Evacu8 Documentation

Plug-in for QGIS Desktop 2.18.12

Introduction

This plugin was developed by the students Francisco Gabriel Garcia Gonzalez, Freek Broersma and Vasileios Bouzas during the academic period 2017/2018. This plug-in was the final project of the "Spatial Decision Support for Planning and Crisis Management" (GEO1005) course from the MSc Geomatics Programme (TU Delft). Supervisor Prof. Jorge Gil, Researcher and Chair of Environmental Technology & Design (TU Delft, Faculty of Architecture, Department of Urbanism).

Purpose

The main goal of this plugin is to help decision makers with building evacuation in case of emergency. In particular, the whole concept of the plugin is based on a hypothetical terrorist attack in the Rotterdam Municipality. Nonetheless, it can be used for any other kind of emergencies.
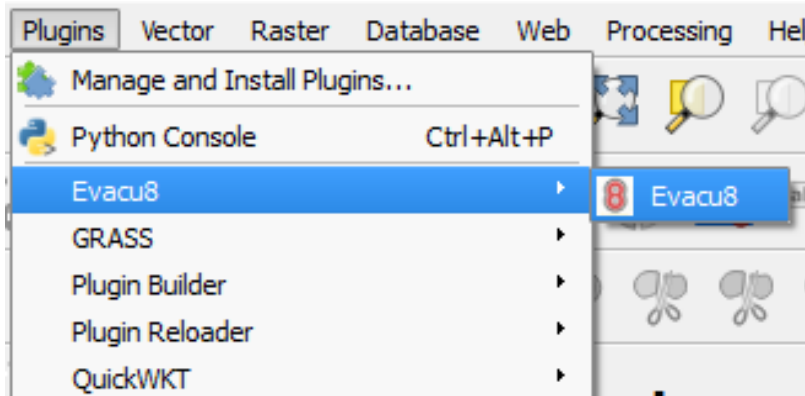
Requirements

To use the plugin, except for installation, the following requirements must be also satisfied:
- **QGIS Desktop 2.18.12** (older versions not tested)
- **Internet connection** (OpenStreetMap Background)

Workflow

After being installed, the plugin can be accessed via the QGIS Panel or Plugins Menu.

Where to find the plug-in.

When opening the plugin, the interface will appear on the right side of the screen. It consists of three different tabs: Set Scenario, Analysis (which is deactivated at the start) and Reporting.

On the left side the layer panel will serve as the legend of the plugin (note that only the icons in the plug-in interface will be used, no QGIS icons will be necessary).
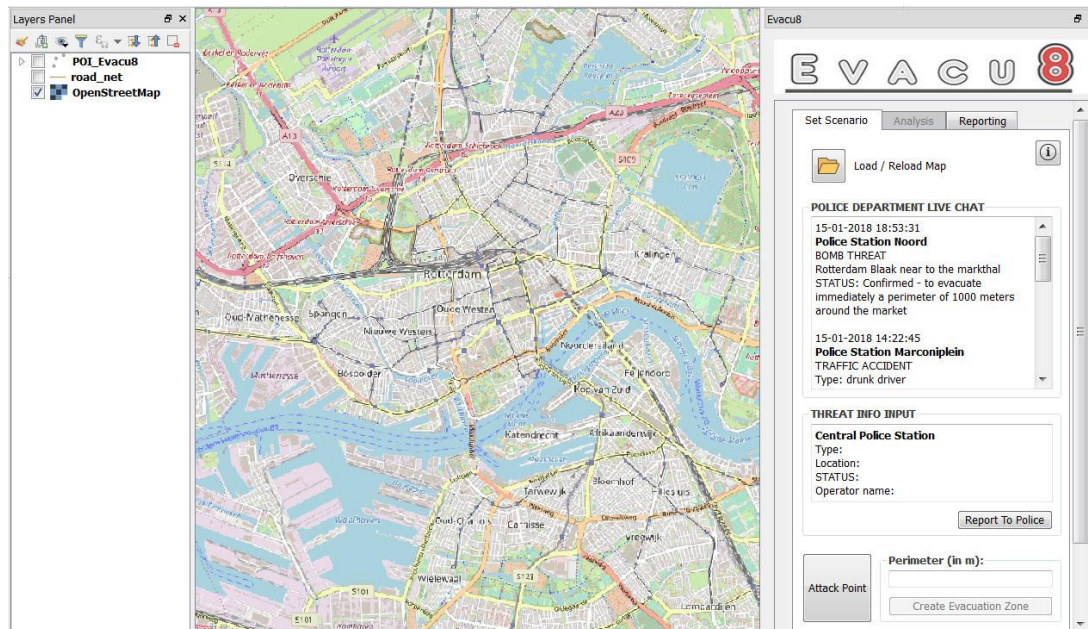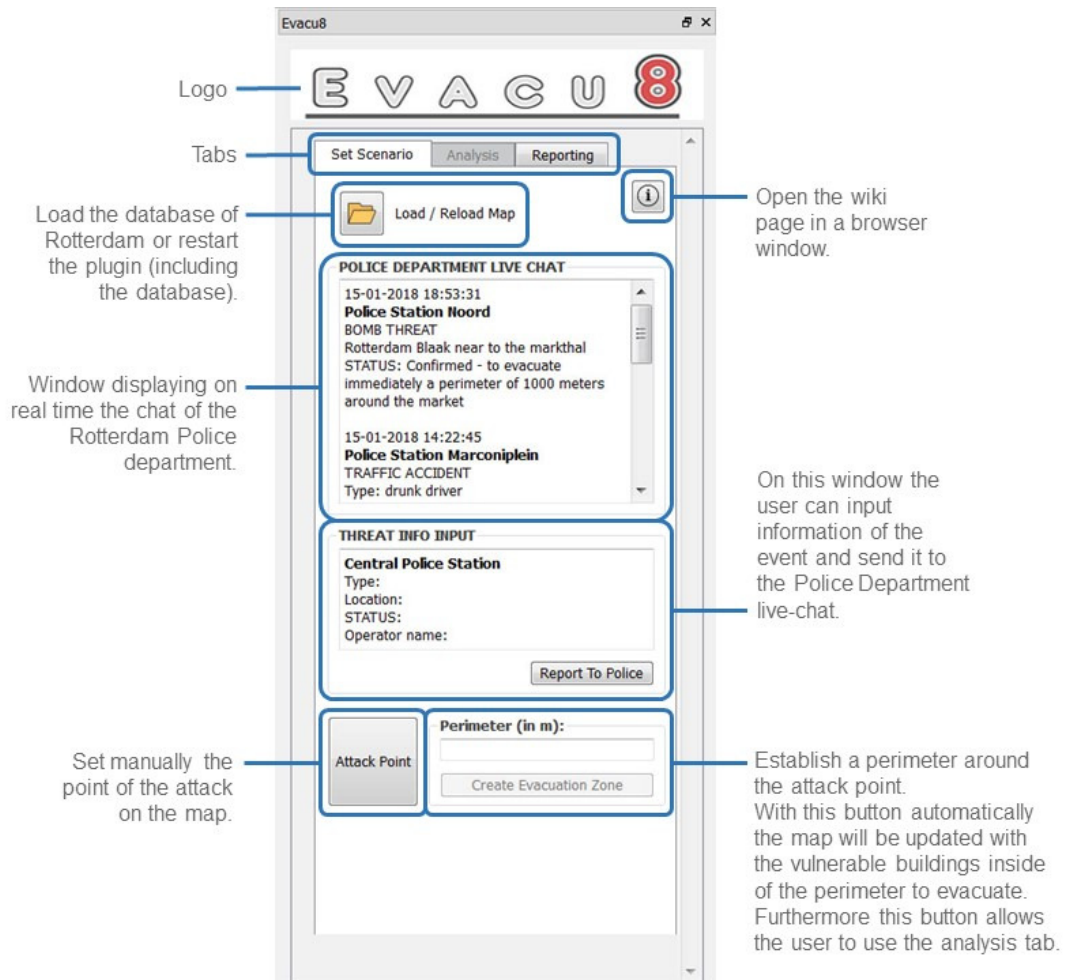

Interface of the plug-in.

Set Scenario Tab

The Set Scenario Tab, allows the user to load a scenario, check on real time the Police Department chat, communicate with it, set the position of the attack and establish a perimeter.

Logo

Tabs

Load the database of Rotterdam or restart the plugin (including the database).

Window displaying on real time the chat of the Rotterdam Police department.

Open the wiki page in a browser window.

On this window the user can input information of the event and send it to the Police Department live-chat.

Set manually the point of the attack on the map.

Establish a perimeter around the attack point.
With this button automatically the map will be updated with the vulnerable buildings inside of the perimeter to evacuate.
Furthermore this button allows the user to use the analysis tab.

Set Scenario tab.

Analysis Tab

The Analysis Tab will be able only if a perimeter is established. On this tab, the user will be able to set danger zones, select buildings, calculate routes and set evacuation routes.
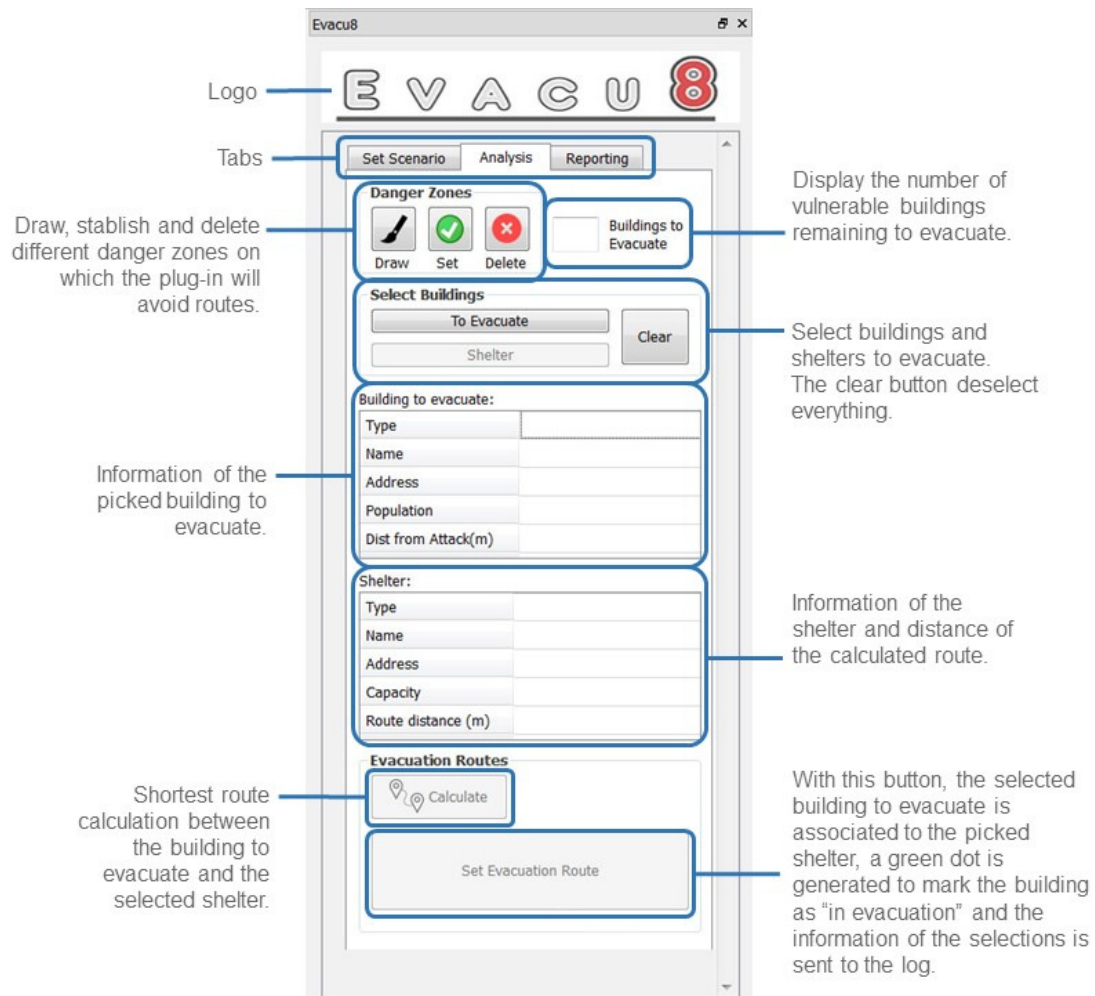
Analysis tab.

Danger Zones **Toolbox**

This tool allows the user to establish areas in the map that cannot be accessed for any reason (for example, a raised bridge).

To establish danger zones, press the **Draw** button in the **Danger Zones** toolbox. By clicking on the canvas you define the vertices of the polygon.

Attention! The <u>last vertex</u> of the polygon must be defined by <u>**right-clicking**</u> on the canvas.

You can define more than **one** polygon.

After drawing danger zones, the **Set** button seve to define the polygons. If a danger zone needs to be deleted, you can press the **Delete** button and click on the polygon you wish to erase.

### *Select Buildings* **Toolbox**

This tool allows the user to pick buildings to evacuate and shelters, in order to access relative information and define the shortest route through analysis.

To pick an evacuation target, press **To Evacuate**, at this step, the button deactivates and the **Shelter** button is activated to select a shelter for the selected evacuation target. After picking both, an evacuation target and a shelter, you can scroll down to the **Evacuation Routes** and press the **Calculate** button to estimate the shortest path between them.

If you wish to clear any choices made, you can press the **Clear** button and start all over.
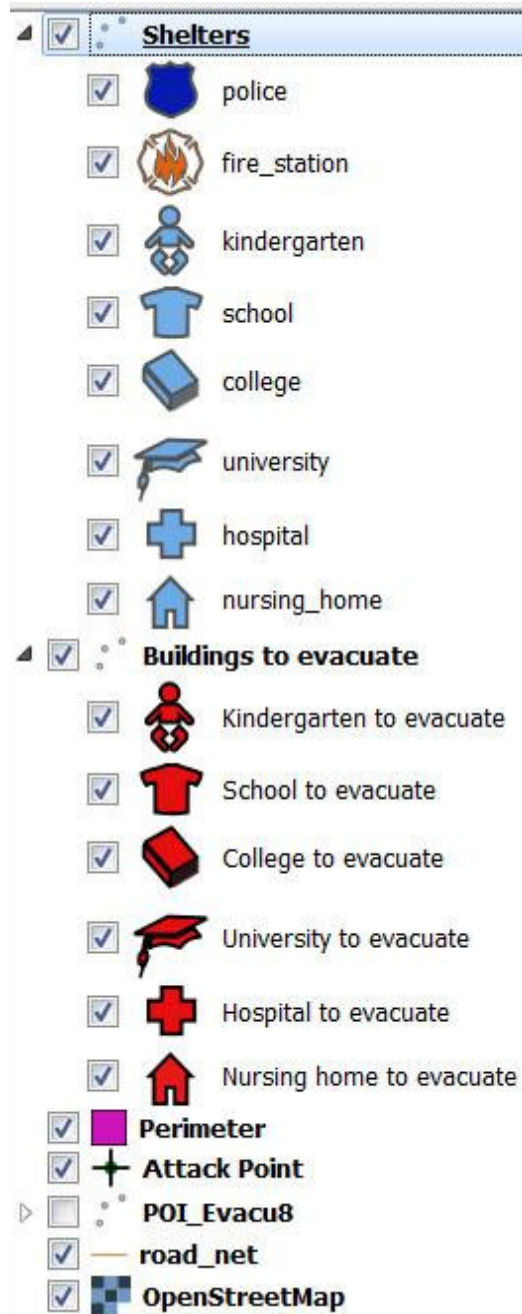
Reporting Tab

On this tab the synthesis of the work is stored in a log that can be visualized and exported.
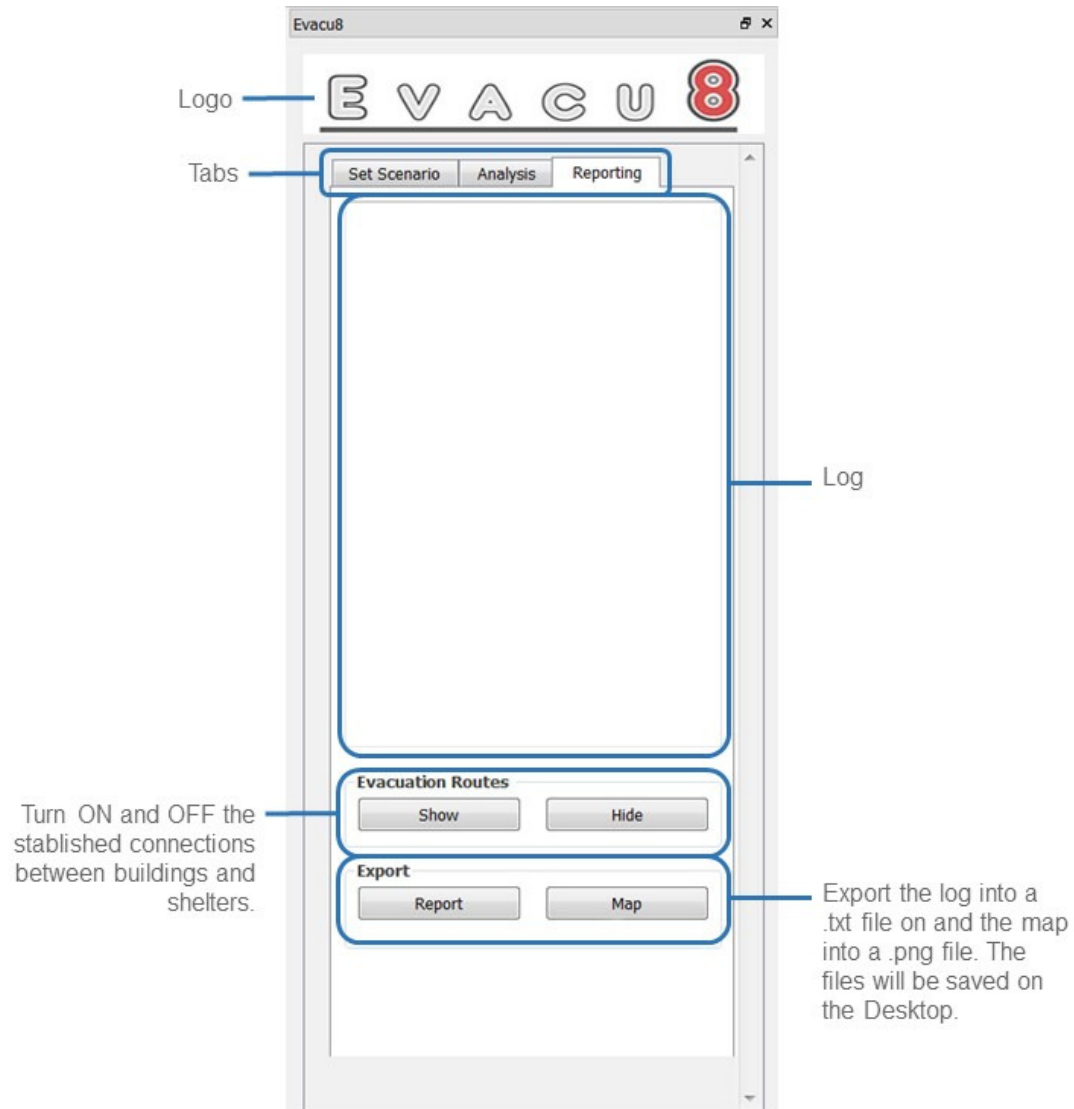
Reporting tab.

Layer panel (legend)

The legend is divided in two groups of icons, the shelters (in blue) and the buildings to evacuate (in red). Furthermore, Police Stations and fire brigades are displayed to support the evacuation.

Layers panel.