

# VISSIM & VISWALK 5.40

## Release Notes



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[www.ptv-vision.com/hotline\\_vissim](http://www.ptv-vision.com/hotline_vissim)  
[www.ptv-vision.com/hotline\\_viswalk](http://www.ptv-vision.com/hotline_viswalk)

5.40-03 [33277]

2012-03-19

### + New Features and Changes

#### Managed Lanes:

- + New attribute "intercept" (default value zero) in the decision model which is added to the utility value for the managed lane in the logit formula exponent:  
$$\Delta Utility = CostCoefficient * \Delta Cost + TimeCoefficient * \Delta Time + Intercept$$

#### Non lane-based traffic:

- + If a vehicle must decide whether it overtakes another vehicle on the same lane it considers its maximum deceleration now. If it cannot brake in time upstream of the other vehicle it will try to overtake even if it may not overtake it normally because of the driving behavior parameters (consider next turning direction, passing speed). Illegal passing is preferred to a crash.

#### VISWALK:

- + \*.ani file recording: The areas which indicate where traffic has to be written to an \*.ani file are now also respected for the pedestrian simulation.
- + New attribute "PT waiting behavior" for waiting areas for PT stops. The default value is "wait if held up" which means that pedestrians can start to wait for the next PT vehicle even outside the waiting area, provided they are (almost) standing and they are close to the waiting area (less than 5 m walking distance away). This is the same behavior as in VISSIM 5.40-02, and it can cause artificial crowds of pedestrians waiting outside of the waiting area only because a narrow access to the waiting area had been blocked temporarily. Now, the attribute can be set to the value "wait at fixed location" instead, switching off the possibility to wait outside the waiting area. With this value, each pedestrian attempts continuously to reach his random waiting position inside the waiting area before he starts to wait for the next PT vehicle. (If the PT vehicle is already in the stop, the pedestrians can still approach the vehicle as soon as they have reached the waiting area.) This new option can be set only in the \*.inp file so far, by adding the keywords "PTWAITINGBEHAVIOR WAITATFIXEDLOCATION" after the PT stop numbers listed after "WAITINGAREA STOPS".

### ✓ Fixed Bugs

#### 3D Models:

- ✓ The selection of a static 3D model is active in 2D mode even if 2D footprints are disabled (and thus the selection is not visible). Hence a 3D model may be deleted accidentally when pressing "DEL". **(6600)**

#### 3D Visualization:

- ✓ Lane marking for "no lane change" (continuous stripe) is broken on non-horizontal links (with spline points with different height): The stripe is drawn in sections, each one of which has the start on the link (correctly) but the end at the height (z-coordinate) of the start point of the link. **(6607)**

#### ANM Import:

- ✓ Link polygons of VISSIM connector links can be "corrupt", resulting in conflict areas with unrealistically low throughput. **(6585)**

#### Driving Simulator Interface:

- ✓ Reverse driving of the simulator vehicle can cause a crash because VISSIM cannot handle negative speed. **(6578)**

#### Non lane-based traffic:

- ✓ A simulation run can stop with the error message "no free memory" if overtaking on the same lane is allowed on a very wide lane (more than 100 times the width of a vehicle). **(6610)**

#### **Parking Lot Routes:**

- ✓ The simulation run stops with an exception message if a PT vehicle on a parking lot route sees its next PT stop (of its PT line or current partial PT route) downstream.  
[This bug was introduced in version 5.40-02.] **(6568)**

#### **Priority Rules:**

- ✓ If a new priority rule is created, changing the affected vehicle classes for the red and/or the green section has no effect. (After another double-click on the priority rule, the vehicle classes can be edited okay.) [This bug has been introduced in VISISM 5.40-01.] **(6598)**

#### **Reduced Speed Areas:**

- ✓ If a vehicle sees a reduced speed area on its original route before it starts a parking lot route, the vehicle behaves as if this reduced speed area was on the parking lot route. The vehicle brakes to the reduced speed at the originally determined distance and keeps the reduced speed for the length of the reduced speed area. Additionally, all reduced speed areas in between on the parking lot route are ignored. **(6561)**

#### **Signal Control:**

- ✓ If the controller DLL vap216.dll writes a warning message into the file vap216dll.err for at least one VAP SC during the simulation, VISSIM displays for each VAP SC a message that this file was written. [Now, this message appears only once and doesn't refer a specific controller.] **(6617)**
- ✓ If the simulation resolution is higher than the signal controller frequency (i.e. if there are multiple simulation time steps between two calls of the controller) and if multiple vehicle rear ends pass one detector in different simulation time steps but in the same controller time step, the rear end time information passed to the controller includes only the data from the last simulation time step when a rear end passed the detector. The simulation time for the previous rear ends is passed as -100 (hundredths of a controller time step). This can cause problems in a controller that uses exact vehicle rear end time information (e.g. VS-PLUS). **(6586)**
- ✓ Macro Recording/Replay: Doesn't work correctly if the simulation parameter "Start Time" is not a multiple of the controller's cycle time.  
This can cause a wrong cycle number to be recorded for detector events in the macro file (\*.m\_i) which causes a different detector event series during replay. **(6611)**
- ✓ Test Mode: Switching from continuous detection (magenta) to single detection (blue) or repeating detection (cyan) causes only one rear end to be passed to the controller (instead of two). **(6587)**

#### **Split link:**

- ✓ Conflict areas on the split link are not adjusted correctly (some attributes are wrongly reset). **(6591)**

#### **VISWALK:**

- ✓ Calculation of Dynamic Potential might sometimes freeze. **(6563)**
- ✓ If an \*.ani file contains pedestrians boarding (or alighting from) a public transport vehicle, there are wrong warnings written into the \*.err file at the end of the \*.ani file replay. **(6538)**
- ✓ If both pedestrian area evaluation and area-based LOS display are activated, then pedestrians on a measurement area are (wrongly) considered in the LOS display for the area with the same ID as the measurement area. **(6604)**
- ✓ Vehicle Record / Vehicle Information Window: The value of "PT: Waiting Passengers" is usually incorrect with real pedestrians because pedestrians arriving at their random destination position inside the waiting area are counted twice. **(6573)**

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2012-01-31

#### **+ New Features and Changes**

##### **API:**

- + Pedestrian Model DLL Interface: Option to have the DLL create pedestrians.

##### **Managed Lanes:**

- + If there are multiple managed lane routing decisions on a managed lane route (of a previously passed decision), each one of these decisions can affect vehicles on that managed lane route, provided the destination of the decision is on the previous static (partial) route of the vehicle. (Up to VISSIM 5.40-01, only the last managed lanes decision on a managed lanes route could affect vehicles.) When the current managed lanes route of a vehicle is replaced by a new route at such a managed lanes decision, it's now possible that the travel times for previously started managed lanes routes are still counted until the vehicle passes the destination section of the respective route. This is under the condition that the vehicle maintains its decision for/against the managed lane and that either the old destination is on the new route or the new destination is on the old route. If this is not the case, the total travel time for the old route is estimated proportionally if the vehicle has passed at least 3/4 of the length of the old route. (Up to VISSIM 5.40-01 the travel time for the old route was estimated even if the vehicle would have passed the old destination later.)

#### Partial PT Routes:

- + This new type of routing decisions works like partial routes but for PT vehicles (having entered the network on a PT line).  
A filter for affected PT lines can be set. PT vehicles are affected if either
  - a) they are still on their original line route or on a partial PT route and the destination section of the routes of the current partial PT routing decision is located on that previous route or
  - b) they have already completed their original line route and are not on a partial PT route (in which case the location of the destination section does not need to meet any condition).Partial PT routes can have line stops like PT lines with all dwell time attributes available. As long as a PT vehicle has not finished its original line route, the departure time offset works like the offset in line stops on the original line route. As soon as a PT vehicle has passed the destination of its original line route, the departure time offset of a line stop on a partial PT route is treated as relative to the simulation time when the vehicle passed the respective partial PT routing decision.  
From this VISSIM version on, static routing decisions and partial routing decisions don't have any effect anymore on PT vehicles, not even after the end of the line route.

#### VISWALK:

- + At simulation start, the speed of all escalators and moving walkways is checked. A warning message is displayed if a speed is so high that pedestrians could skip the internal overlap areas at the end of a ramp.
- + At simulation start, the walkable width of all escalators and moving walkways is checked. A warning message is displayed if the walkable width is outside of the range from 0.6m to 1.2m.
- + Example Files: The setup now includes not only the test cases from RiMEA (Richtlinien für Mikroskopische Entfluchtungsanalyse, Guidelines for Microscopic Evacuation Analysis, [www.rimea.de](http://www.rimea.de)) but also a documentation of the execution and measurements of these test cases. So far it is only available in German language, a translation will follow in a future service pack.
- + For escalators/moving walkways the usable width can be defined directly (instead of the socket width). The socket width is calculated as  $(\text{total width} - \text{usable width}) / 2$ .
- + Pedestrian area evaluations can now detect and record pedestrians' x and y positions.
- + The dynamic potential for a certain goal is only calculated as long as there are pedestrians using this potential.

#### ✓ Fixed Bugs

##### ANM Import:

- ✓ Adaptive Import: If there are at least two parallel edges between a new generated node and an unchanged node, sometimes the wrong pair of links (belonging to different edges and having different numbers of lanes or not fitting lane closures) is connected during adaptive import. **(6397)**
- ✓ Adaptive Import: Signal heads with duplicated signal head numbers may be created. **(6455)**
- ✓ Geometry warnings at a node with a turning movement starting inside the node can cause VISSIM to crash. **(6524)**
- ✓ The import may abort with error "Unexpected begin of node x" if public transport stops are imported as bay and the link coordinate is very small (smaller than about 0.1 meters). **(6471)**
- ✓ The z-coordinate of a crosswalk is obtained from the z-coordinate of the node instead of using the interpolated z-coordinate from where the crosswalk intersects with the road. **(6330)**
- ✓ The z-coordinates of imported zone connectors are wrong. **(6274)**

### COM Interface:

- ✓ Tool bars hidden by the COM function `set_AttValue("TOOLBAR", 0)` become visible after selecting Zoom or Pan from the navigation tool bar. **(6495)**

### Driving Behavior Parameters:

- ✓ If smooth closeup is activated a vehicle approaching a standing obstacle downstream of another moving vehicle can trigger a very long calculation, causing the simulation to stall for some time. **(6511)**

### Dynamic Assignment:

- ✓ The creation of vehicle type sets (vehicle types which share cost coefficients and connector closures) takes a very long time if there are many connector closures. During the ANM import this can cause the impression that VISSIM hangs. **(6500)**

### Pavement Marker Dialog:

- ✓ Placing the marker by defining the distance before a stop line does not work. **(6512)**

### PT Lines:

- ✓ If two lines have the same desired speed distribution the first vehicle of one line has the same desired speed as the first vehicle of the other line. Ditto for the two second vehicles, the two third vehicles and so on. **(6473)**

### Read Additionally:

- ✓ Additional display types are only read if they differ from the existing ones by color. Different textures and other display type attributes are (wrongly) ignored. **(6460)**
- ✓ Reading of stop signs with vehicle class data (time distribution) aborts with error "Unknown vehicle class". **(6533)**

### Routes Dialog :

- ✓ The dialog aborts with an exception message if the network contains link names containing the character "|". **(6443)**

### VDiag:

- ✓ The message saying that the hotline package was created successfully can appear even if no package was created at all. **(6257)**

### VISWALK:

- ✓ Additional read of networks including escalators and/or moving walkways may abort with error "Display type doesn't exist.". Afterwards the current network will contain some data from the network to read additionally. **(6459)**
- ✓ Deleting a display type which is used by a normal area or a ramp or a stairway causes an error "VISWALK has encountered a severe problem...". The network data may be corrupted afterwards. **(6526)**
- ✓ If the destination of a pedestrian route with dynamic potential lies very close to the borders of an area, the simulation might be slowed down by unnecessary calculations. **(6508)**
- ✓ If the internal obstacles at the start or end of a ramps divide an area with routing decisions on it, the simulation does not start and an unclear error message is displayed. **(6202)**
- ✓ Memory leak with pedestrians and public transport. It made the simulation not reproducible and PT vehicles had wrong occupancies. **(6472)**
- ✓ Ramp Dialog: The Going of a stair/walkway/escalator can be set larger than its length in the ramp dialog. **(6404)**
- ✓ Ramp properties dialog may crash or show wrong error messages if more than one ramp is selected. **(6475)**
- ✓ The area evaluation lists only absolute values of speed x and y. [Now, the sign tells the direction.] **(6468)**
- ✓ The detection of free space on the first step of escalators/moving walkways doesn't work correctly. [Now, pedestrians stand on the escalators more densely and the flow rate is increased]. **(6447)**
- ✓ The program may crash if a pedestrian measurement area is created immediately after starting the program, without loading an inputfile. **(6449)**

## + New Features and Changes

### C2X Interface:

- + Detectors, SignalGroups and SignalControllers are accessible via the C2X interface. The available attributes of these objects can be found in the file [VISSIM folder]/API/C2X/c2x.html.

### COM Interface:

- + The new function Graphics.SetActiveKeyFrame() can be used to set the 3D camera to the view of a saved keyframe.

### Display Types:

- + Additional default display types "Rail (stones)", "Rail (road)", "Pedestrian area gray", "Obstacle", "Escalator steps", "Escalator landing", "Escalator handrail", "Escalator balustrade" and "Escalator socket".  
If you wish to add these display types to an existing network, save an empty network as \*.inp file and read this file additionally to the existing network with only "Display types" selected.

### VISWALK:

- + Escalators/moving walkways:  
The percentage of pedestrians walking on the escalator/moving walkway can be defined along with a filter of pedestrian classes. For the remaining pedestrians the standing location can be defined as either only left, only right or random.  
User-definable display types can be selected for balustrade, handrail and socket.
- + The pedestrian area evaluation has new observables for pedestrians' speed in x-/y-direction.
- + The pedestrian area evaluation has new observables for pedestrians' time entering and time leaving the evaluation area.

## ✓ Fixed Bugs

### ANM Import:

- ✓ Adaptive import may abort with an exception message if the the imported \*.anm file contains stop signs. **(6381)**

### COM Interface:

- ✓ Iterating through the reduced speed areas via COM causes a crash. **(6415)**
- ✓ The attribute "TABLENAME" of the ILinkEvaluation COM Interface returns the configuration file name. **(6430)**

### Network Editor:

- ✓ Selecting a segment node after running "Check nodes/edges" can cause several exception messages (and VISSIM must be closed via the Task Manager) in rare cases. **(6418)**

### VISWALK:

- ✓ A simulation run can abort if there is a dynamic partial routing decision of type service point selection affecting a route between two different levels. This happens along the way of a static route of a pedestrian to the area containing the partial routing decision if the area of the static route which directly precedes the area containing the dynamic partial routing decision is on a different level. **(6170)**
- ✓ Defining dwell time distributions is not possible with a VISWALK licence (including only pedestrian simulation but not vehicle simulation). The menu item "Base Data - Distributions - Dwell Time..." is always disabled in this case. **(6429)**
- ✓ Escalators/moving walkways: The speed in the dialog on the tab page "Movement" is wrongly handled as km/h (or mph). [This speed is always in [m/s] and should never be converted.] **(6435)**
- ✓ If the conflict marker of a priority rule is located on a pedestrian link, the flag "all pedestrian types" is not read correctly from the \*.inp file. This can cause the OK button in the priority rule dialog to be disabled erroneously. **(6433)**
- ✓ Pedestrian Compositions: VISSIM might crash (in the pedestrian composition dialog or upon file opening) if a pedestrian composition contains multiple entries with a ratio of 0. **(6442)**

- ✓ Public Transport: In rare cases an alighting pedestrian does not leave the PT vehicle at all and thus prevents the PT vehicle from departing. **(6363)**
- ✓ Public Transport: The simulation aborts with an exception error if a pedestrian arrives on a PT waiting area under the following circumstances:  
He has used a partial route which ends there together with his static route or, sometimes, if "alighting is possible" but "boarding is not possible" in the PT line-specific stop data to which this waiting area belongs. **(5952)**
- ✓ Tab key / "Next" button does not work for links in the pedestrian mode. **(6425)**
- ✓ The thickness of moving walkways and escalators is not displayed in 3D mode. **(6402)**
- ✓ Undo does not work for changing the geometry of ramps. **(6411)**
- ✓ When using escalators together with partial pedestrian routes, the results of the simulation might not be reproducible. **(6417)**

5.40-00 [30899]

2011-10-13

## + New Features and Changes

### Analyzer:

- + Significant speed-up of the generation of queue lengths reports.

### ANM Import:

- + Adaptive import: Manually created detectors in a node are recovered if the node is recreated (because of a change in the ANM data).
- + Includes optional PT telegram attributes of PT lines.

### AVI Recording:

- + Creation of an \*.avi video file is possible from animation file (\*.ani) replay (in 3D only) but only without keyframes.

### Driving Behavior Parameters:

- + Advanced merging: better tactical look ahead by merging vehicles and by cooperative trailing vehicles on the target lane. This allows more vehicles to change lanes earlier and thus increases the capacity and reduces the probability of standing vehicles waiting for a lane change.
- + Cooperative lane change: If this is active, a vehicle A who sees that the leading vehicle B on the adjacent lane wants to change to the lane of the vehicle A tries to change lanes itself to the other side in order to make room. Vehicle A behaves as if it had to change lanes for a connector far in the distance, accepting only the base values ("Accepted deceleration") for its own deceleration and for the trailing vehicle on the new lane. Vehicle A doesn't change cooperatively to a lane which is less suited for its own route, and it doesn't change lanes cooperatively if vehicle B is more than 3 m/s faster or if the collision time is more than 10 seconds with the speed of vehicle A increased by 3 m/s. These two parameters (maximum speed difference and maximum collision time) can be changed, too.
- + Fixed standstill distance upstream of static obstacle: If this option is checked, the vehicles using this parameter set use the given value as constant standstill distance upstream of all static obstacles except parking space end positions (i.e. signal heads, stop signs, pt stops, priority rules, conflict areas) instead of the normal distributed value [0.5; 0.15]. (This is required for PT vehicles at PT stops with platform screen doors or waiting queues at fixed positions on the platform.)
- + Lateral behavior (on the same lane): 3 new parameters:  
Collision time gain: Minimum advantage in expected collision time with desired speed which is required for a lateral change to a different lateral gap downstream.  
Minimum longitudinal speed: Minimum driving speed required for a lateral movement. Vehicles don't move laterally if they are slower than this value.  
Time between direction changes: Minimum time between the start of a lateral movement to the left and the next start of a lateral movement to the right (or vice versa).
- + Smooth closeup: provides a smoother deceleration process up to a standing obstacle, avoiding unrealistic acceleration after the leading vehicle has (almost) stopped.

### Dynamic Assignment:

- + Parking Lot selection: Warning message if percentiles become 0 because of too large negative utility values.

#### **Evaluations:**

- + Vehicle Record and Lane Change Record files: Optional AND-filter for link number(s). If the default entry "All links" is not selected, only vehicles on the selected links are listed in the respective evaluation file.

#### **Interfaces:**

- + New DLL interface for external Driving Simulators - see separate documentation (on request).

#### **License Handling:**

- + The number of simultaneous instances of VISSIM on one computer can be limited by the license. The default maximum for existing licenses is 4.

#### **Parking Lots:**

- + A real parking lot (for on-street / curb-side parking) can have an optional blocking time distribution. The blocking time is the time between the first standstill of the parking vehicle at his parking space (the rear part of the vehicle blocks traffic on the lane adjacent to the parking space) until the final standstill (the vehicle is parallel to the link). (If the length of the parking lot is exactly the length of one parking space there is no snap into the parking space and the blocking time is ignored.) The blocking time distribution can be selected on the tab page "Parking Spaces" in the parking lot dialog. Selecting "0: None" disables the blocking time.

#### **Signal Control:**

- + New controller types "McCain 2033" and "Fourth Dimension D4".
- + The RBC GUI now supports up to 64 detectors per intersection.

#### **Simulation Parameters:**

- + New option "Retrospective synchronization". If this option is active VISSIM doesn't wait anymore at the end of each time step until the real time allocated for that single time step has been spent (defined as time step length divided by the simulation speed). Instead, VISSIM waits until the correct total amount of real time has been spent for all time steps since the last start of the continuous simulation. This means that VISSIM tries to catch up after slower time steps (e.g. because of signal control calculation or other external effects) as soon as possible. (This is required for synchronization with external controller hardware-in-the-loop.) Real time lost when a continuous simulation is paused due to an open dialog is considered as delay, too, so the simulation will continue after this with maximum speed until the simulation time divided by the simulation speed equals the total real time spent again. If the simulation speed is reduced during a continuous simulation run with active retrospective synchronization, the simulation waits until the total real time since the start of the continuous simulation equals the current simulation time divided by the simulation speed before the next time step is executed.
- + New option "Use gradient from z coordinates": If this option is active, the gradient used during the simulation is dynamically computed using the z coordinates of the current link segment of the front edge of a vehicle, ignoring the static gradient of the link.

#### **Unit Selection Dialog:**

- + (View / Options / Language & Units) Buttons "All metric" and "All imperial".

#### **VISWALK:**

- + CAD Import (\*.dwg files) for areas and obstacles (see manual).
- + Escalators and moving walkways (see manual).
- + New option for LOS display: A pedestrian can be "spread" over multiple cells (useful if the cells are smaller than a pedestrian). The radius of this approximated circle can be 1..5 cells.
- + O-D matrix editor for pedestrian inputs and route volumes (see manual).
- + Origin-destination evaluation for pedestrian travel times, delays and counts (see manual).

- ⊕ The module "Pedestrian Simulation" is now available as a standalone license (without vehicular traffic) under the name VISWALK. With such a license the program shows "VISWALK" instead of "VISSIM", has a different icon and splash screen and the GUI is reduced to the network objects which are required for pedestrian simulation. Objects used only by vehicular simulation are not available. VISSIM networks with vehicular links can be opened with VISWALK but all vehicle inputs and parking lots are disabled, so there is no vehicular traffic.