

OPENLCA 1.6

Getting started

Software Version: 1.6
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Content

1	Introduction	3
2	Installation of openLCA	4
2.1	Installation, Windows	4
2.2	Installation, Mac	5
2.3	Installation, Linux	6
3	Welcome to openLCA	6
3.1	openLCA Nexus	8
4	Database	8
4.1	Import database from openLCA nexus	9
4.2	Database elements	10
4.3	Import LCIA methods from openLCA	11
5	Search function	12
6	Feedback & Contact.....	13

1 Introduction

openLCA is the open source software for Life Cycle Assessment (LCA) and Sustainability Assessment, developed since 2006 by GreenDelta². As open source software, it is freely available, e.g. from the project website (www.openlca.org), without license costs.

openLCA can be used in various application areas, i.e.:

- environmental Life Cycle Assessment (LCA)
- economic Life Cycle Costing (LCC)
- social Life Cycle Assessment (social LCA)
- Carbon and Water Footprint
- Design for Environment (DfE)
- Environmental Product Declaration (EPD)
- Product Environmental Footprint (PEF)

The openLCA version 1.6 was released in March 2017.

This text is based on the 1.6 version of openLCA and explains how to get openLCA running, including the installation, import of databases and Life Cycle Impact Assessment (LCIA) methods.

² www.greendelta.com

2 Installation of openLCA

You can use either the installer version or the zip-archive version suitable for your operating system to get openLCA running.

Download the installer version from openLCA.org and follow the installation instructions. If you download zip files instead, you only need to unzip the files and run openLCA, no installation needed.

2.1 Installation, Windows

For windows, 64 bit and 32 bit versions are available; the following will focus on the 64-bit version. For the installation with the installer version of openLCA, you will need administrator rights. To install openLCA on your computer, follow the installation steps in the open LCA set up window to the end.

If you don't have administrator rights, you can still use openLCA by downloading the zip-archive version of openLCA. Just extract the zip file and run openLCA.exe, there is no installation required.

In a Windows environment, openLCA has the following hardware requirements:

- 4 GB RAM (32bit), 6 GB RAM (64 bit)
- Free hard disk space depending on the databases that you want to use

As usual in Windows installation, you can select whether openLCA should be used only by the user who installs (i.e. by you), or by anybody working on the computer.

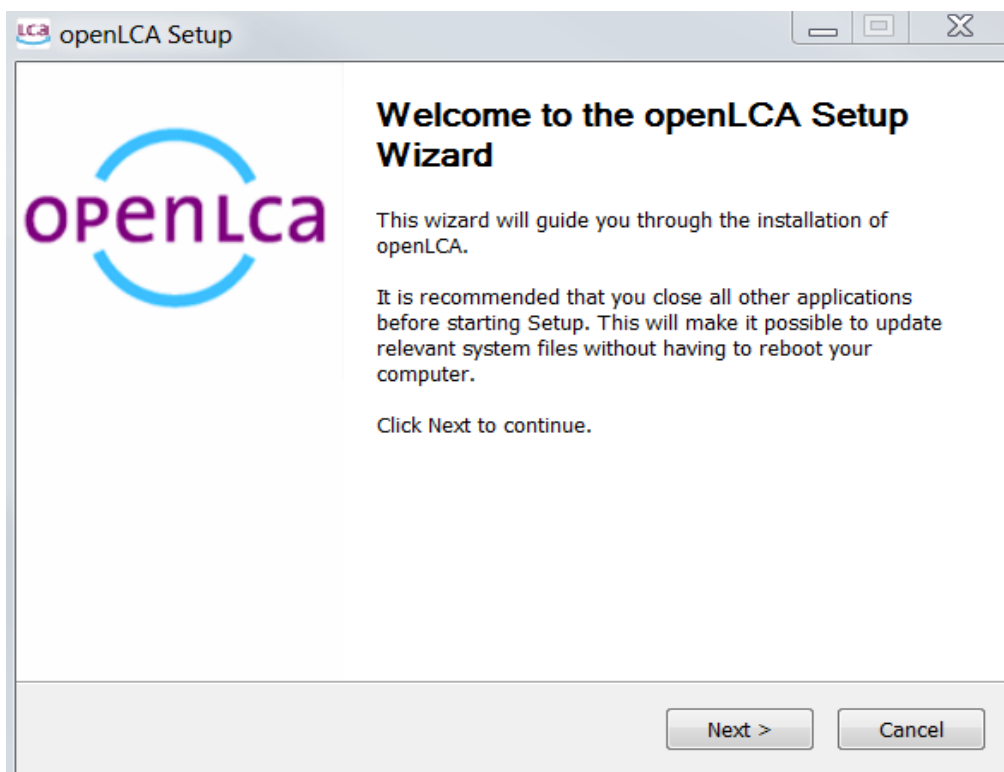


Figure 1 openLCA set up window for Windows

2.2 Installation, Mac

For Mac, a 64-bit version is available. In a Mac environment, openLCA has the following hardware requirements:

- 64 bit
- Free hard disk space depending on the databases that you want to use
- 6 GB RAM

The openLCA software requires Java in version 8; install Java before beginning with the openLCA installation. Java SE Development Kit for Mac OS is available under <http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

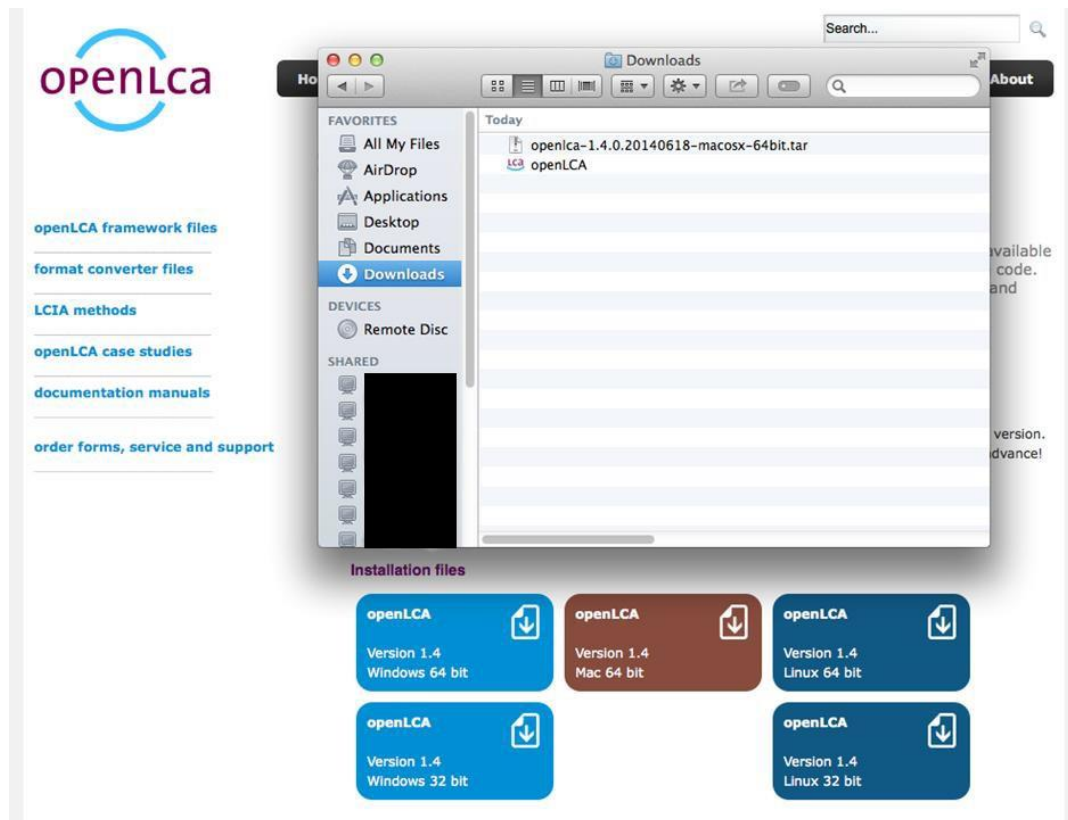


Figure 2 Installation file for Mac [VERSION 1.4.o !!]

Download the installer file from openlca.org/downloads. Once the download is complete find the program in the "downloads" folder and transfer it into "applications". Double-click on the program to open it. A warning message will appear because the application was downloaded from the internet. Select "Open". This message will only appear the first time you open the program.

2.3 Installation, Linux

For Linux, a 64-bit version is available.

Hardware required:

- CPU with 2 GHz or higher
- 1 GB RAM (for analysing product systems with ~2,500 processes, such as ecoinvent 2)
- >3 GB RAM (for analysing product systems such as ecoinvent 3)
- Free hard disk space depending on the databases that you want to use

We recommend installing libgfortran3 for high performance calculations.

3 Welcome to openLCA

When you start openLCA, you will see the Welcome page.

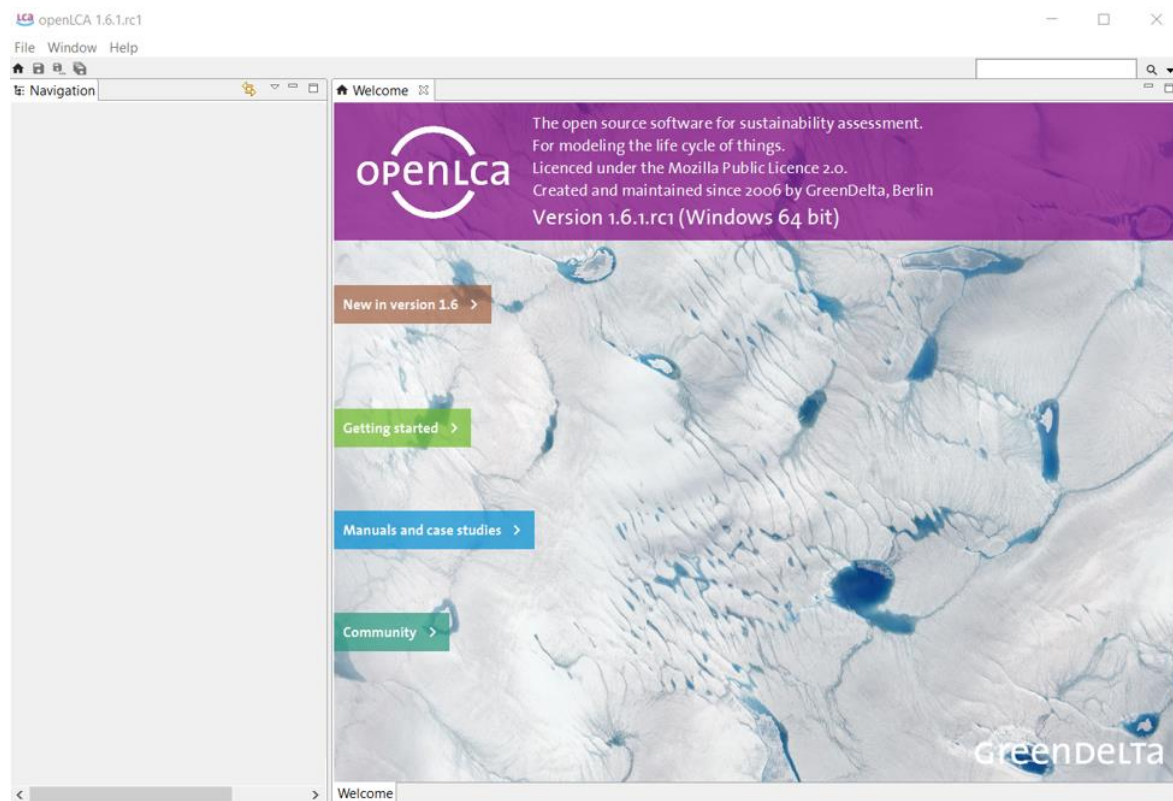


Figure 3 openLCA Welcome page

The Welcome page provides quick links to openLCA Nexus, instructional videos, case studies, user manuals, the openLCA download page where you can download the latest version of the software as well as LCIA methods and, finally, a link to more information on the openLCA network and its users. Simply click on one of the branches to display more information.

In the top left-hand corner you have the Main Menu with the main menu functions. Below the Main menu, on the left hand side, you see an empty Navigation window, which does

Getting started

not contain any data at first. On the right you see the Editor window with the Welcome page. In the top right-hand corner you have the Search function.

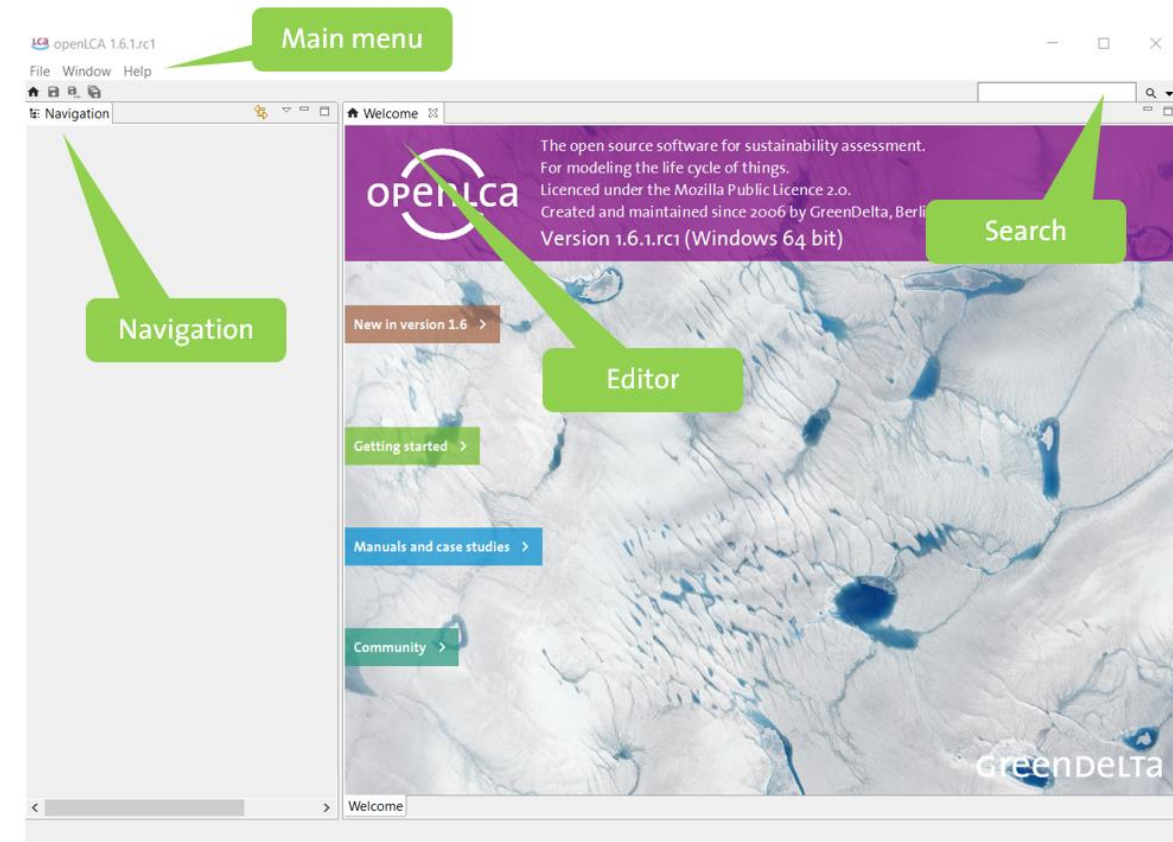


Figure 4 openLCA overview

In the main menu under "File" and "Preferences", you can define settings in openLCA, e.g. languages, number formats, or experimental features.

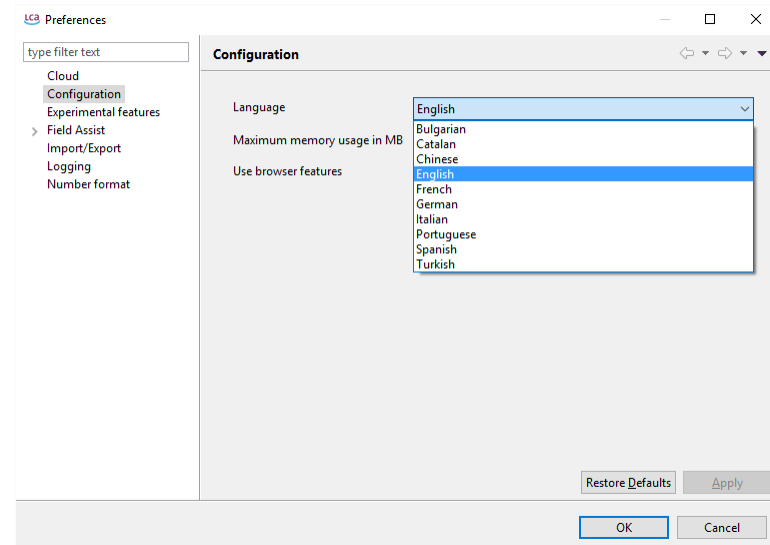


Figure 5 Configuration of the language in openLCA

It is also possible to adapt the maximum memory usage within the configuration. An error message will occur if the calculation of the product system extends the maximum usage

memory setting. It is recommended to increase the memory usage for calculating very complex product systems (e.g. to 6144 MB for the 64 bit version).

Note that changes made within preferences will not take effect until openLCA is restarted again.

3.1 openLCA Nexus

In order to integrate data in openLCA, databases have to be created, or imported.

The openLCA Nexus website (<https://nexus.openlca.org/>) is a web repository which provides free and for purchase databases optimised for use in openLCA. It combines data offered by world-leading LCA data providers such as thinkstep (GaBi databases), the ecoinvent centre (ecoinvent), or the Joint Research Centre from the European Commission (ELCD).

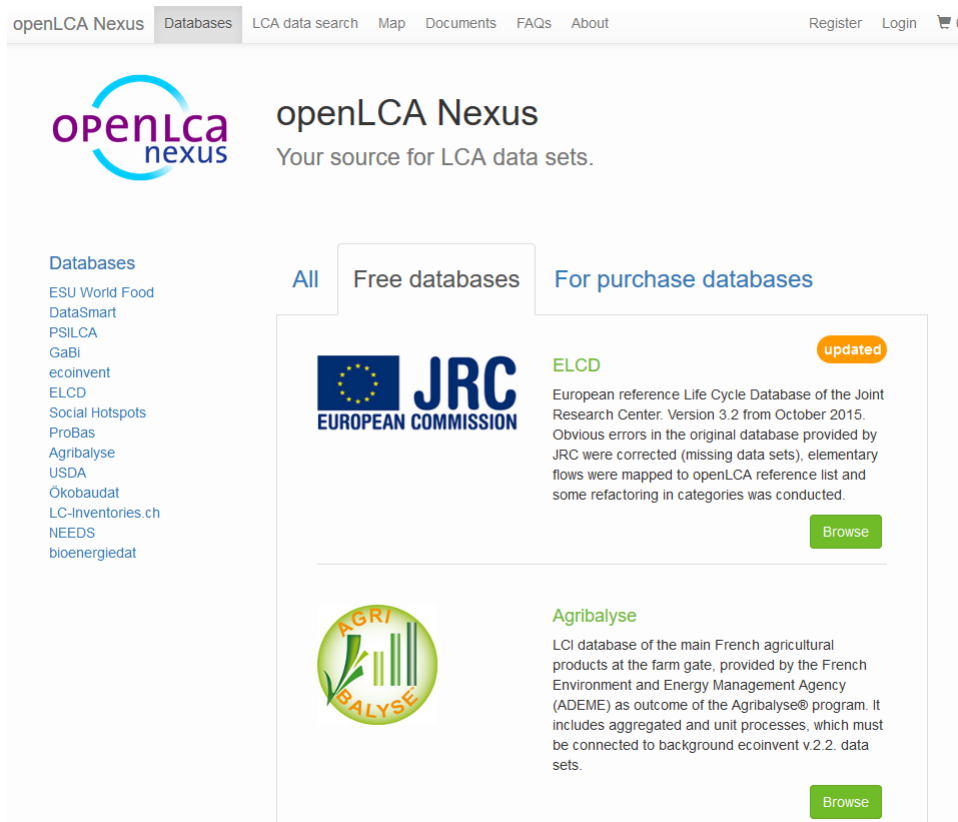


Figure 6 openLCA Nexus website

4 Database

Databases you have downloaded from openLCA Nexus can be easily imported into openLCA. The following formats for importing databases are supported:

- zolca
- Ecospold1 and Ecospold2
- Excel
- ILCD
- SimaPro CSV

4.1 Import database from openLCA nexus

Once you have a database downloaded and saved to your computer, i.e. ELCD database free of charge from the openLCA web repository, you can import it directly in openLCA. To import a database in zolca format, right-click in the Navigation window and select "Import database". Then find the database file you would like to import in your browser and select "Open". The database imported will be 'inactive' at first. To activate a database, double-click on it.

It is possible to have multiple databases imported in openLCA, but only one is active at the same time.

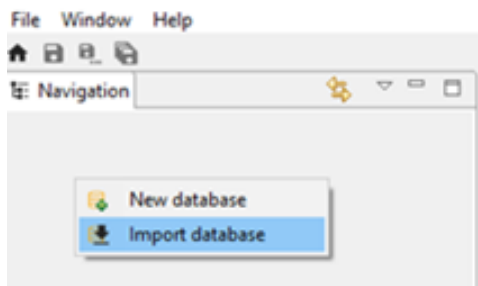


Figure 7 Import a zolca database

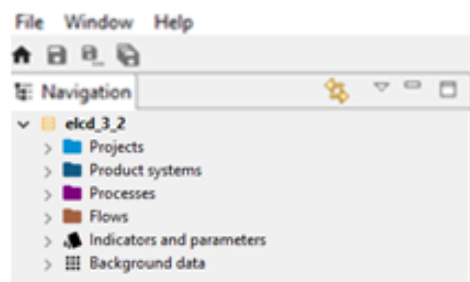


Figure 8 Activated database

File types in ecospold1, ecospold2, excel, ILCD, and SimaPro CSV format can be imported in existing openLCA databases. If necessary, create a new, empty database by right clicking in the Navigation window and selecting "New database". Double click on the target database to activate it. Then go to the main menu "File", select "Import...", select the respective file type, choose the directory of the import file, check and assign units (only required for ecospold 1 and 2) and select "Finish" to import the data.

Note! Databases in ILCD format have to be imported as zip files.

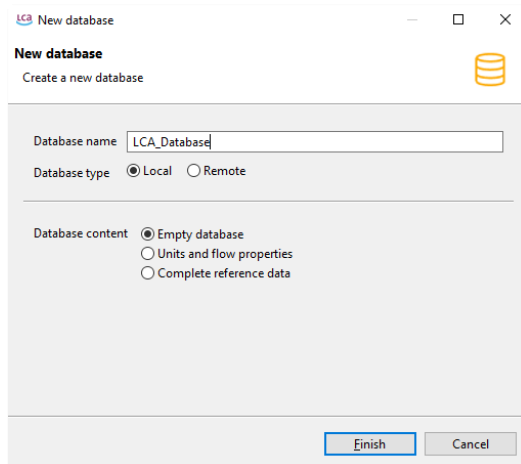


Figure 9 Create a new, empty database

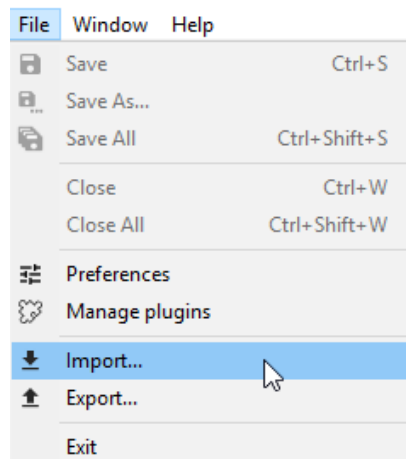


Figure 10 Import a ILCD database (1)

Getting started

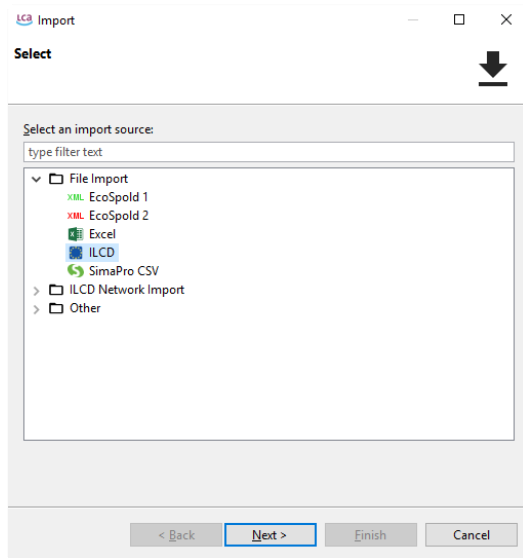


Figure 11 Import a ILCD database (2)

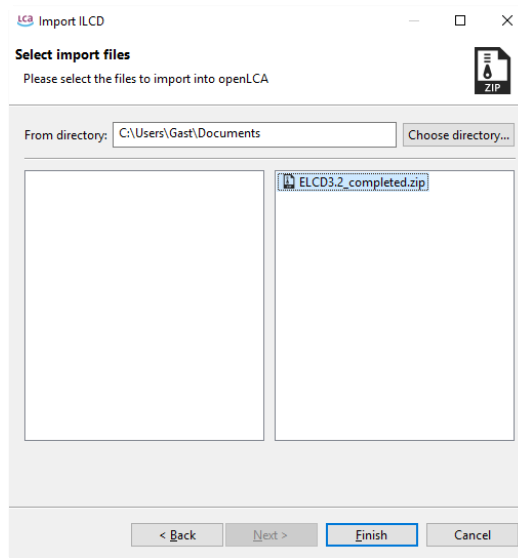


Figure 12 Import a ILCD database (3)

4.2 Database elements

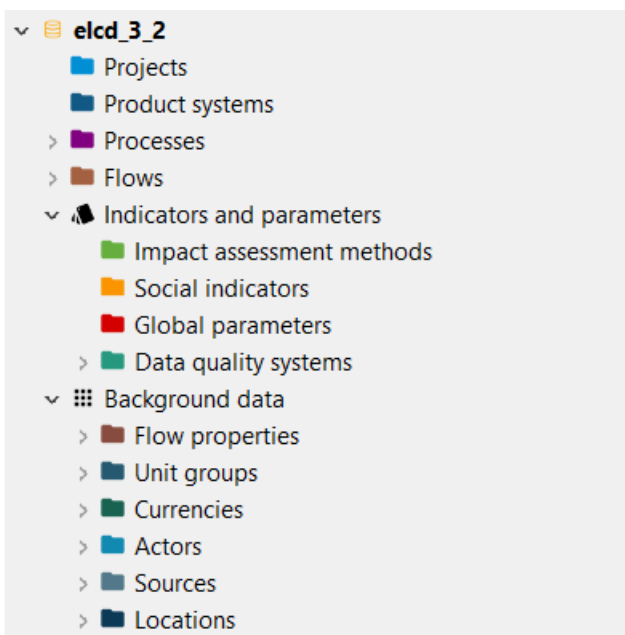


Figure 13 Database elements

Every database is structured the same way and contains the following elements:

- Projects: comparison of product systems
- Product systems: network of processes
- Processes: set of interacting activities that transform inputs into outputs
- Flows: product, material or energy flow between processes of the product system
- Indicators and parameters:
 - Impact assessment methods: methods for environmental Life Cycle Impact Assessment (LCIA)
 - Social indicators: indicators for social LCA

Getting started

- Global parameters: parameters that are available within the whole database
- Data quality systems: Indicators and scores to define the quality of data
- Background data: Flow properties, unit groups, currencies, actors, sources and locations

5 Import LCIA methods from openLCA

Databases imported in openLCA do not contain any Impact Assessment methods. LCIA methods for use with all databases available in the openLCA web repository can be downloaded from the openLCA website:

(http://www.openlca.org/download_page#LCIA_methods).

To integrate the downloaded zolca-file with the LCIA methods pack into your active database, right-click somewhere in the database and select "Import...", select the import source "Database import" and choose "From exported zolca-File". Browse for the downloaded LCIA methods zolca-file, click "Open" and "Finish".

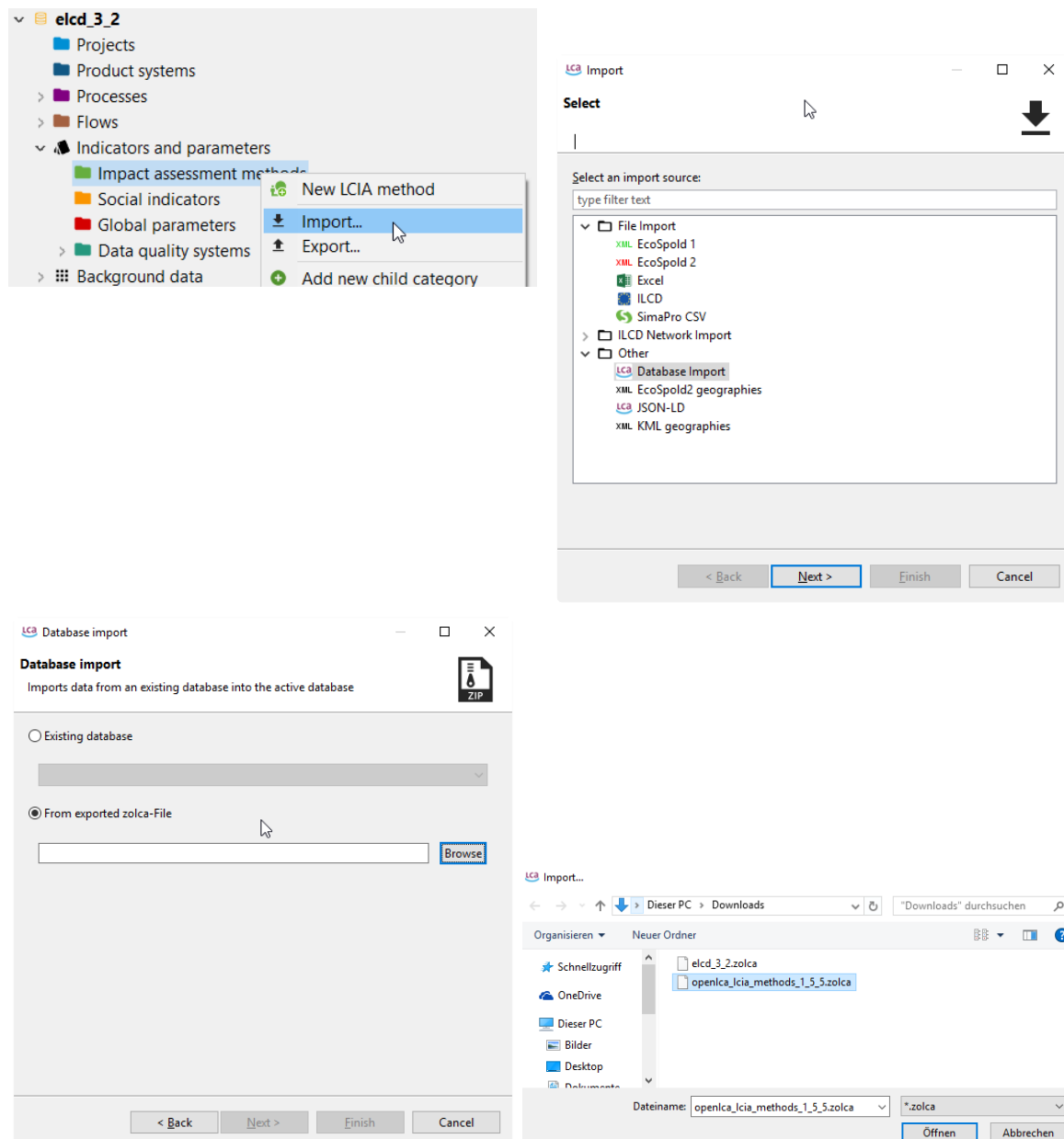


Figure 14 Import LCIA methods

Once you have imported the LCIA methods in your active database, you can see the different methods available by double-clicking the element "Impact assessment methods".

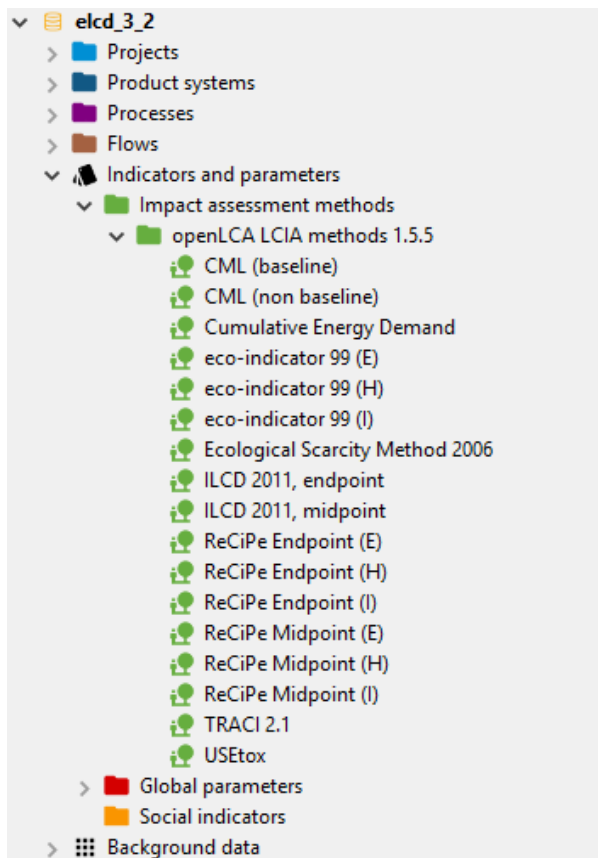


Figure 15 LCIA methods imported within the active database

More detailed information about the LCIA methods for openLCA can be found in the openLCA website (<http://www.openlca.org/download#methods>).

6 Search function

You can search for any element within the activated database by using the Search function at the top right. It is also possible to search in different types of database elements by using the arrow icon.

Getting started

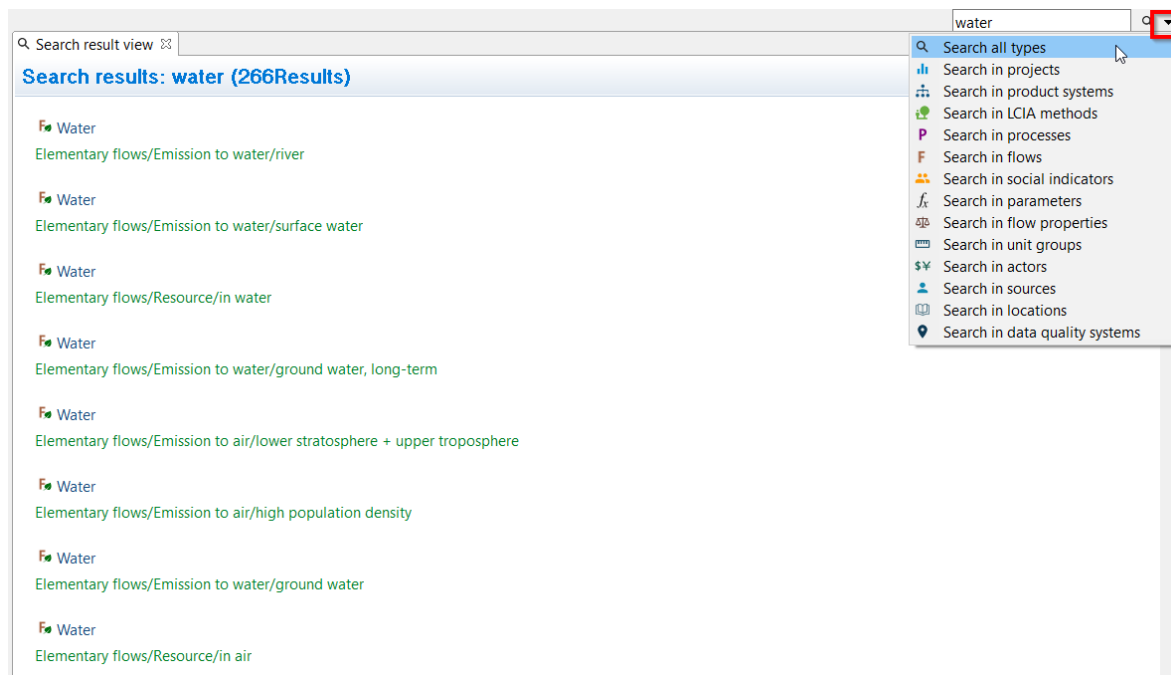


Figure 16 Search function

7 Feedback & Contact

If you have other questions not addressed by this document, or need further clarifications on any of the points in this document, please contact us:

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