Version :

COPERT Street Level

User's Manual

Version 2.0

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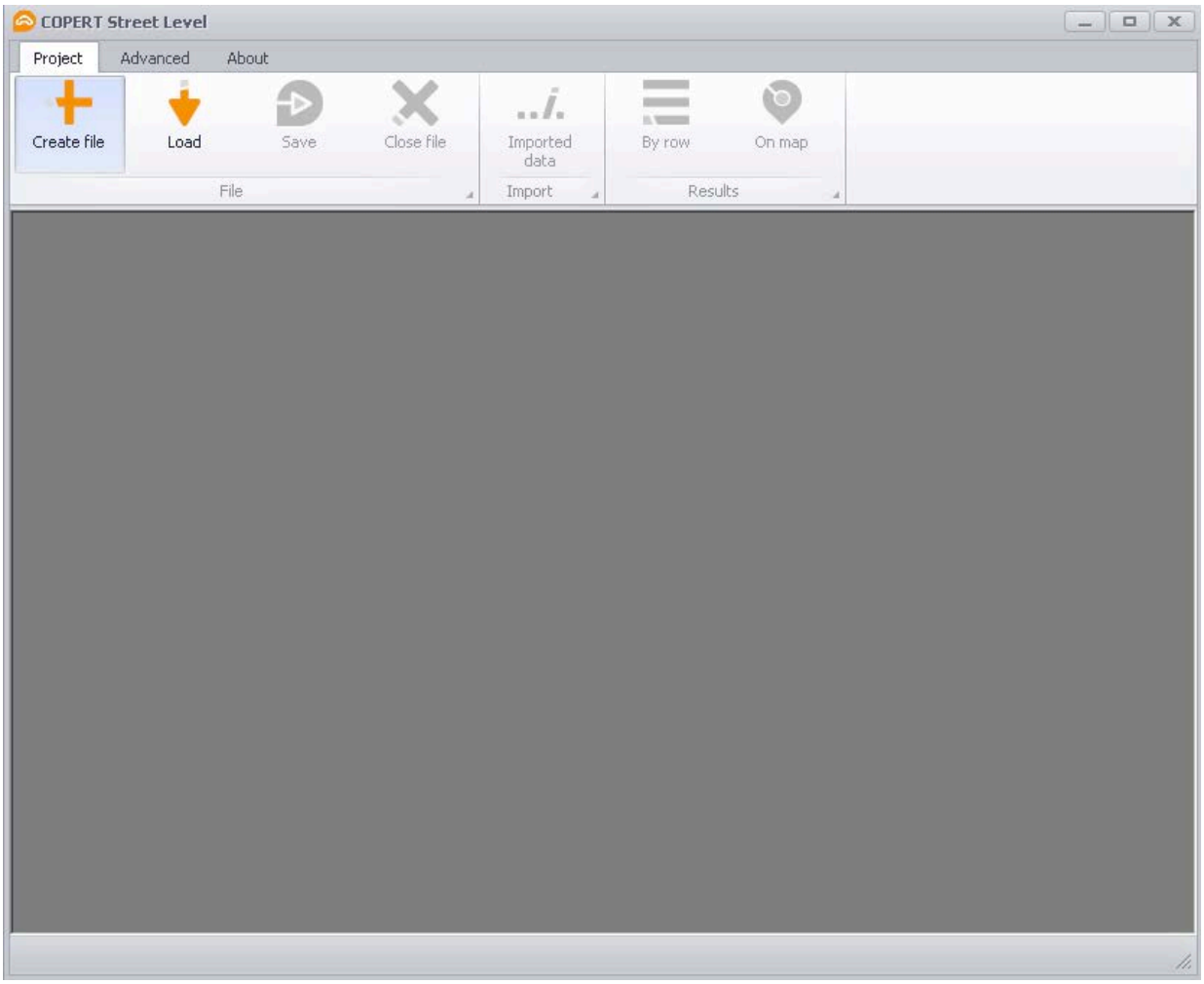
Introduction

COPERT street level is a standalone MS Windows software designed for users who wish to calculate emissions on a street basis. It is structured in such a way as to work alongside traffic analysis tools.

The methodology is based on the well known COPERT software but brings a whole new approach to the level of calculations. The software can calculate emissions on a single street or on a full city street network. It requires the minimum set of input data to produce results and is optimized for fast execution times. Emissions can also be displayed on a GIS map to improve visualization.



Main software window

Installing COPERT street level

To install COPERT street level, simply double click on the executable file and a typical MS Windows installation will start automatically. The software requires approximately 100 MB of hard disk space. An active license key is required.

IMPORTANT INFORMATION:

Please note that when working with COPERT street level an **active internet connection** is required at each start-up to validate the license key.

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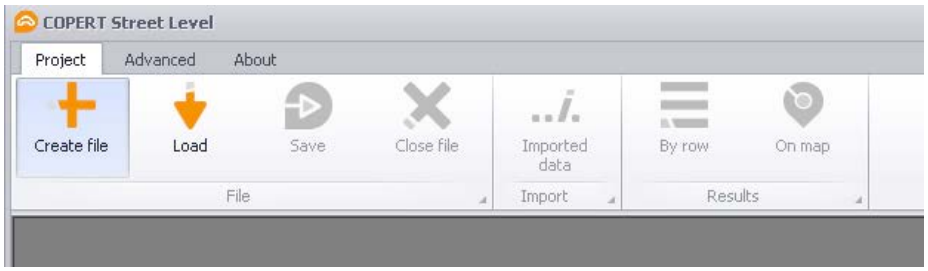
Main menu items

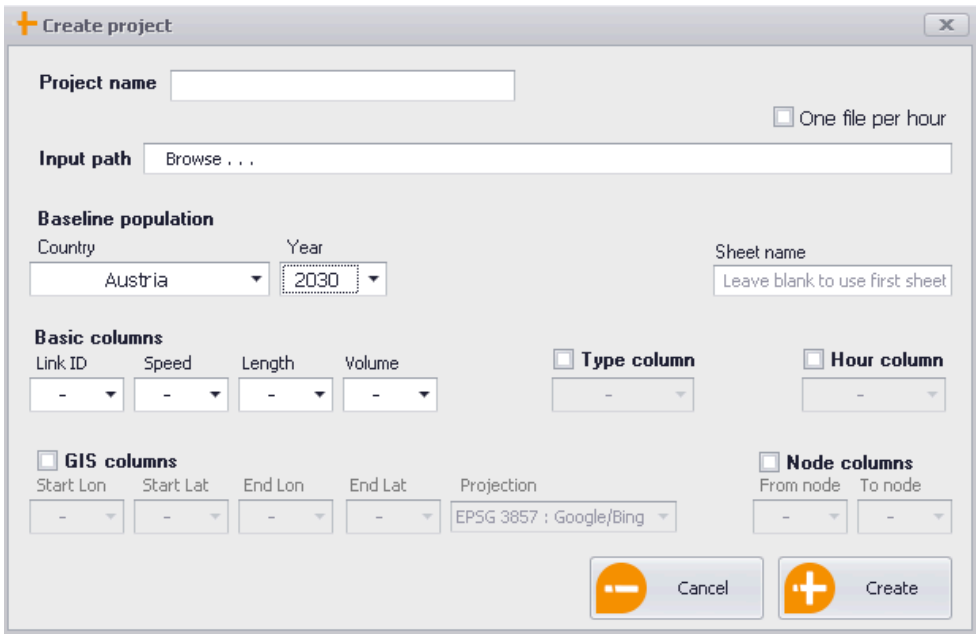
The software has 3 main menus: **Project**, **Advanced** and **About**. Menu Project includes all necessary functionalities to perform a full run. Menu Advanced allows users to modify the default parameters in order to customize the calculations. Menu About includes the registration information.

Menu Project



Menu Project

Project > File > Create file



Create File

In order to create a new CSL file you must first provide all the necessary information in this form.

Project name: here you provide a name for your project

One file per hour check box**:** input data can correspond to a specific time within a day, or span across multiple hours. If this is the case and you have different files for each hour you can check this box and provide the different paths for the files containing the information for each hour.

Input path: by clicking on this item you are prompted to locate your file containing the input data. If you have checked the **One file per hour** check box this item expands to include more than one paths.

Baseline population: this is a list box displaying all countries for which CSL contains default fleet information.

Year: this is a list box displaying the years for which CSL contains default fleet information.

Sheet name: input data can be imported from an MS Excel file. If data is on the first sheet of the file than this text box can be left empty, however if the information is on different sheets than this must be filled with the corresponding sheet name.

In order to better understand the way the software defines the input data structure it is helpful to work with an example, in this case an MS Excel file containing all relevant information. In this file column A contains the link id of a specific road segment, column B the length of the link, column C the number of vehicles driving through, column D the vehicle speed, column E the hour this activity refers to and column F the type of link (eg one way, road with two lanes etc). Columns G through J are the GIS required information in order for the software to display the data on the map.

Columns A, B, C, and E are the minimum required for the calculations to be performed. This means that if there is only one type of link, if data refers to a one specific hour and no GIS visualization is required no other information is necessary. Moreover since the user defines which columns contain which information column listing can vary.

	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4										
5	$LINK:NO	LENGTH	VOLVEHPRT(AP)	VCUR_PRTSYS(C)	Hour	Link Type	start_x	start_y	end_x	end_y
6	1	42	320	32	23:00	1	2564183.5	4951336.89	2564285.11	4951386.25
7	1	42	558	15	23:00	2	2556750.04	4952288.23	2556779.65	4952160.79
8	2	113	558	15	23:00	4	2567049.61	4911556.61	2567059.52	4911699.26
9	2	113	320	32	23:00	2	2567032.28	4911267.53	2567040.21	4911409.72
10	3	880	401	25	23:00	4	2567024.51	4911139.85	2567032.28	4911267.53
11	3	880	421	24	23:00	2	2567040.21	4911409.72	2567049.61	4911556.61
12	4	320	840	7	23:00	3	2567059.52	4911699.26	2567068.11	4911842.58
13	4	320	832	7	23:00	1	2565635.88	4952913.43	2566005.9	4953419.48
14	5	580	430	23	23:00	2	2566005.9	4953419.48	2566201.77	4953267.56
15	5	580	419	24	23:00	2	2555180.82	4949501.37	2555301.18	4949406.27
16	6	590	5653	37	23:00	3	2555301.18	4949406.27	2555327.09	4949370.08
17	6	590	0	0	23:00	1	2555327.09	4949370.08	2555364.67	4949317.59
18	7	811	3899	87	23:00	4	2561548.71	4949979.71	2561619.42	4950098.19
19	7	811	0	0	23:00	2	2561394.89	4949840.22	2561456.94	4949878.54
20	8	350	1760	6	23:00	2	2561456.94	4949878.54	2561548.71	4949979.71
21	8	350	833	24	23:00	3	2554896.37	4958841.76	2554857.89	4958779.09

MS Excel input file

In order to define which columns contain which information the following items are included in the form:

Basic columns: these drop down lists define the corresponding columns for the link ID, speed, link length and vehicle volume

Type column: this drop down list defines the column for the link type. It is only enabled if the check box next to the **Type column** legend is checked.

Hour column: this drop down list defines the column for the hour the activity data in each row refers to. It is only enabled if the check box next to the **Hour column** legend is checked. Please

keep in mind that there is another way to provide datasets for different time periods and this is by providing different input files by checking the **One file per hour** check box as previously mentioned.

GIS columns: these drop down lists define the GIS information required for the visualization of the emissions on a map. They are only enabled if the check box next to the **GIS columns** legend is checked.

Node columns: these drop down lists define the correlation between the different links. They are not required either for the calculations or for the visualization on a map. They are only enabled if the check box next to the **Node columns** legend is checked.

Project > File > Load

This menu item allows you to open a previously created CSL file.

Project > File > Save

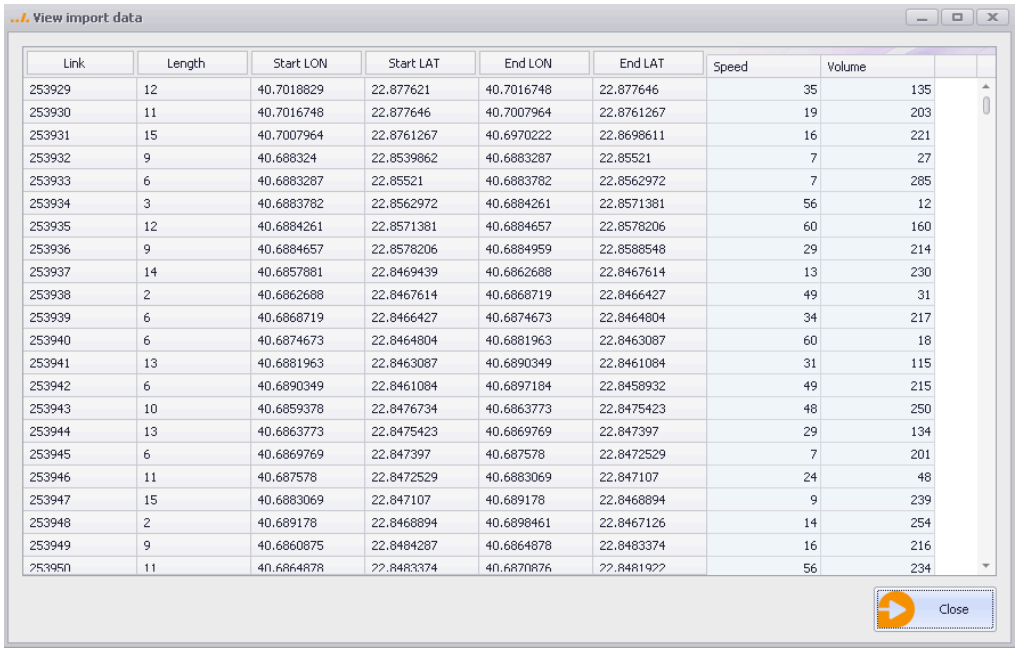
This menu item saves your work in a CSL file for later access and use.

Project > File > Close file

This menu item closes the CSL file you are working on.

Project > Import > Imported data

This menu item opens a form containing the data included in the CSL file. This includes all data imported from the original file.

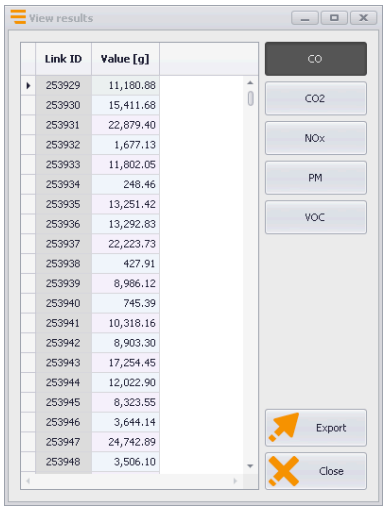


Link	Length	Start LON	Start LAT	End LON	End LAT	Speed	Volume
253929	12	40.7018829	22.877621	40.7016748	22.877646	35	135
253930	11	40.7016748	22.877646	40.7007964	22.8761267	19	203
253931	15	40.7007964	22.8761267	40.6970222	22.8698611	16	221
253932	9	40.688324	22.8539862	40.6883287	22.85521	7	27
253933	6	40.6883287	22.85521	40.6883782	22.8562972	7	285
253934	3	40.6883782	22.8562972	40.6884261	22.8571381	56	12
253935	12	40.6884261	22.8571381	40.6884657	22.8578206	60	160
253936	9	40.6884657	22.8578206	40.6884959	22.8588548	29	214
253937	14	40.6857881	22.8469439	40.6862688	22.8467614	13	230
253938	2	40.6862688	22.8467614	40.6868719	22.8466427	49	31
253939	6	40.6868719	22.8466427	40.6874673	22.8464804	34	217
253940	6	40.6874673	22.8464804	40.6881963	22.8463087	60	18
253941	13	40.6881963	22.8463087	40.6890349	22.8461084	31	115
253942	6	40.6890349	22.8461084	40.6897184	22.8458932	49	215
253943	10	40.6859378	22.8476734	40.6863773	22.8475423	48	250
253944	13	40.6863773	22.8475423	40.6869769	22.847397	29	134
253945	6	40.6869769	22.847397	40.687578	22.8472529	7	201
253946	11	40.687578	22.8472529	40.6883069	22.847107	24	48
253947	15	40.6883069	22.847107	40.689178	22.8468894	9	239
253948	2	40.689178	22.8468894	40.6898461	22.8467126	14	254
253949	9	40.6860875	22.8484287	40.6864878	22.8483374	16	216
253950	11	40.6864878	22.8483374	40.6870876	22.8481922	56	234

View import data

Project > Results > By row

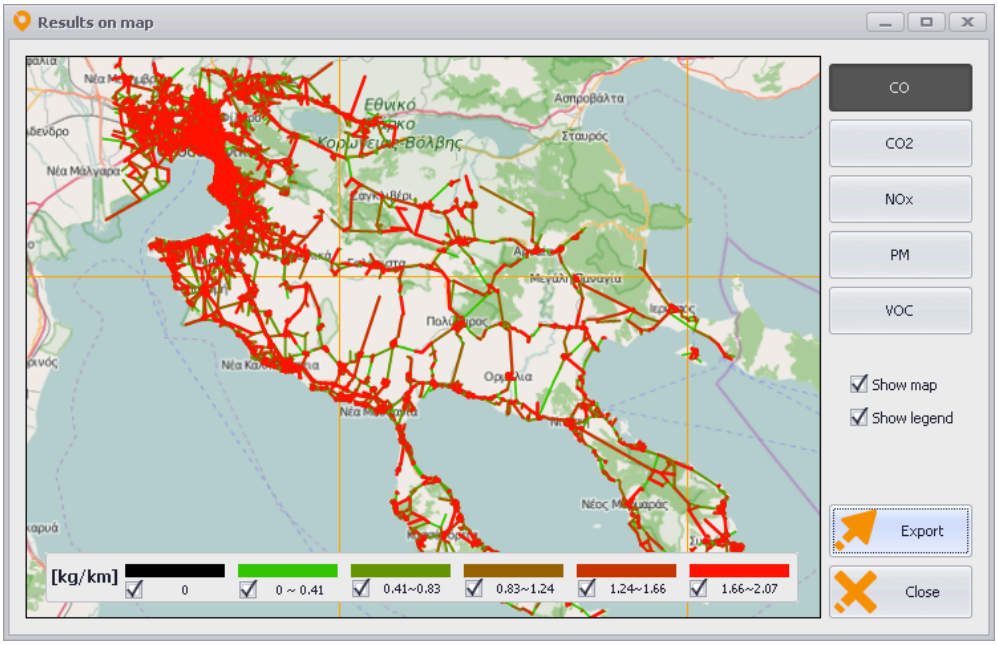
This menu items opens a form containing the emission results. The user can view the emissions as well as the fuel consumption per link ID but also export the data to an MS Excel or csv file.



Results form

Project > Results > On map

This menu item opens a form displaying the results on a GIS map. This item is disabled if no GIS input data are defined.

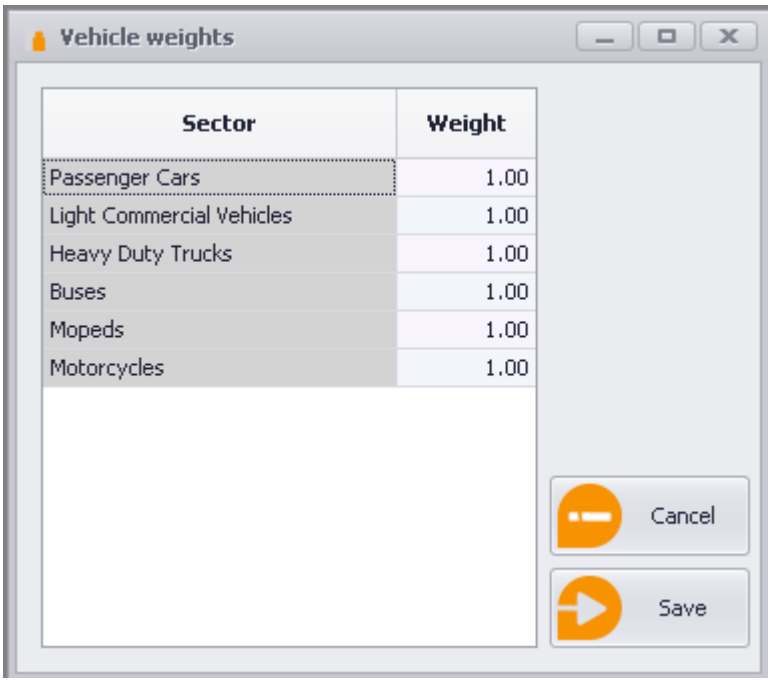


Results on a GIS map

Menu Advanced

Advanced > PCUs > PCU weights

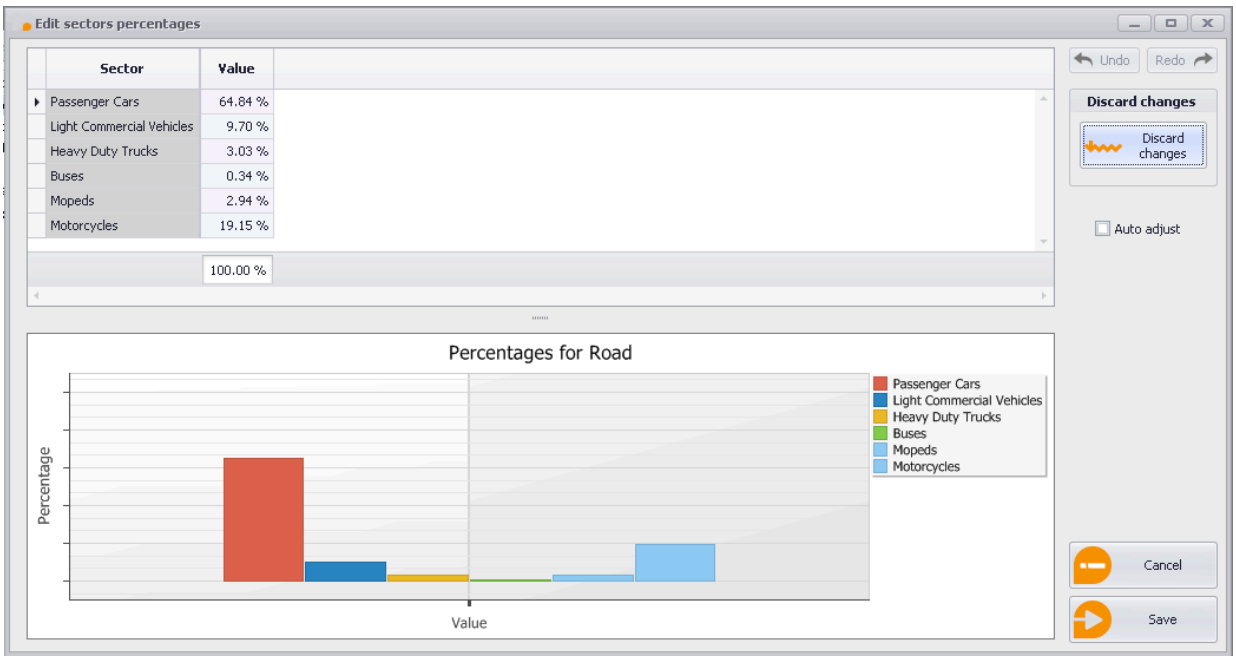
This menu item opens a form containing the Passenger Car Unit weights. If the user provides input data in PCU's and not in vehicles per hour these values should be modified accordingly in this table.



PCU weights

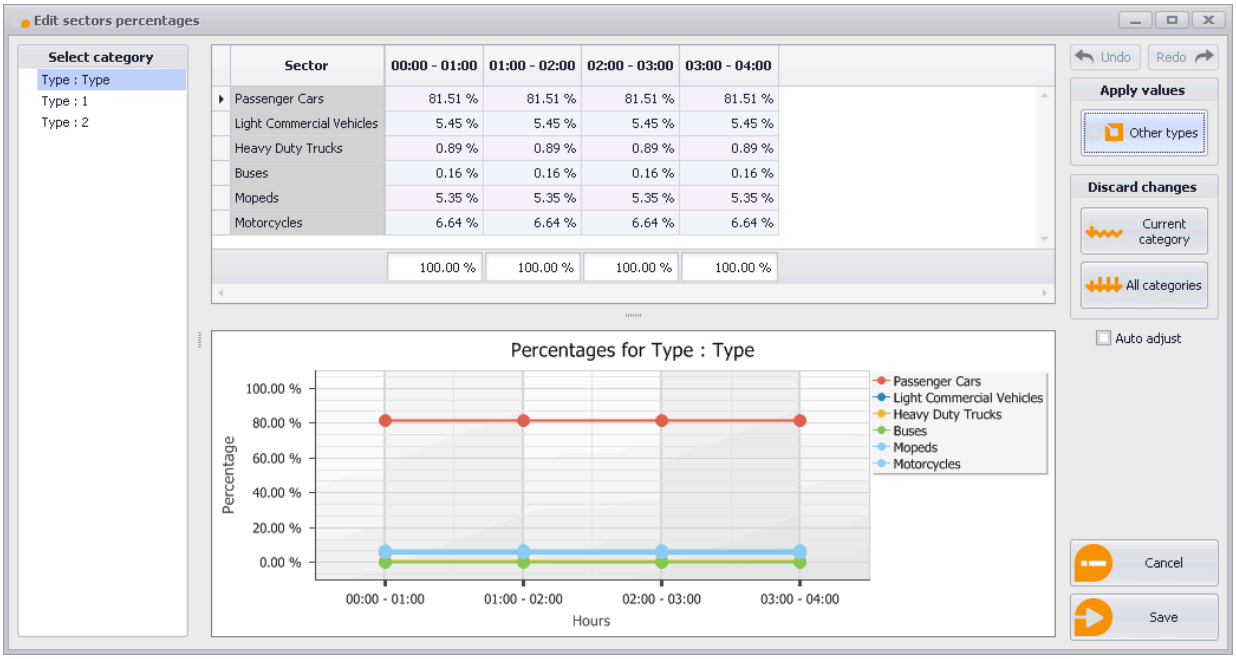
Advanced > Vehicle percentages > By sector

This menu item opens a form containing the percentages of each vehicle sector in the total fleet. All values must add up to 100%. This information is included in the software for each of the EU countries and for a period up to 2030. Their purpose is to break down total vehicles (or PCUs) per link ID to a lower aggregation level. User can modify these values.



Population percentage per sector

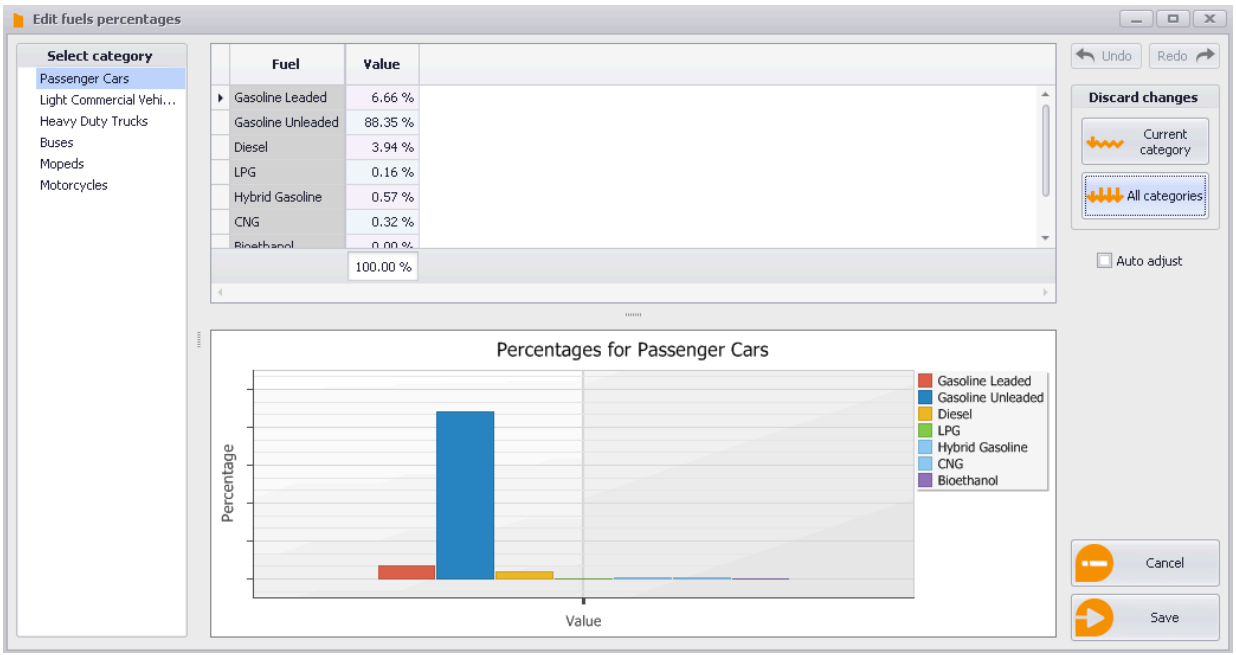
As previously mentioned a minimum set of input data includes information for one link type and one hour. However it is possible to calculate emissions for more than one link type and or more than one hour. If this is the case than the previous form will be modified accordingly so that the user, if he chooses so, is able to change the population percentages for all these different information datasets in a single form.



Population percentage per sector for different link types and hours

Advanced > Vehicle percentages > By fuel

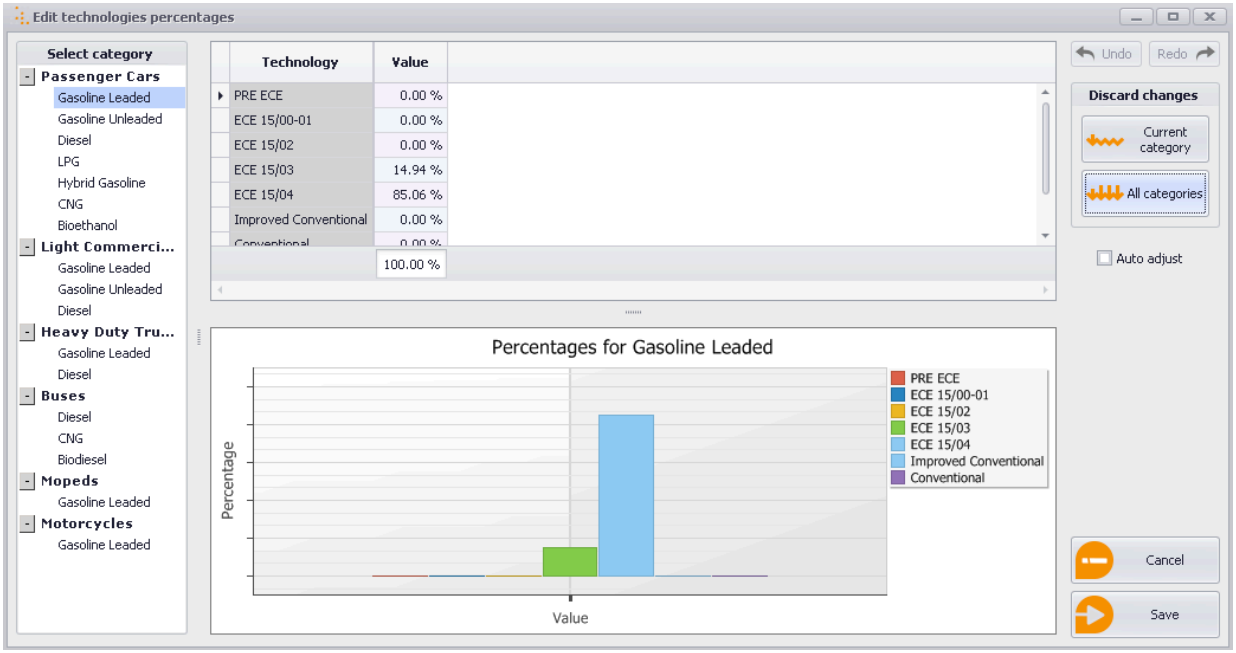
This menu item opens a form containing the percentages of each vehicle consuming different fuel in the total fleet. All values must add up to 100%. This information is included in the software for each of the EU countries and for a period up to 2030. Their purpose is to break down total vehicles (or PCUs) per link ID to a lower aggregation level. User can modify these values.



Population percentage per fuel

Advanced > Vehicle percentages > By technology

This menu item opens a form containing the percentages of each vehicle technology in the total fleet. All values must add up to 100%. This information is included in the software for each of the EU countries and for a period up to 2030. Their purpose is to break down total vehicles (or PCUs) per link ID to a lower aggregation level. User can modify these values.



Population percentage per engine technology

Menu About

This menu item opens a form containing information on the license of the software.

About form