control

✅ PTV Balance:
Fixed an error in the Balance OD correction.
Fixed an exception when deleting, renaming and creating Balance interstages.
Dual activations have not been considered correctly for min/max-durations. This has been fixed. **(11769)**

✅ PTV Epics:
The maximum length of a log string has been extended.
Fixed an error in the performance index calculation.
Hints for counting detectors have been showed for the wrong detector. This has been fixed.
Crash when opening a sig-file without Epics parameters. This has been fixed.
Sometimes Epics violated very short allowed stage intervals. This has been fixed.
Dual activations have not been considered correctly for min/max-durations. This has been fixed. **(11768)**

✅ Vissig:
Intergreen time violation checks, when editing signal group based signal programs, have been improved.
The behavior when opening and loading of sig-files has been consolidated.
Hints for counting detectors have been showed for the wrong detector. This has been fixed. **(11770)**

Vehicle Simulation

✅ A reaction to green time distribution in the driving behavior doesn't cause a crash anymore if a vehicle approaches a "green" priority rule in the network. **(11809)**

- ✅ Connectors with zero length are detected in the network check (e.g. before the simulation) now and cannot cause a crash anymore. **(11759)**

Viswalk

- ✅ If a simulation run cannot start because of some reason, the activated area measurements evaluation doesn't cause a crash anymore. **(11767)**
- ✅ Pedestrians use always the walking behavior selected in their pedestrian type now on areas/ramps without an area behavior type containing a walking behavior assigned to a pedestrian class containing their pedestrian type, (Previously, if only one walking behavior was defined, that one was used on such areas/ramps. If multiple walking behaviors were defined, an invisible hard-coded behavior was used.) **(11136 ❗)**
- ✅ The attributes "Default obstacle distance" and "Potential cell size of internal destinations" in the nework settings are actually used now for newly created routes. (These are only default values, so a change doesn't modify any existing routes!) **(11805)**
- ✅ The grid cell evaluation works correctly now even if the world coordinates of the network are very far away from (0, 0). **(11646)**

❗ Breaking Changes

Viswalk

- ❗ Pedestrians use always the walking behavior selected in their pedestrian type now on areas/ramps without an area behavior type containing a walking behavior assigned to a pedestrian class containing their pedestrian type, (Previously, if only one walking behavior was defined, that one was used on such areas/ramps. If multiple walking behaviors were defined, an invisible hard-coded behavior was used.) **(11136 ✅)**

9.00-07 [65256]   2017-03-28

⊕ New Features and Changes

COM Interface

- ⊕ All container objects that have the method ItemByKey() have the additional method ItemKeyExists() now which returns true if an object with the passed key exists in the container, else false. **(11139)**

Data Model

- ⊕ The ParkingLot attributes Attraction, Attraction (last parking space), Blocking time distribution and the VehicleRoutingDecisionParking attributes Parking rate and Parking duration (both with sub attribute time interval) can be modified during a simulation run now, e.g. from a COM script. **(11605)**

DriverModel.DLL Interface

- ⊕ The front end and rear end Z-coordinates of the ego vehicle are passed to the DLL. (These are calculated correctly only if the 3D visualization is active or if the vehicle record is active including the attribute "Coordinate front" or "Coordinate rear".) **(11712)**

Graphics

- ⊕ Link bar widths for negative values are now determined by the absolute value. **(11478)**

License Handling

- ⊕ The maximum simulation period of a full license is now 999.999.999 simulation seconds. **(11716)**

Meso Simulation

- ⊕ Latent demand at the end of a simulation run is only posted as warning if it is more than 2 vehicles (exactly as in micro simulation). **(11566)**

User-Defined Attributes

➕ The TableLookup function for formula attributes can access the object NetPara (network settings) now. "1" (for "true") can be used as condition. If global user-defined values are to be stored in user-defined NetPara attributes, formula attributes (containing only the value) are recommended because there is no GUI yet to edit the values of user-defined NetPara data attributes. **(11619)**

Vehicle Simulation

➕ New conflict area attributes "Minimum gap blocking (default)" and "Minimum gap blocking" with subattribute vehicle class. These are used if the attribute "Avoid blocking the major flow" is not active to specify the minimum gap time between the vehicle from the minor flow entering the conflict area and the vehicle of the major flow entering the conflict area (assuming constant speed). [The attributes "Rear gap" are not used anymore in this situation.] **(11559)**

✅ Fixed Bugs

Dynamic Assignment

✅ If "Sum of edge travel times" is selected for the calculation of path costs, the destination parking lot selection uses the vehicle type specific cost coefficients now. **(11445 ⚠️)**

✅ Stopping a simulation run with vehicles using the route guidance system doesn't cause a crash anymore in a subsequent simulation run of the same network. **(11656)**

File Handling

✅ The name of the error file (*.err) includes always the number of the simulation run now, even for a single run. **(11670)**

Lists

✅ The export to a database doesn't fail anymore if two columns have identical names for the first 61 characters (of more than 64). **(11632)**

Scenario Management

✅ In scenario comparison, "current run" now always refers to the last completed simulation run of the comparison scenario. For the current scenario, "current run" refers to the currently active simulation run, respectively the last completed one if no simulation is running. **(11607 ⚠️)**

Viswalk

✅ A partial routing decision on an elevator waiting area doesn't cause the simulation run to crash anymore. **(11693)**

✅ Changing the color scheme for areas after loading a scenario cannot cause a crash anymore. **(11625)**

✅ Pedestrians will always try to approach their next route location directly, i.e. without changing partitions. Previously, non-convex partitions made pedestrians take short-cuts through elevators, which caused Vissim to crash. **(11582)**

✅ The *.ifc import is not canceled anymore when a geometry of the type XbimFacetedShell is in the file. This geometry is just skipped now. **(11675)**

✅ The average travel time in the pedestrian network performance evaluation is now calculated correctly as average time spent in the network by all pedestrians. (Previously, it did show the average simulation time when the pedestrians left the network.) **(11644)**

⚠️ Breaking Changes

Dynamic Assignment

⚠️ If "Sum of edge travel times" is selected for the calculation of path costs, the destination parking lot selection uses the vehicle type specific cost coefficients now. **(11445 ✅)**

Scenario Management

⚠️ In scenario comparison, "current run" now always refers to the last completed simulation run of the comparison scenario. For the current scenario, "current run" refers to the currently active simulation run, respectively the last completed one if no simulation is running. **(11607 ✅)**

9.00-06 [64588]	2017-02-17

COM Interface

⊕ New methods AddBoardingVolume() and RemoveBoardingVolume() at IBoardingVolumeContainer. AddBoardingVolume() sets the attributes
TimeFrom, TimeTo, Volume, RelVol, PTLines and AllPTLines to default vaues. So the collection PTLines is empty and AllPTLines is true. The attributes as well as the collection PTLines can be set though subsequent COM calls. **(11556)**

Data Model

⊕ When a new vehicle/pedestrian input is added, the child objects (to specify volume and composition) for all time intervals are now created automatically. **(11456)**

Demo Version

⊕ Signal controllers can be added to the network now. (But the network still cannot be saved.) **(11029)**

Driving Simulator Interface

⊕ Pedestrian locations are passed to the simulator as well now. **(10330)**
⊕ Up to 1000 simulator vehicles can be passed to the simulation now. **(10485)**

Dynamic Assignment

⊕ COM Interface for paths: New methods in IPathContainer to add a path to the global path collection or to remove a path:
- AddPath(OriginParkingLot, DestinationParkingLot, NodeList),
- AddPathForVehicleType(OriginParkingLot, DestinationParkingLot, NodeList, VehicleType),
- AddPathForVehicle(Vehicle, DestinationParkingLot, NodeList),
- RemovePath(Path).
All AddPath methods require the dynamic assignment graph to be valid. The passed NodeList must start with a node containing the OriginParkingLot or the end node of an edge containing the OriginParkingLot, analogous for the DestinationParkingLot. Between two subsequent nodes there needs to be at least one edge connecting them. From multiple edges, the shortest one is used. Edges closed for the passed VehicleType (or for all vehicle types for AddPath()) are not used, ditto if a connector included in an edge is closed for the respective vehicle type(s). A path cannot pass a parking lot spanning all lanes. A path cannot be added if it is a duplicate of an existing path but there is no error message and the existing path is returned as result value. An added path may contain a detour and/or a route closure.
Paths added through AddPath() or AddPathForVehicleType() can be assigned to vehicles still inside parking lots only. For vehicles already on a path somewhere in the network, only AddPathForVehicle() can be used. This method creates a new path starting with the current path of the vehicle up to its current edge (i.e. from a parking lot or from a dynamic routing decision) and continuing with the passed NodeList to the DestinationParkingLot. The Vehicle needs to be inside the first node in NodeList or on an edge ending at that node. The new path is not automatically assigned to this vehicle!
If a path is added during a simulation run after the first time step, the path has a selection probability of zero. At the start of the next dynamic assignment time interval, the selection probability is calculated according to the assignment parameters. If a path is added before the simulation run or from an event-based script "after simulation start", its selection probability is calculated normally. VolNew is not being copied to VolOld again, however, so VolOld needs to be set if "Use volume (old)" is selected.
RemovePath() deletes the given path only after there is no vehicle anymore on that path. From the start of the next time interval, no new vehicle can use that path. **(6554)**
⊕ COM Interface for vehicles: new method IVehicle.AssignPath(NewPath). If this is called for a vehicle inside a parking lot, that parking lot needs to be the origin of the assigned path. If this is called for a vehicle somewhere on a link in the network, the vehicle needs to be on a parking lot path already (not on a dynamic routing decision path, not on a route gudiance path and not yet on the destination parking space route) and the current vehicle position needs to be on an edge of the assigned new path and all previous edges of the old and new path must be identical. A vehicle cannot be assigned a new path downstream of the emergency stop position of the next connector (of the new path, starting from a different lane) or downstream of the parking space decision for the new destination parking lot. A backwards driving vehicle (Vissim 10) cannot be assigned a new path. The new path may not be closed for the vehicle by edge or connector closures. Route closures are ignored. Vehicles outside of a microscopic section cannot be assigned a new path. **(7847)**

EmissionModel.DLL Interface

- ⊕ 18 new pollutants are available which can be calculated by a suitable EmissionModel.DLL and are collected in new attributes in vehicles, link segments and the network performance evaluation. **(11345)**
- ⊕ Emission level 5 for a specific emissions DLL for Sedema (Mexico). **(11344)**

Graphics

- ⊕ New tram 3D models:
'Tram - Vario 6Z' and 'Tram - Vario 8Z' with several model segments for flexible tram configurations, and including animated doors. Typical configurations are: front - mid1 - joint - mid2 - rear ('Tram - Vario 6Z') respectively front - mid1 - joint1 - mid2 - joint2 - mid1 - rear ('Tram - Vario 8Z').
'Tram - Vario 1000 6Z' and 'Tram - Vario 1000 8Z' are less wide in order to be used on metre gauge tracks (1000 mm). Apart from the smaller width they are identical with 'Tram - Vario 6Z' and 'Tram - Vario 8Z'.
New bus 3D models:
'Bus - C2 G 3-doors' with front and rear segment represents a recent articulated Citaro bus including animated doors and interior seats. It is also available in a left-door-version.
Updated bus 3D models:
'Bus - C2 Standard' (both right- and left-door) now has a reduced file size and additional parts defined to be colored individually (see below).
Colors:
For all of the above tram and bus models some parts of the vehicle body are defined in such a way that they can be colored individually (in addition to the color of the PT line). This is defined in the corresponding vehicle type by assigning color distributions for vehicle colors 2 and 3. If these are not set, the PT line color is used for the corresponding parts instead. **(11547)**

License Handling

- ⊕ VisVAP and V3DM are shown in the license dialog now. **(10398)**

Viswalk

- ⊕ The attributes Density (worst interval), Experienced density (worst interval) and Speed (worst interval) which were available already in Vissim 8 (before the grid cell results have been made persistent) are available again. This allows to visualize these aggregated values even if the option "Only last interval" is active in the evaluation configuration for pedestrian grid cells. **(11451)**

✓ Fixed Bugs

ANM Import

- ✓ The initial import of only demand (*.anmroutes) does create a matrix object (matrix file in Vissim 8) now. **(11568)**
- ✓ Vissim doesn't crash anymore upon reading an *.anm file which contains a pedestrian crosswalk leading from outside to a triangle island (of a channelized turn) without an ANMLaneTurn crossing that crosswalk. **(11551)**
- ✓ Vissim doesn't crash anymore upon reading an *.anmroutes file which requires a parking lot on a too short edge. Instead, an error message is posted. **(11554)**

COM Interface

- ✓ Access to matrix cells is much faster now, and SuspendUpdateGUI() includes the matrix editor window. **(11432)**
- ✓ The method RemoveVehicle() doesn't cause a crash anymore if the removed vehicle was relevant for a conflict area. **(11515)**

Dialogs

- ✓ In the driving behavior dialog, the edit field for "to slower lane if collision time is above" affects the correct attribute "Free driving time" now and is editable if and only if the lane change rule is "slow lane rule". **(11503)**

Dynamic Assignment

- ✓ After convergence has been reached before the end of a multi-run, the dialog presents the option to stop the run, to continue and ask again when convergence conditions have been met again, or to execute all remaining simulation runs without further confirmation. **(10311)**
- ✓ Last time interval is now correctly included in the convergence check at simulation end. **(11284)**
- ✓ The convergence evaluation lists only relevant paths (which have been used in the last iteration) in the distribution of relative travel time differences. **(11514)**
- ✓ The matrix attributes FromTime and ToTime are not limited to a maximum of 86400 anymore. **(11536)**

- The path length includes the distance from the start of the first link of the destination edge to the start of the destination parking lot now. **(11441 ⊘)**
- The path selection type "Decide repeatedly" works fine now with origin parking lots which are not located on the first link of their edge. **(11569)**
- The vehicle type Attribute "Distance from current position in meters" (coefficient for the destination parking lot selection) has been renamed to "Generalized cost" because it has always been the weight factor for the lowest possible generalized cost of a path from the current vehicle position to the destination parking lot. **(11557)**

Evaluations

- Node evaluation movements without any volume in a given interval are listed as LOS "A" now (and not "F" anymore even if the average queue length is non-zero) and with LOS value "empty". **(11516)**
- The maximum headway defined in the queue counter configuration is now detected correctly even if there are multiple queue ends (across different upstream connectors) where vehicles are standing upstream of gaps (e.g. at signals) at different distances. (Previously, the largest distance to a queue end was projected to all other queue arms, ignoring the maximum headway up to that distance.) **(11587)**

Lists

- Canceling the initialization of a simulation run with open list windows of certain types doesn't cause a crash anymore. **(11504)**

Meso Simulation

- Outside of microscopic sections, the volumes shown in the link (segment) evaluation are correct now. (Previously, these values could be unrealistically high if some vehicles could not leave the edge in the respective time interval. Now, the average of entered and left vehicles is shown.) **(11571)**

Network Editor

- "Create circular link" results in a clockwise roundabout now with left-hand traffic. **(11479)**

Scenario Management

- Chart windows allow access to subattributes of attributes from compared scenarios now. **(11392)**
- Model transfer files including a modified simulation period and modified time intervals work correctly now. **(11546)**
- When the base network, a different scenario or modification is opened, previously open signal times tables are opened again if the same controller number exists in the new network. **(11385)**

Signal Control

- Fixed time (Vissig) and RBC controllers check now correctly at the start of a simulation run if the signal groups defined in Vissim and in the controller supply file are identical. If this is not the case, an error message is shown and the simulation run is canceled. **(11408)**
- RBC controllers with an empty attribute "Supply file 2" don't stay on permanent red anymore. (This problem had been fixed in Vissim 9.00-04 already but with Vissim 9.00-05, an older, buggy rbc_controller.dll was delivered again.) **(11505)**

Vehicle Simulation

- The driving behavior option "Keep lateral distance to vehicles on next lane(s)" works correctly now even if the lateral distance requires a passing speed much smaller than the speed of the leading vehicle. **(11593 ⊘)**

Viswalk

- Pedestrians can always board PT vehicles now through doors for boarding (and possibly alighting, too) even if there are additional doors only for alighting. **(11487)**
- The additional stop line distance of a conflict area now affects pedestrians only for the first lane to be passed. **(10877 ⊘)**
- The search distance for pedestrians is handled correctly now at conflict areas with additional stop line distance. **(10876 ⊘)**

✅ The z-coordinate where an elevator stops on a certain level is now defined as maximum of the z-offsets of the waiting areas on that level plus the z-coordinate of the level. If there are no waiting areas, only the z-coordinate of the level is used. If the z-coordinates differ, a warning message is posted upon "Check network".
The attribute z-coordinate of an elevator is now available outside of a simulation run as well and contains the z-coordinate of the stop on the main stop level. If there is no main stop level, the smallest z-coordinate of all stops is used. If the elevator doesn't stop at any area, the smallest z-coordinate of a level is used. If there are no levels, the value is 0.0.
Elevator doors are always shown at the z-position of the elevator stop on the respective level. (11558 🔴)

⛔ Breaking Changes

Dynamic Assignment

🔴 The path length includes the distance from the start of the first link of the destination edge to the start of the destination parking lot now. (11441 ✅)

Vehicle Simulation

🔴 The driving behavior option "Keep lateral distance to vehicles on next lane(s)" works correctly now even if the lateral distance requires a passing speed much smaller than the speed of the leading vehicle. (11593 ✅)

Viswalk

🔴 The additional stop line distance of a conflict area now affects pedestrians only for the first lane to be passed. (10877)

🔴 The search distance for pedestrians is handled correctly now at conflict areas with additional stop line distance. (10876 ✅)

🔴 The simulation results for elevators change if the network contains waiting areas for elevators which have a z-offset different from the z-offset of the area in front of the elevator at the lowest active level of the elevator. (11558 ✅)

9.00-05 [63828]   2016-12-22

➕ New Features and Changes

ANM Import

➕ Network objects of additional types which have been placed manually (with this or a newer Vissim version) on a link created by a previous import can survive an adaptive import now: signal heads, stop signs, reduced speed areas, priority rules and lane markings (but not conflict areas). (11226)

DriverModel.DLL Interface

➕ If the option DRIVER_MODEL_WANTS_SUGGESTION is set, the additional vehicle attributes "Interaction state", "Interaction target type", "Interaction target number" and "Headway" are passed to the DLL, so the DLL has some information on which interaction target the suggested acceleration is based. For all nearby vehicles, the vehicle type number is passed to the DLL. And there is a new flag DRIVER_DATA_USE_INTERNAL_MODEL which can be set by the DLL to make sure that the DLL doesn't affect the vehicle at all. (Previously, the limitation of the change of acceleration was never applied for vehicle types using a driver model DLL even if that DLL returned the (unlimited) acceleration value suggested by Vissim.) (11464)

Dynamic Assignment

➕ There are multiple ways to fill the cell values of an existing matrix object with values read from a matrix file (*.fma format as for Vissim 8 and before): the context menu of the matrix list ("Read from file..."), a new button in the toolbar of the matrix editor window, and the new COM method IMatrix.ReadFromFile(<FilePath>). The from time and the to time of the matrix object are overwritten by the values from the file as well. (11372)

Evaluations

➕ The SSAM trajectory file format has been updated to format version 3.0 now. z-coordinates are now written to the *.trj file as well. (11418)

Graphics

- U-turn pavement markings look correct now for left-hand traffic as well. **(9389)**

License Handling

- Vissim 9 classroom licenses are available now. **(11429)**

Viswalk

- A new area attribute "WaitingTimeIsRelativeToSimStart" allows to make a pedestrian wait until a specified simulation time has been reached (instead for a specified waiting time after the pedestrian has arrived on that area). **(7459)**
- Pedestrian grid cells now have attributes of type 'duration exceeding threshold'. They define how long within a time interval the threshold for a certain attribute, for example velocity, was exceeded. The thresholds may be defined in the evaluation configuration for pedestrian grid cells. **(5145)**
- Pedestrians have a new attribute "motion state". **(11297)**
- Public Transport Line Stops now have the attributes 'Door closure delay' and 'Door lock duration before departure'. The door closure delay defines when a door starts closing after the last pedestrian has passed. The door lock duration defines when a vehicle departs after the last door has been closed. Vehicle types now have a new attribute 'Door closure duration' defining how long it takes for a door to close. As before pedestrians may enter a vehicle until a door is half closed. **(11009)**
- The pedestrian grid cell evaluation has a new flag in the configuration: "Only last interval". If this flag is set, grid cell results are available only for the last completed time interval of the current simulation run (for visualization through a color scheme for areas/ramps) but not after the simulation run because these result values are not saved in the evaluation database. The advantage of this setting is that much less memory (RAM) is required. **(11444)**

✓ Fixed Bugs

3ds Max Export

- Link names are exported completely now. **(10513)**

Dialogs

- The pavement marker arrow directions are used correctly now. **(11381)**

Dynamic Assignment

- Automatically created parking lot decisions (for real parking spaces in zones) are not placed close to a downstream start/end of a connector anymore (provided there is enough room upstream after the previous end/start of a connector). **(11398 ⊘)**
- Automatically created parking lot decisions (for real parking spaces in zones) don't use routes along one-lane links with other parking spaces anymore. **(11307)**
- If "Measured path travel times" is selected for path cost, the destination parking lot selection actually uses the generalized cost of the paths now (even for dynamic routing decisions), considering only the distance from the middle of the origin parking lot to the first node border and from the last node border to the middle of the destination parking lot for the total path distance. (If "Sum of edge travel times" is used, the whole length of origin and destination edge is used.) **(11399 ⊘)**
- Opening a network with a dynamic assignment evaluation interval different from 600 doesn't cause an unfounded warning message anymore about differing time intervals for dynamic assignment and in the cost file. **(11394)**

File Handling

- In multi-run simulations, one error file *.err is created per run, with the simulation run number in the file name. Single simulation runs (over)write the *.err file without simulation run number in the name. **(11427)**

Network Editor

- Creating a link cannot cause a crash anymore after the previous link could not be created (e.g. because of the maximum network size). **(11362)**
- Splitting a link cannot be canceled anymore because the maximum network size is exceeded allegedly. **(11367)**

Scenario Management

- Opening a scenario after deleting a link from the base network doesn't cause a crash anymore even if a priority rule conflict marker on that link has been added in that scenario. **(11439)**

Vehicle Simulation

- ✅ A rear joint position of zero in a 2D/3D model cannot cause the simulation to crash anymore. **(11393)**
- ✅ The driving behavior option "Observe adjacent lane(s)" causes now the lateral position of the front end of the leading vehicle on the adjacent lane to be checked in addition to the lateral position of its rear end. **(11376 ⚠)**
- ✅ Vehicle A on lane A can see the leading vehicle B on an adjacent lane B now even if the front end of vehicle B is downstream of the emergency stop position of vehicle A on lane B. This can allow cooperative braking, and it prevents the following problem:
  If a vehicle A wanted to cross the adjacent lane B (in order to get to lane C where the next connector of its route started) and if there was a vehicle B on lane B side by side with vehicle A and if the front end of vehicle B was already downstream of the emergency stop position of vehicle A on lane B, then vehicle A ignored vehicle B when changing lanes, i.e. it drove right into it. **(11437 ⚠)**
- ✅ Vehicles in the minor flow can now stop inside a conflict area with the option "Avoid blocking the major flow" switched off even if there is a subsequent conflict area downstream which has that option switched on (default). In addition, they cannot start a lane change into a conflict area on an adjacent lane anymore if there is already a vehicle from the major flow. **(11377 ⚠)**

Viswalk

- ✅ If the decision model for a partial routing decision is "Entering the area", pedestrians now strictly dismiss any routing decision they encountered before on the same area (Previously, routing decisions could sometimes be forgotten). **(11416)**
- ✅ Scenarios written by Vissim 8 can now be opened with Vissim 9 even if they contain walking behaviors, display types or area behavior types with numbers now used by default types for elevators. **(11258)**
- ✅ When the evaluation 'Areas & ramps' was active and the simulation could not be startet - for example due to a missing signalization file - the program crashed. This issue was fixed. **(11386)**

⚠ Breaking Changes

Dynamic Assignment

- ⚠ If "Measured path travel times" is selected for path cost, the destination parking lot selection actually uses the generalized cost of the paths now (even for dynamic routing decisions), considering only the distance from the middle of the origin parking lot to the first node border and from the last node border to the middle of the destination parking lot for the total path distance. (If "Sum of edge travel times" is used, the whole length of origin and destination edge is used.) **(11399 ✅)**
- ⚠ Improved placement of parking lot decisions will lead to different simulation results if previously parking lot decisions were placed very close to the end of links. **(11398 ✅)**

Vehicle Simulation

- ⚠ The driving behavior option "Observe adjacent lane(s)" causes now the lateral position of the front end of the leading vehicle on the adjacent lane to be checked in addition to the lateral position of its rear end. **(11376 ✅)**
- ⚠ Vehicle A on lane A can see vehicle B on an adjacent lane B now even if the front end of vehicle B is downstream of the emergency stop position of vehicle A on lane B. **(11437 ✅)**
- ⚠ Vehicles in the minor flow can now stop inside a conflict area with the option "Avoid blocking the major flow" switched off even if there is a subsequent conflict area downstream which has that option switched on (default). In addition, they cannot start a lane change into a conflict area on an adjacent lane anymore if there is already a vehicle from the major flow. **(11377 ✅)**

9.00-04 [63068]

<div align="right">2016-11-03</div>

⊕ New Features and Changes

COM Interface

- ⊕ In VBA, the command "Option base 1" (to use 1-based Arrays) works now correctly for the methods GetMultipleAttributes, SetMultipleAttributes and SetMultiAttValues. (The command still doesn't affect GetMultiAttValues - here, the Array is always 0-based.) **(10685 ⚠)**

Graphics

- ⊕ Automatic level-of-detail handling for 3D signal heads increases the rendering speed. **(10970)**

⊕ New predefined color scheme "LOS value" (1-6) for nodes. **(11286)**

Vehicle Simulation

⊕ Vehicles have the new attribute "Indicating" (values "left", "right" or "no") which shows the direction of the indicator as shown in the Vissim network window. **(11355)**

Viswalk

⊕ Improved heuristics for route choice across stairs/ramps and elevators **(11215 🔴)**

⊕ The area result attributes "Pedestrians (average)", "Pedestrians (maximum)" and "Pedestrians (minimum)" have been renamed to "Queue length (...)" because they have always counted only pedestrians in the queue. The old non vehicle class dependent attributes "Queue length (...)" have been removed. You can use "All" as third subattribute now to get the same value (for all vehicle types). **(8896)**

✅ Fixed Bugs

ANM Import

✅ Non-adaptive import of only an *.anmroutes file into a network with a *.panm reference is now possible even if that *.panm file doesn't exist anymore. **(10897)**

✅ Several improvements in the link geometry generation. **(9373)**

COM Interface

✅ The parameter Speed of the method IPedestrianContainer.AddPedestrianOnAreaAtCoordinate() is interpreted as value in the current unit for large speeds now (as the parameter DesiredSpeed). (Previously, Speed was interpreted as in m/s.) **(11267 🔴)**

✅ Unusable interfaces to singular child objects have been removed from the HTML COM reference. **(11233)**

Dynamic Assignment

✅ If a vehicle has already been assigned a parking space and then passes another parking space decision for its destination parking space (group), there is no unfounded warning about no parking space being assigned anymore. **(11271)**

✅ If a vehicle has already been assigned a parking space in its destination parking lot and then passes another parking space decision, it doesn't ignore its current destination parking space anymore when choosing again the most attractive available parking space. **(11228 🔴)**

✅ The Visum export writes link lengths correctly in meters now, independent from the latitude. **(11338)**

✅ Very short connectors close to a node border don't cause problems anymore (message "unexpected end of node"). **(11275)**

Evaluations

✅ If a discharge evaluation file cannot be opened, the user decision to simulate anyway (or not) is handled correctly now. **(11259)**

Graphics

✅ Transparency is supported now for sketchup models with JPG textures. **(11146)**

Network Editor

✅ A rotated background can be scaled correctly now. **(11038)**

Read Additionally

✅ The suggested default offset value for link/connector numbers makes sense now. (Zero usually caused later number conflicts in scenario management.) **(11265)**

Scenario Management

✅ Unfounded error messages about already existing conflict areas upon reading of modifications have been removed. **(11241)**

Signal Control

- ✅ More than 258 RBC controllers in the network don't cause the simulation to crash soon after the start anymore. **(11257)**
- ✅ RBC controllers don't crash anymore when the simulation run is stopped or ends. **(11101)**

Vehicle Simulation

- ✅ "Combine static routing decisions" cannot cause a crash because of a circular combination of a route with itself anymore. **(11273)**
- ✅ The activated conflict area attribute "Observe adjacent lanes" works correctly now. (It had been ignored since Vissim 8.00.) **(11314 ❗)**
- ✅ The parking space selection is much faster now in networks with many parking lots. **(11211 ❗)**

Viswalk

- ✅ Areas, obstacles and ramp outlines are shown dashed only if their own display type has the attribute "invisible" set. (Previously, this happened for all other areas/obstacles respectively ramps with a lower respectively higher number as well.) **(11264)**
- ✅ The global behavior parameters CellSize and E-Density are not used swapped anymore. **(11255 ❗)**
- ✅ Very short ramps don't cause the simulation to crash anymore. **(11294)**

❗ Breaking Changes

COM Interface

- ❗ In VBA, the command "Option base 1" (to use 1-based Arrays) works now correctly for the methods GetMultipleAttributes, SetMultipleAttributes and SetMultiAttValues. (The command still doesn't affect GetMultiAttValues - here, the Array is always 0-based.) **(10685 ➕)**
- ❗ The parameter Speed of the method IPedestrianContainer.AddPedestrianOnAreaAtCoordinate() is interpreted as value in the current unit for large speeds now (as the parameter DesiredSpeed). (Previously, Speed was interpreted as in m/s.) **(11267 ✅)**

Dynamic Assignment

- ❗ If a vehicle has already been assigned a parking space in its destination parking lot and then passes another parking space decision, it doesn't ignore its current destination parking space anymore when choosing again the most attractive available parking space. **(11228 ✅)**

Vehicle Simulation

- ❗ The activated conflict area attribute "Observe adjacent lanes" works correctly now. (It had been ignored since Vissim 8.00.) **(11314 ✅)**
- ❗ The parking space selection can select a different parking space now in rare cases. **(11211 ✅)**

Viswalk

- ❗ Improved heuristics for route choice across stairs/ramps and elevators **(11215 ➕)**
- ❗ The global behavior parameters CellSize and E-Density are not used swapped anymore. **(11255 ✅)**

9.00-03 [62163]   2016-09-08

➕ New Features and Changes

Dynamic Assignment

- ➕ Additional values in the convergence evaluation: Separate columns for volume difference zero and travel time difference classes 0-5%, 5-10%, 10-15%, 15-20%; new column for number of "new" edges/paths (which have been used for the first time in this iteration); additional row for percentage of converged paths, edges (by travel time) and edges (by volume); convergence condition met ('+') or not ('-'). **(11004)**

- For each active convergence condition, the minimum percentage of edges/paths which must meet the condition can be set. The default value for new networks is 95%, but for old files it stays at 100% to avoid an unexpected change of behavior.
  In addition, a minimum number of consecutive simulation runs can be set which must meet the convergence conditions before a multi-run is stopped due to convergence.
  The object "simulation run" has the new attribute DynAssignConv which shows if all active conditions have been met in that run. **(10400)**
- New option "Equilibrium Assignment" for path choice, as alternative to "Stochastic assignment (Kirchhoff)" and "Use volume (old)". If this new option is selected, the goal of the dynamic assignment is a distribution of vehicles over the known paths for a parking lot O-D relation so that all actually used paths of that relation have the same generalized cost for the subject vehicle type, with possibly quite different volumes on these paths. (This is in contrast to the stochastic Kirchhoff method where the assignment will always distribute identical volumes to paths with the same generalized cost.) In order to achieve that equilibrium, each subsequent iteration redistributes a decreasing share of the total traffic per parking lot O-D relation from paths with higher than average generalized cost to paths with lower than average generalized cost. In iteration n, that share is 1/n of the total volume for that relation. The number of already executed iterations is stored in the path file (*.weg) and shown in the dynamic assignment dialog. It is recommended to use the cost options "same time interval, previous simulation run" and "exponential smoothing" with a factor of 1.0 (no smoothing) for the equilibrium assignment. For path search, "Decide at start only" must be used. **(33)**
- The path pre-selection options "Reject paths with too high total cost" and "Limit number of paths" don't cause any paths to be deleted anymore from the path collection / path file. They only prevent these paths to be used in the respective time intervals. **(9530 ⛔)**
- When an already existing path file is selected in the dynamic assignment dialog, the options "Search new paths" and "Store paths (and volumes)" are not unchecked automatically anymore. **(11103)**

Network Editor

- New context menu item in insert mode for links: "Add Circular Link". After this has been clicked, a circular link (with 48 spline points) is created, with the start of the center line at the right click position (for opening the context menu). The radius of the circle can be changed by dragging the mouse pointer. A second click opens the link dialog where the number of lanes and other attributes can be set. A connector from the end of the circular link to its start is added automatically after click on OK. **(39)**

Usage Data Feedback

- Users who have agreed to take part can optionally (via the settings in the user preferences) see the data transferred. The data transferred is saved to a file 'Telemetrydata_<yyyymmdd>_<hhmmss>.log' located in the temporary folder ('%temp%\VISSIM'). Upon start of the program all files older than a day are deleted. **(11014)**

Viswalk

- Elevators: Elevator groups have two new attributes to define the queuing behavior for pedestrians waiting for an elevator. This behavior is used for all pedestrian types on all levels where no waiting area has its own queuing behavior assigned. If multiple waiting areas on a level have different queuing behaviors, a warning message is written to the message window, and only the behavior from the waiting area with the smallest ID is used. **(11011)**
- The default display types and behavior types to be referenced by new elevators and elevator groups can be set in the network settings. If an old network file without such default references is opened, suitable default types are created automatically. **(10972)**

Workspace

- New menu item "Help / Examples / Readme Examples" which opens the PDF document describing the example files with English documentation provided with Vissim. **(11105)**

✅ Fixed Bugs

Dynamic Assignment

- The path selection method "Decide repeatedly" doesn't cause crashes anymore in specific situation with possible loops in the network. **(11034)**

Evaluations

- The legend section of the header of direct evaluations (e.g. the vehicle record) don't have any line breaks anymore in attribute descriptions. **(10711)**

Graphics

- Speedup of the loading of background maps (when many tiles are required). **(11140)**

Network Editor

- Performance improvements for the visualization of a high number of selected objects. **(11173)**

Scenario Management

- Saving a scenario doesn't fail anymore because of an unexpectedly still existing backup of the extended model transfer file to be saved. (These backup files are meant to be only temporary.) **(11145)**

Signal Control

- In the signal times table window, the time measurement tool and the scaling of the time axis are correct now for controllers with a frequency greater than 1, too. **(10910)**

Vehicle Simulation

- A network object at the identical link coordinate as the start of a connector or at the exact end coordinate of a connector works correctly now for all vehicles which move to the other link there. (Previously, it was undefined if the network object was ignored.) One example is a conflict area extending to the end of a connector: this conflict area has always the expected effect now. **(11193 ⚠)**
- Vehicles on the yielding link can now enter a conflict area even if there is a downstream stop sign with not enough room in between for the full vehicle length. **(11177 ⚠)**

⚠ Breaking Changes

Dynamic Assignment

- The path pre-selection options "Reject paths with too high total cost" and "Limit number of paths" don't cause any paths to be deleted anymore from the path collection / path file. They only prevent these paths to be used in the respective time intervals. This allows these paths to be used in later intervals and/or iterations without requiring to find them again as shortest path. **(9530 ⊕)**

Vehicle Simulation

- A network object at the identical link coordinate as the start of a connector or at the exact end coordinate of a connector works correctly now for all vehicles which move to the other link there. (Previously, it was undefined if the network object was ignored.) One example is a conflict area extending to the end of a connector: this conflict area has always the expected effect now. **(11193 ✓)**
- Vehicles on the yielding link can now enter a conflict area even if there is a downstream stop sign with not enough room in between for the full vehicle length. **(11177 ✓)**

9.00-02 [61910]   2016-08-24

⊕ New Features and Changes

COM Interface

- New function SimulationRunContainer.RemoveSimulationRun(). **(11021)**
- New functions for DynAssignDemandContainer: AddDynAssignDemand(), RemoveDynAssignDemand() and ItemByKey(). **(11069)**
- The method IAccelerationFunctionDataPointContainer.ReplaceAll can now be used during a simulation run as well to replace all data points of an acceleration function. Ditto for deceleration functions. **(11081)**

Graphics

- 3D Signals: Additional green 1-Lens arrow signals for through, left 45° and right 45°. Additional amber 1-Lens arrow signals (active when the assigned signal group is green!) for left, left 45°, through, right 45° and right. **(11085)**
- New bus model added as default 2D/3D model for a 2-door standard bus. Includes animated doors. Left-hand version also included in the model library. **(11076)**

✅ Fixed Bugs

ANM Import

- ✅ Networks generated by ANM import can be exported to Visum now (to be later imported adaptively or for an initial assignment in Visum) without causing error messages about invalid node numbers. **(11033)**

Dynamic Assignment

- ✅ Empty travel time values in the path file (for paths which haven't yet been used in the respective time interval) are not treated as a travel time of 0.01 seconds anymore. **(11110 ⚠)**

Installation

- ✅ VDiagGUI.exe: The buttons "Reset Dialog Positions", "Start Vissim in Diagnostics Mode" and "Enable 3D Mode"/"Disable 3D Mode" work correctly now. **(11149)**

Network Editor

- ✅ The context menu command "Recalculate Splines" (with or without "height only" or "X/Y only") works correctly now for a multi-selection of links and/or connectors including a link/connector without any spline points. **(11079)**

Scenario Management

- ✅ No crash anymore upon opening the user preferences after saving a scenario or a modification. **(11127)**

Signal Control

- ✅ RBC Controllers don't show multiple unnecessary follow-up error messages anymore when a simulation run must be canceled because of an error in the RBC data. **(10960)**
- ✅ VAP: The remaining intergreen time is calculated as integer (always rounded down) for the functions Remaining_intergreen() and Test_intergreen() even if the controller frequency is > 1. **(11163)**

Vehicle Simulation

- ✅ A vehicle approaching a conflict area with exactly its desired speed during a lane change can not post a wrong expected trajectory anymore for other vehicles on the conflicting link. **(11118 ⚠)**
- ✅ The simulation was not always reproducible (differences only after opening the network a second time) if certain network objects had different parameters assigned for overlapping vehicle classes: reduced speed areas, conflict areas, desired speed decisions, link behavior types, parking lots or stop signs. This problem has been fixed. **(11102 ⚠)**

⚠ Breaking Changes

Dynamic Assignment

- ⚠ Empty travel time values in the path file (for paths which haven't yet been used in the respective time interval) are not treated as a travel time of 0.01 seconds anymore. **(11110 ✅)**

Vehicle Simulation

- ⚠ A vehicle approaching a conflict area with exactly its desired speed during a lane change can cause a simulation result differing from previous versions. **(11118 ✅)**
- ⚠ Simulation results can differ from previous versions if certain network objects had different parameters assigned for overlapping vehicle classes: reduced speed areas, conflict areas, desired speed decisions, link behavior types, parking lots or stop signs. **(11102 ✅)**

9.00-01 [61401]   2016-07-26

⊕ New Features and Changes

Lists

- ⊕ Cells with special controls, e.g. for a drop-down list or for file selection, react immediately on the first mouse click on the special control now. **(10869)**
- ⊕ The matrix editor window for a matrix can be opened through double click on its row header in the matrices list. **(10999)**

Scenario Management

- ⊕ Comparison scenarios are sorted by number in the tree in the attribute selection dialog now. **(10947)**

Viswalk

- ⊕ Context menu item "Show Elevator Group List" in the elevators list and in the network editor (after right click on an elevator). **(10976)**

✅ Fixed Bugs

ANM Import

- ✅ Parking lots on Vissim-generated stub links for zone connectors leading onto multi-arm nodes do now carry a desired speed distribution that is consistent with the corresponding ANM-link speed. **(10899)**
- ✅ The adaptive import doesn't fail anymore if nodes have been deleted in the Vissim network which still exist in the ANM file. **(10982)**

Dynamic Assignment

- ✅ The options "Limit number of paths" and "Reject paths with too high costs" can now safely be used in meso simulations without compromising the reproducability of the results. **(10988)**

File Handling

- ✅ The Visum Export writes all coordinates to the *.net file in Sphere Mercator projection now. (This projection needs to be set manually in Visum after the import because the currently used *.net file format doesn't contain a projection ID yet.) **(10907)**

Graphics

- ✅ Loading a sketchup model file without valid geometry doesn't cause a crash anymore. **(10833)**
- ✅ The 3D layout parameters for level of detail have been removed. Vehicles and pedestrians are automatically hidden if they are smaller than 10 pixels. **(10924)**

Lists

- ✅ If the leftmost column in a list window is not fully visible (because of the position of the horizontal scrollbar), the simulation could hang. This problem has been fixed. **(9668)**
- ✅ New 2D/3D model distribution elements and colour distribution elements are now added always at the end of the list. **(10931)**

Meso Simulation

- ✅ Meso evaluation results, e.g. densities and queue lengths on meso lanes, don't show invalid values (arbitrary high numbers) anymore if the meso evaluation doesn't start at simulation time 0. **(10933)**

Messaging

- ✅ All messages during a simulation run are now always written to the message window (instead of modal message boxes). **(10946)**

Network Editor

- ✅ Setting the scale of a non-rotable background image works correctly now. **(10783)**
- ✅ Splitting a link with a PT stop doesn't cause a crash under specific conditions anymore. **(11007)**

Presentation

- ✅ Stop lines / signal bars are now recorded in an *.avi file even if quick mode is active. **(10769)**

Signal Control

- Detailed error messages from a signal controller DLL are not disabled anymore during a multi-run. They are written to the controller's *.err file now. **(11059)**
- In VAP controllers using a controller frequency greater than 1, interstages cannot take one time step too long anymore. **(11047)**
- Some VAP error messages contained unreadable strings. This problem has been fixed. **(11019)**
- The optional trace file (*.trc) written by a VAP controller doesn't contain illegible junk anymore. (That problem had been introduced in Vissim 8.00-10.) **(11048)**

Vehicle Simulation

- A vehicles leaving the network doesn't block a parking space anymore which it has reserved but not managed to use. **(10468)**
- If multiple deadlocks at combinations of priority rules happened in the same time step, the simulation was not reproducible. This problem has been fixed. **(10276)**

Viswalk

- Boarding passengers don't disappear anymore sporadically from waiting areas for PT stops with multiple boarding volume groups for the current time. **(10978)**

⊗ Breaking Changes

Vehicle Simulation

- The effect of the driving behavior parameter attribute "Amber Behavior" which had been inverted since Vissim 6.00 is not inverted anymore: "Continuous check" now actually causes a repeated decision in each time step while the signal is amber, and "One decision" causes a single decision at the first time the amber signal is seen. This has not been fixed in Vissim 8, so if in Vissim 9 the amber behavior is required to stay unchanged in a network written by Vissim 8, this attribute must be switched in each driving behavior parameter. **(10980 ⊘)**

9.00-00 [60898]   2016-06-24

⊕ New Features and Changes

ANM Import

- Messages during the ANM import are now collected and displayed afterwards in the new message window. **(10724)**

COM Interface

- In addition to the predefined global objects "Vissim" and "CurrentScriptFile", event-based scripts now can use the predefined global object "CurrentScript" (with attributes "FromTime", "ToTime", "Period" and so on, as well as user-defined attributes) pointing to the list item which caused them to be called. **(9907)**
- Two new methods for ILink:
  MoveLinkDuringSim(dx, dy, dz, rotAngle) moves the link by the vector (dx, dy, dz) and then rotates it (around the center of the surrounding rectangle) by the angle rotAngle.
  MoveLinkToPointDuringSim(x, y, z) moves the link so that its new start point is (x, y, z).
  Both methods can be called only during a simulation run and don't work for connectors. Connectors to/from the link are adjusted, and vehicles on the moved link move with it. The move fails if one of the following conditions is met: An active node (for dynamic assignment, evaluation or meso) is in the network, the link evaluation, queue counter evaluation, travel time evaluation or delay evaluation is active, or there is an active conflict area on the link to be moved. **(7102)**

Data Model

- In the user preferences, default values can be set optionally for the lane width as well as the minimum gap time and minimum headway of priority rules. These values are used when new lanes/links respectively priority rules are created. If another link has been edited before creating a new link, the new link is created with the lane widths of the previously edited link, however. **(10382)**
- Indirect attributes of n:1 or 1:1 relations can be edited now. **(10130)**
- The area attribute "height" has been renamed to "z-Coordinate" (short "zCoord"). **(10312)**

Dialogs

- In most dialogs, the specific HTML help page for that dialog can be opened through F1 or a click on the '?' icon. **(7943)**
- The object types in the dialog "Read additionally" can be optionally sorted alphabetically now (or by one of the other columns). **(320)**

Dynamic Assignment

- 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. **(4112)**

Evaluations

- 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. **(9092)**
- 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. **(9789)**
- Vehicle Travel Time Measurements: New attribute "traveled distance" (from the start section to the destination section of the travel time measurement, since the route is not defined), in raw data and as aggregated evaluation attribute (average). **(8718)**

File Handling

- The Vissim executable is named VISSIM90.exe now, the demo version VISSIM90_DV.exe and the academic student version VISSIM90_U.exe. **(9681)**
- 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 (except by clicking on a network file) and upon File / New.
  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 & Seetings Defaults\USA\defaults.inpx" and "..\Canada\defaults.inpx". **(9505)**
- 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). **(10523)**

Graphics

- *.3ds and *.dwf files can be imported directly into the network as static 3D objects in the 64 bit edition, too. **(9539)**
- Background maps (Bing, OSM) can be shown in 3D mode as well. **(8076)**
- Horizontal 3D signal heads can be flipped (set attribute "flipped" in the coupled list "3D Traf-fic 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.) **(7621)**
- Pavement markings for left-hand traffic are completely supported now, including U-turns and US roundabout markings. **(9683)**

Installation

⊕ Vissim uses the .NET framework version 4.6 now. **(9861)**

License Handling

⊕ 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. The add-on module "meso simulation" is always enabled in the beta version. **(10777)**

⊕ 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. **(10820)**

⊕ Warning message upon start of the program if the license expiration date is closer than 4 weeks. **(5942)**

Lists

⊕ 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.) **(8711)**

Meso Simulation

⊕ Critical gaps for meso turns can be imported from ANM (e.g. if exported from a Visum SBA model). **(10249)**

Presentation

⊕ Camera Positions can be created during a simulation run, and their attributes can be modified, too. **(10336)**

⊕ 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). **(8847)**

⊕ Keyframes for storyboards can 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. **(8397)**

Scenario Management

⊕ 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. **(8798)**

Signal Control

- The signal controller dialog has been completely reworked. The setting to show signal group / detector names or numbers as labels is now included on the tab pages "Signal Times Table Config." and "SC Detector Record Config.". Depending on the controller type, attributes which cannot be modified (e.g. the program file name or fixed supply file names) are not shown anymore at all. **(7789)**
- The signal controller interface supports Unicode strings now, e.g. for supply file names and signal group names. Old controllers which are not yet updated are still supported. **(10269)**

Simulation

- 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 and even if a vehicle or pedestrian in the major flow is approaching. With this setting, the attribute "Rear gap" defines the minimum time gap between the vehicle in the minor flow entering the lane conflict and the vehicle in the minor flow arriving at the lane conflict with its current speed. "Rear gap" should be set to a value as for a priority rule time gap in this case.
  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. **(9647)**
- 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. **(9344)**

Usage Data Feedback

- 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 it cannot be traced back to you. The data 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. This setting can be changed at any time in the user preferences. **(8975)**

User-Defined Attributes

- User-defined formula attributes are now available for movements (node evaluation), segments (link evaluation), OD pairs and pedestrian grid cells. **(10228)**

Vehicle Simulation

- 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. **(210)**
- Parking routes: Vehicles on a static route can be rerouted by a parking lot routing decision only if they can get back to their original route destination from the parking lot. This is to avoid vehicles to leave their route and never return back because there is no possible link sequence in the network to route them to their original destination. **(3112)**
- 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. **(9739)**

Viswalk

- 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. **(9648)**
- 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. On each floor, an area needs to be assigned to the elevator group as waiting area (similar as for a public transport stop). See the Vissim 9 manual for details. **(4007)**
- 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. **(9502)**

- 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. **(7565)**
- The dialog for a pedestrian route location or the route end location can be opened in the network editor through the context menu item "Edit..." as well now (previously only through double click). **(8033)**
- 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. **(10303)**
- Vehicle types have the new boolean attribute "Capacity is exact". If this is set, the capacity limit is enforced exactly for pedestrians as passengers at PT stops, even if the vehicle has multiple doors.Otherwise, the capacity can be slightly exceeded if multiple passengers board in the same time step. **(10142)**