

Sophisticated Event/Action Handler and improved Agents Plan Builder

Version 4.2 introduces the Event/Action Handler, a universal and powerful tool to influence a simulation depending on (random) occurrences like hazards, agents count, vehicle or formation states, simulation time, user actions, and so forth.

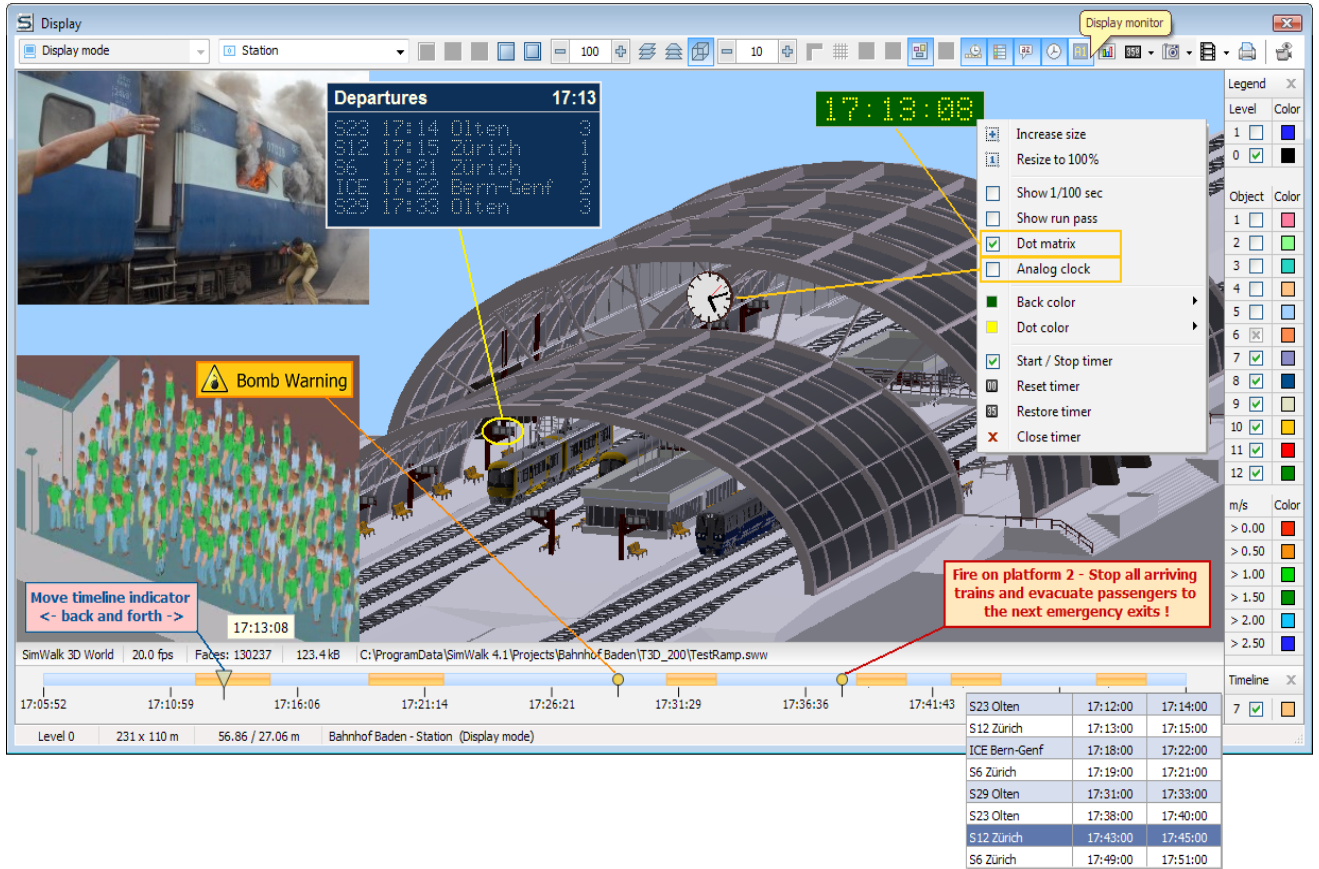
1) Event/Action Handler

Similar to macro or batch programming, the user has the ability to trigger any action according to incoming events and rule based conditions, for example:

- Manipulate pedestrian walking with traffic lights and barriers controlled by timetables of trains or busses.
- In case of an arson attack in a station, immediately stop arriving trains and evacuate the passengers to the next emergency exits.
- Open emergency exits and disable elevators in case of a fire in a building.
- Count injured persons after a hazard becomes active to mobilize the rescue forces.
- Clock controlled entrances and exits of a shopping center depending on given opening hours.
- Open or close gates and turnstiles depending on passenger count or density.
- Display timer, clock, counter chart, departure monitor, or text panel to provide the customer with actual information.
- Automatically open reserved railway wagons if all others are (nearly) full
- Start and stop timer on new agent's one-shot events 'exited' and 'embarked' to measure and report (e.g. with a chart) the transfer time needed to change the trains
- Control the 3D camera and make automated snapshots on events of your interest
- Correlate video capturing with important simulation scenes
- Show or hide pictures and animations and play sounds for more impressive presentations

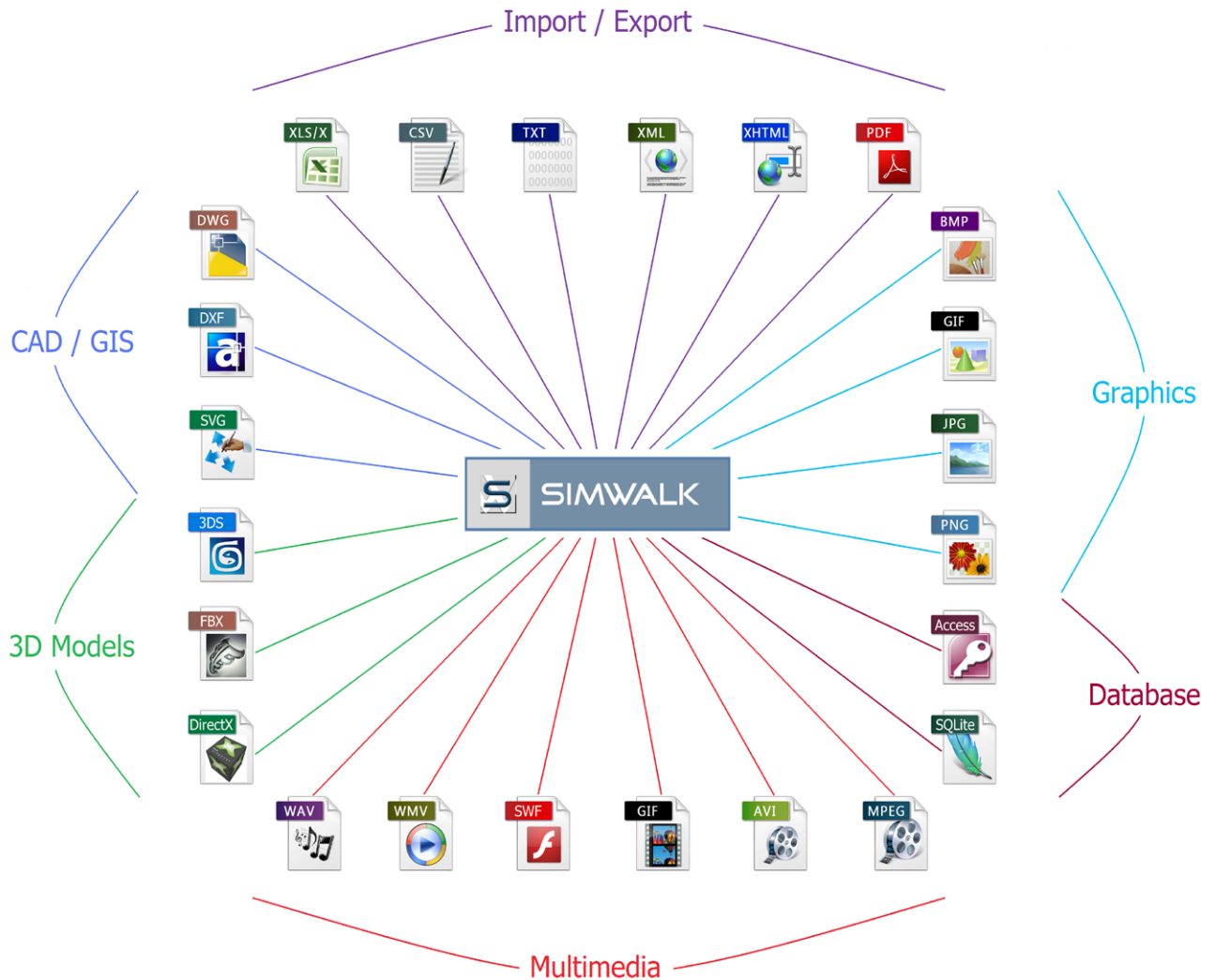
New 'Smart Objects' allow to model simple to complex objects which are able to dynamically change their shape, size, position, color, etc. to perform actions like:

- Extend passenger boarding bridge or move passenger boarding stair, allowing passengers to board or disembark its airplane.
- Transport baggage with conveyor belt where passengers can reclaim its baggage.



2) Enhanced Display Capabilities

- Version 4.2 provides viewers with additional time and textual information both in 2D and 3D view
- Easily setup and show dynamic information panels, departure monitors or destination boards based on timetable of trains, busses or flight schedule
- Choose between different styles or create your own look with minimal effort
- Appearance of all kind of displays could also be controlled by the new Event/Action Handler (e.g. position, size, colors, style, time, texts...)
- Click into the timeline to view the actual train schedule
- In replay mode (all data are read from database) move the timeline indicator with the mouse to jump forth and back in time to find the scenes of your interest quick and easy
- In 3D view dynamically color the clothes (e.g. the shirt) of actors depending on walking speed, age, next waypoint, etc. and/or overlay the floor with the corresponding density or stress map and other airport specific objects.



3) Flexible and Standard Data Exchange

- Integration of SQLite (www.sqlite.org), a fast, self-contained, serverless, zero-configuration SQL database engine. It supports terabyte-sized databases to overcome the 2GB limitations of MS Access
- Direct import of architectural drawings, construction plans or geographic maps from your CAD or GIS software either in AutoCAD® Drawing Interchange Format (DXF) or Scalable Vector Graphics (SVG) open standard
- Excel import/export with extended XLSX file format. Supports virtually unlimited number of data columns and rows, without the need to have Excel installed (XLS is limited to 65'535 rows)
- Export data tables to HTML or XHTML for web-based presentation
- Support for most popular graphic file formats like BMP, GIF, JPG, and PNG
- Integration of VirtualDub video converter (www.virtualdub.org). Support for WMV, MPEG-2, and AVI2 files to break the GIF 256 colors and AVI 2GB barriers
- 3D converter for Autodesk® 3DS and FBX de-facto standard formats

The screenshot displays the 'Agents' configuration window. The 'First step' is 'Start point' (S13 West (PlatformNorth)) with an arrival time of 08:01:00 and a departure time of 08:02:00. The 'Next step' is 'Waiting point' (Baggage (Concourse)) with a waiting time of 90 seconds. The 'Last step' is 'Exit point' (MetroEast (Station)). The 'Traveling baggage' section is highlighted with a blue circle, showing options for 'Check-in' and 'Reclaim'. A red circle highlights the 'Router' button and the 'Change to route planning mode' tooltip. Below the configuration panel is a table of waypoints and a network diagram.

Id	Agents	Level	Start	Waypoint	Tmin	Tmax	Tdel	Tdep	Group	Wtyp	Profile	Darr	Ddep	Tvar	Tret	Hc
44	30 hide	0	S13 West (PlatformNorth)	GateNorthA1 (Concourse)	29160	29220			24		-1	2	2	0	0	74
45	30 hide	0	S13 West (PlatformNorth)	GateNorthB1 (Concourse)	29160	29220			25	1	-1	2	2	0	0	74
46	30 hide	0	S13 West (PlatformNorth)	GateNorthA1 (Concourse)	29310	29370			26	1	-1	2	2	0	0	74
47	30 hide	0	S13 West (PlatformNorth)	GateNorthB1 (Concourse)	29310	29370			27	1	-1	2	2	0	0	74
48	15 hide	0	S13 West (PlatformNorth)	Baggage (Concourse)	28860	28920	60	90	28	4	-1	2	2	0	0	-74
49	15 hide	0	S13 West (PlatformNorth)	GateNorthB2 (Concourse)	28860	28920	0	0	28	1	-1	2	2	0	0	-74
50	15 hide	0	S13 West (PlatformNorth)	Baggage (Station)	29010	29070	15	25	29	4	-1	2	2	0	0	-74
51	15 hide	0	S13 West (PlatformNorth)	GateNorthB2 (Concourse)	29010	29070	0	0								
52	15 hide	0	S13 West (PlatformNorth)	Baggage (Station)	29160	29220	1									
53	15 hide	0	S13 West (PlatformNorth)	GateNorthB2 (Concourse)	29160	29220	0									
54	15 hide	0	S13 West (PlatformNorth)	Baggage (Station)	29310	29370	1									
55	15 hide	0	S13 West (PlatformNorth)	GateNorthB2 (Concourse)	29310	29370	0									
56	50 hide	0	MetroEast (Station)	CheckIn04 (Concourse)	28800	29400										

4) Improved Agents Plan Builder

The creation of the Agents plan could be a complex and time consuming task. The new Agents Plan Builder offers some improvements which makes this task easier and faster:

- Pre-define any number of routes (walking paths) containing of any number of waypoints which then can be selected at once
- Multi-select any number of start points which has the same exit point (N-to-1 relation) and insert any number of waypoints (waiting or baggage handling areas) between
- Multi-select any number of exit points which has the same start point (1-to-N relation)
- Add repetitive start points or exit points by defining a time interval and the number of repetitions (e.g. periodic train arrives every 12 minutes and holds for 180±10 seconds)
- Also a waypoint has become a more extensive meaning and may act as baggage handling:
 - Check-in and/or reclaim carry-on baggage (e.g. personal lightweight baggage at the checkroom of a theater or cinema)
 - Check-in and/or reclaim traveling baggage (e.g. massy trunk on the baggage carousel of an airport)
- The waiting time is defined as a range (from - to), where the effective seconds for each agent are randomly determined between this limits

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