Technical Guideline:

Update a user model to a new database version

Software version:	openLCA 2.0 (openLCA 1.11 compatible)
Report version:	1
Date:	30th January 2023

Author: Conrad Spindler

GreenDelta GmbH
Kaiserdamm 13
14057 Berlin, Germany
gd@greendelta.com

GreenDeLTa

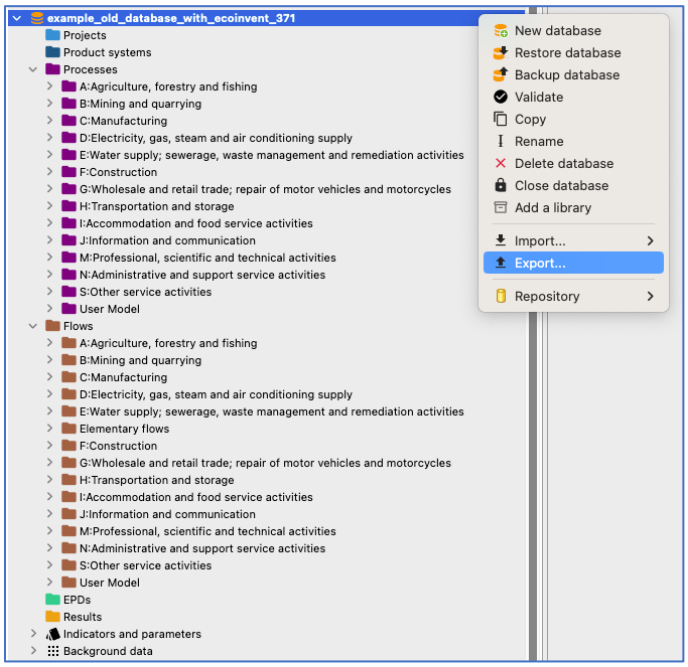
This document is meant to be a support for users to manually update their own developed models from an older, for example ecoinvent database, version to a newer version of the same database. The following tasks are done under the own responsibility of the user.

Updating a user model in an older background database version to a newer version (on the example of an older ecoinvent version to a newer one)

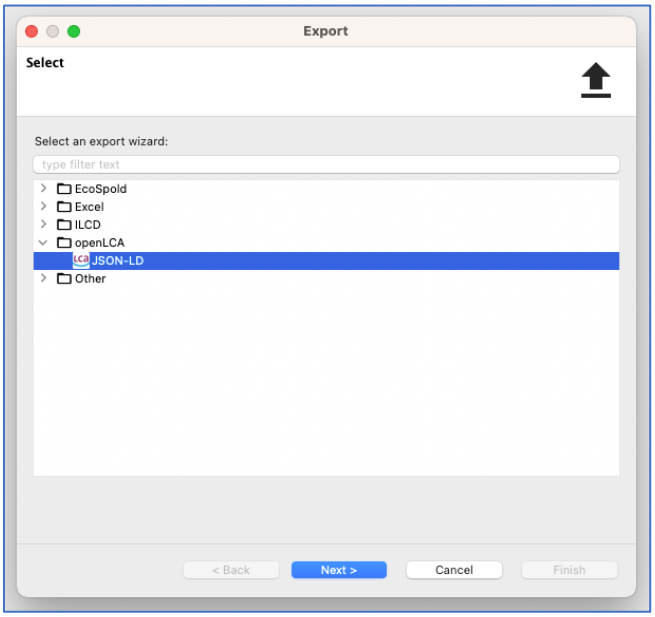
1. Check if the following points are true.
    a. Update from an ecoinvent database to an ecoinvent database
    b. Update from one system model (Cutoff, Consequential) to the same system model
    c. Update from an ecoinvent database with unit processes (UPR) to a new ecoinvent database with unit process (UPR) or from a database with system processes (LCI) to a new database with system processes (LCI)
    d. All user created processes, not belonging to the ecoinvent background database, are in separate folders (otherwise you have to select later every user-created process one by one)
    e. All user created product flows, not belonging to the ecoinvent background database, are in separate folders (otherwise you have to select later every user-created flow one by one)
    f. You made a backup of the database that you want to upgrade to a newer version

2. Open your old database.

3. Right-click on your old database and select "Export...".



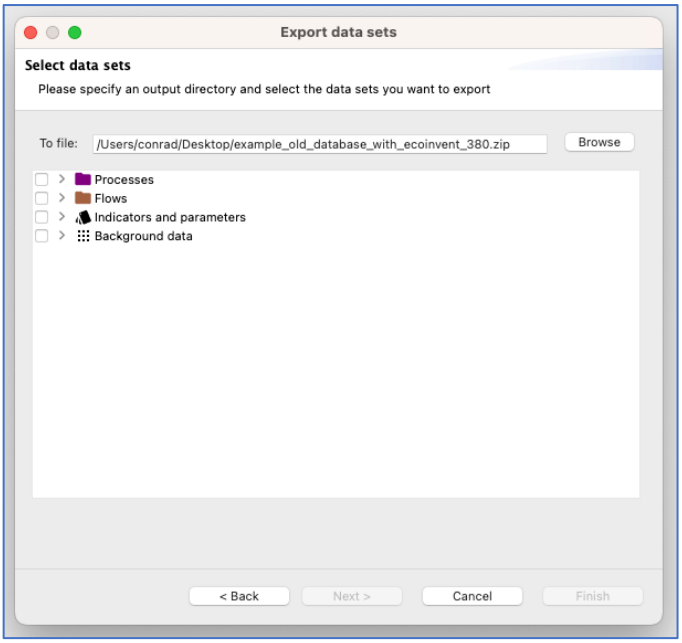
4. Select "JSON-LD" as the export format.



5. Click "Next".

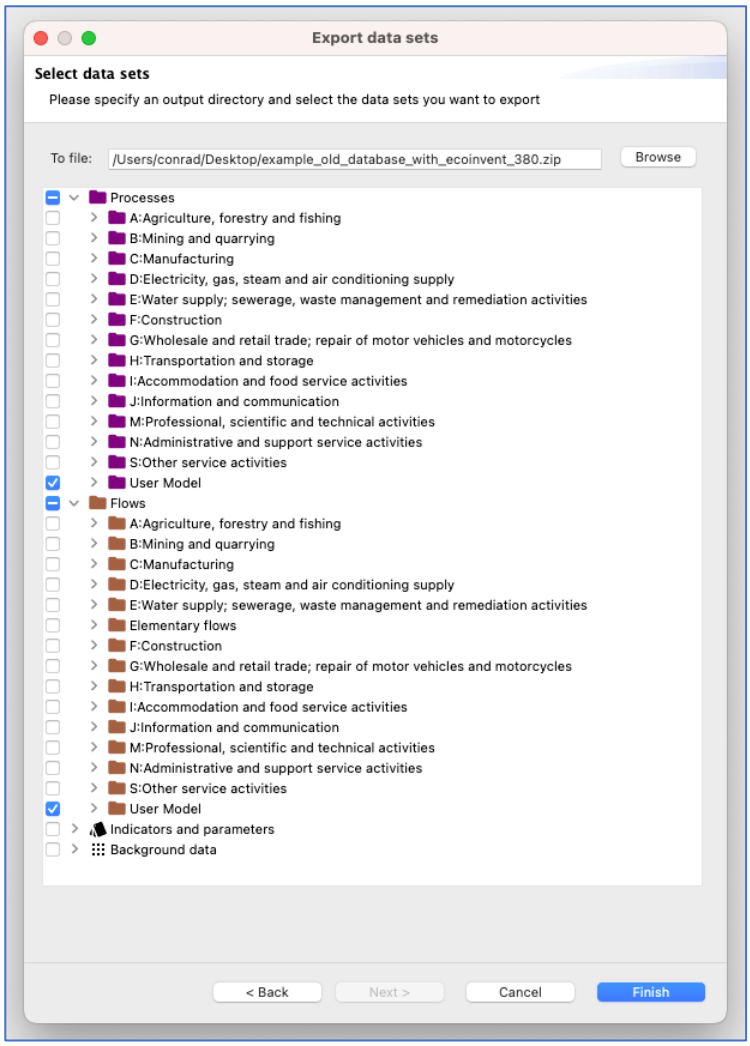
6. Select only the processes and flows which are created by you. (foreground model)

    a. First, unselect everything.



b. Inside the processes folders, select only the processes which are created by you. (in the fastest way, all user created processes are in only one, user-created process-folder which is not part of the ecoinvent background database)

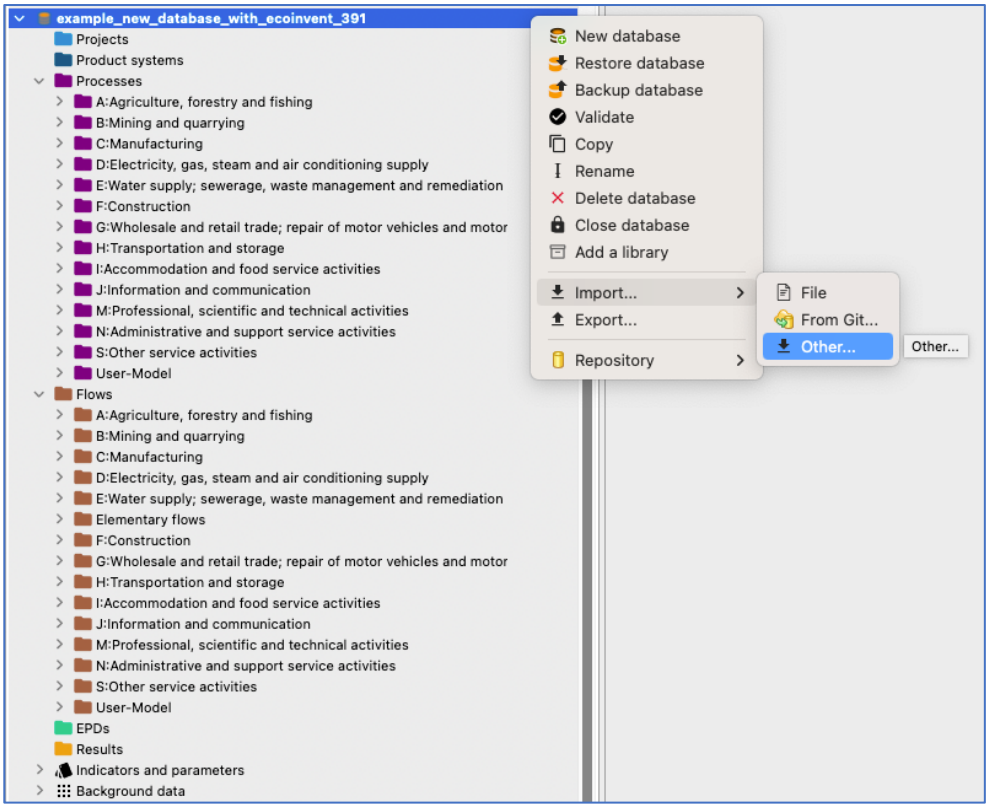
c. Inside the flows folders, select only the flows which are created by you. (in the fastest way, all user created flows are in only one, user-created flows-folder which is not part of the ecoinvent background database)



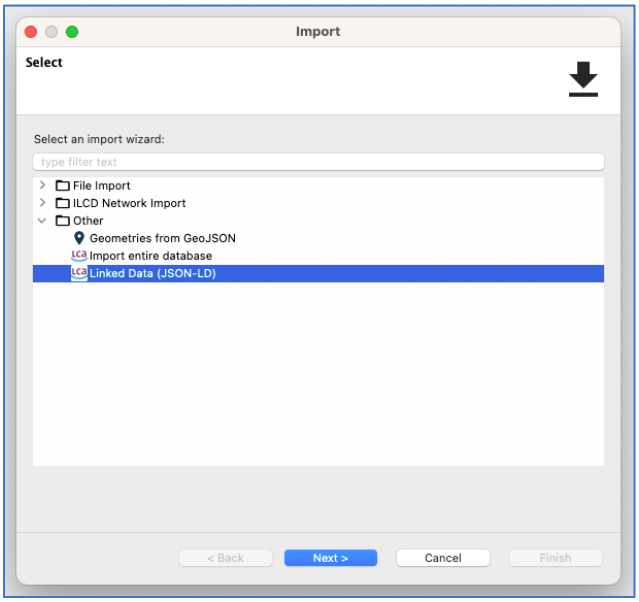
7. Click "Finish".

8. Open the new database version where you want to import your old model.

9. Right-click and the new database and select "Import..." → "Other...".



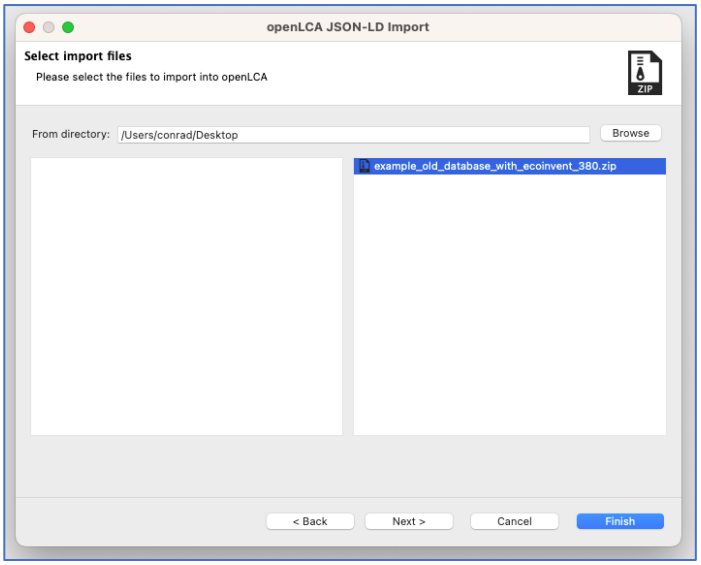
10. Select "Linked Data (JSON-LD)".



11. Click "Next".

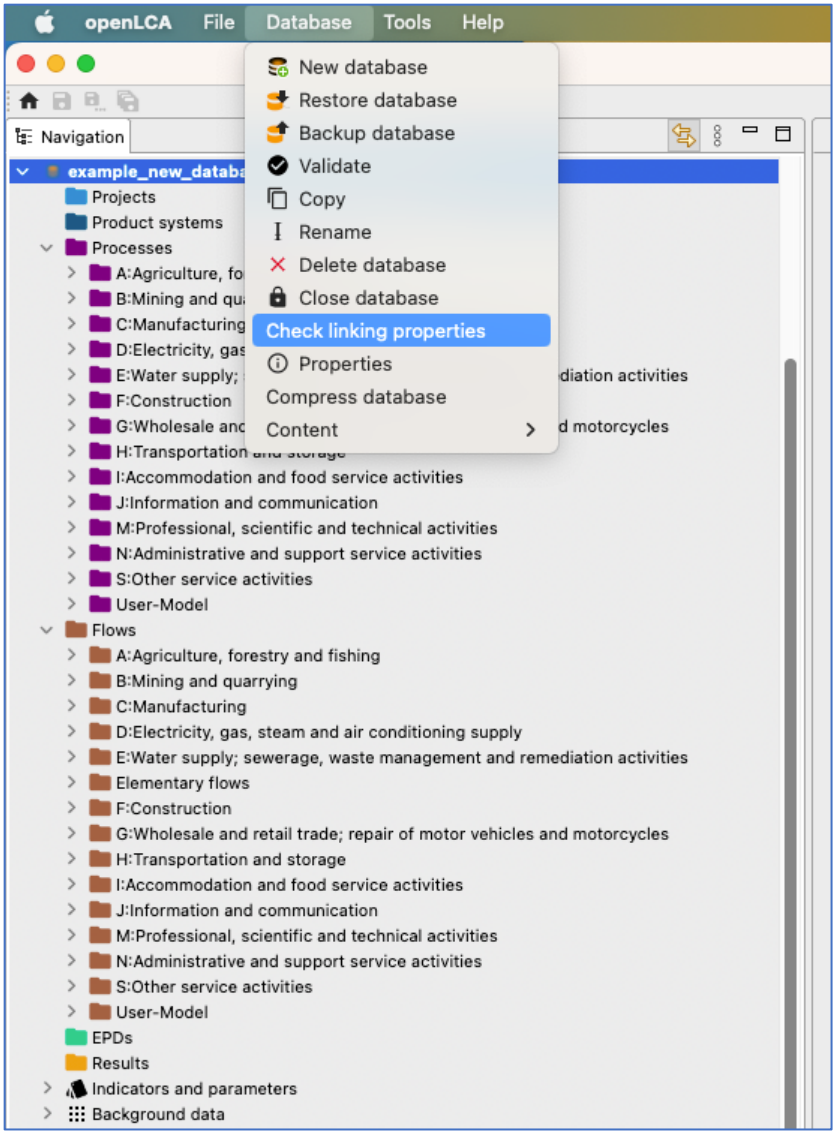
12. Select the folder where you have exported your foreground model (the zip-file in JSON-LD format).

13. Select the correct zip-file in the right column.



14. Click "Finish".

15. Open your new database and click on "Database" → "Check linking properties". (in the upper, general openLCA menu)



16. Check the linking properties results.

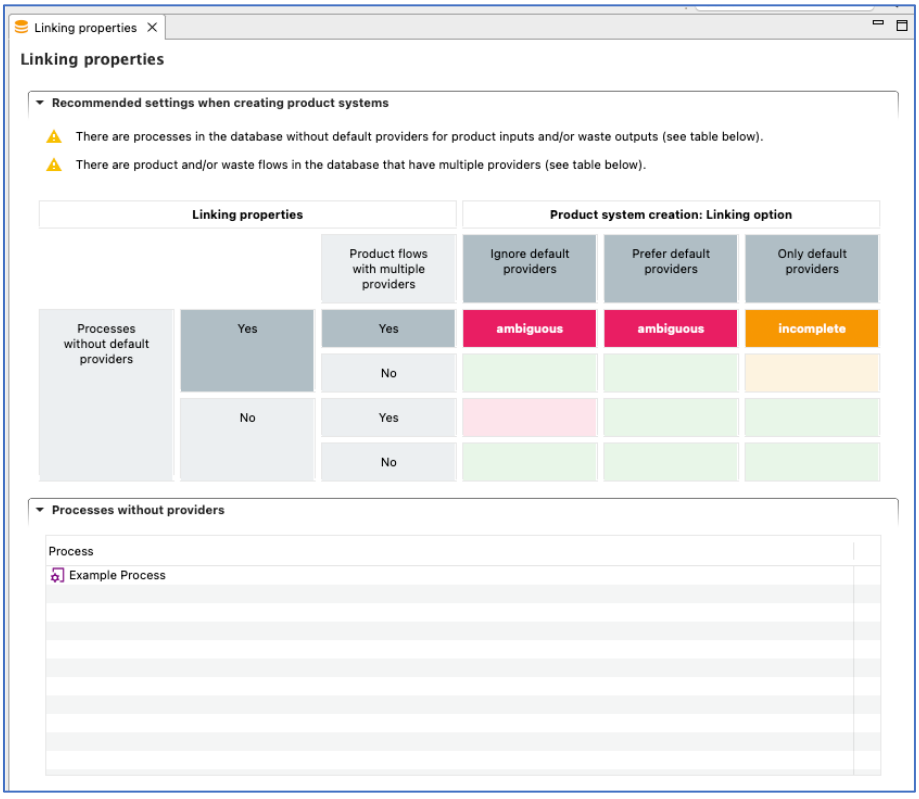
    a. If every process-linking is correct and there is no missing provider, the result should mention "All product inputs and waste outputs are linked to a default provider".

    b. You should make sure that already in your old database, which you want to update, there are no missing providers. Otherwise, these missing providers will also appear in the new database, but it will not be due to the new background (ecoinvent) database version.

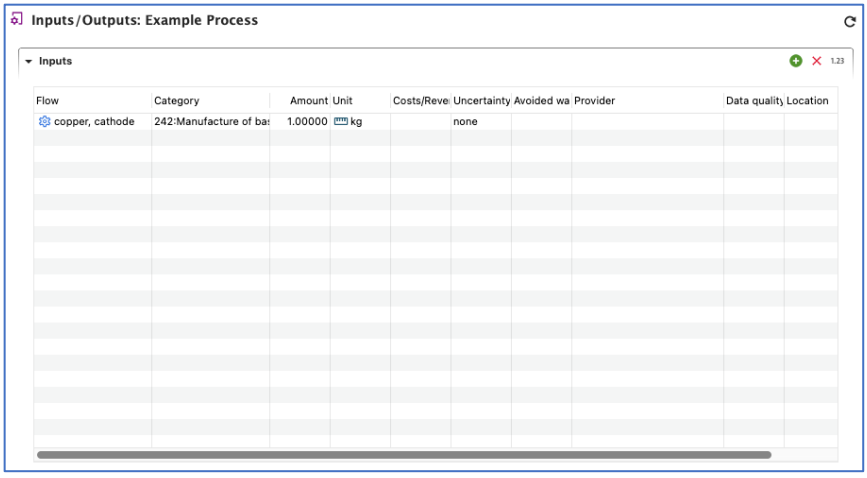
17. Manually select missing providers

    a. If the linking properties have missing providers, openLCA will list them all.

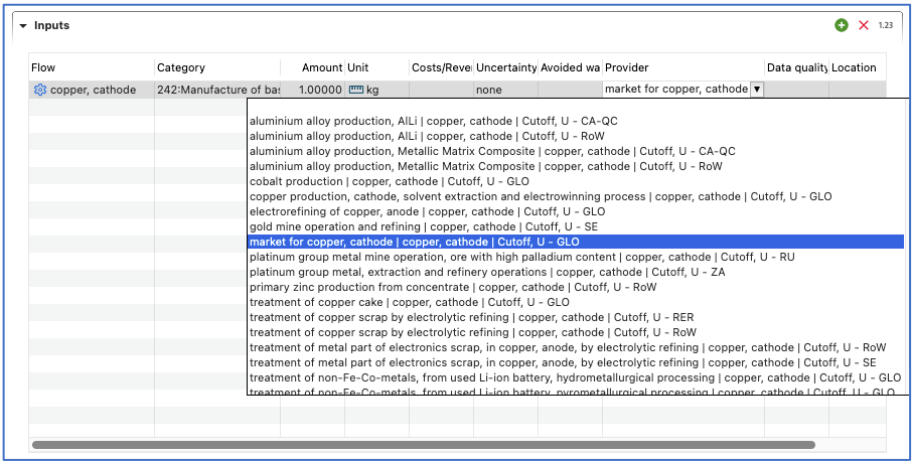
    b. Missing providers in processes can simply be added manually, by clicking on the corresponding process in the list "Processes without providers". The process will directly be opened.



c. In the process window, select the Input/Ouput tab and finding the product flow in the inputs which has a missing provider.



d. When you click on the empty "Provider" field, openLCA will allow you to only select possible providers with the corresponding reference flow. By simply comparing the same process in your old database and in your new database, often it is possible to select the same provider, a very similar provider name or a reasonably chosen substitution of the old provider.



e. It is possible that from one ecoinvent version to another, processes (provider) are removed completely. In this case you have to select a new provider which is best suited to replace the old one, depending on the location, depending if it is a single production process or a market process etc...

f. It is possible that from one ecoinvent version to another, the UUID of a certain process has changed and it will therefore appear as a missing provider in the new database. In this case it should be very easy to find back the same name of the process when comparing the old and the new database.

18. When the linking properties are correct, the new product system can be created.

    a. The product system should be newly created in the new database version. In cases where parameters were used in the old product system, the parameters have to be inserted again into the new product system. It is possible to open the old database containing the old product system, select all parameters from the product system, right-click copy and then paste all the parameters into the newly created product system in the new database version.

19. Start some tests to compare the inventory results from the previous database and the newer database version

    a. Take care to compare the impact assessment results with exactly the same version of the impact assessment method in the old and in the new database package, to only track differences due to the database version.

    b. To start a comparison which is independent of the used impact assessment method, it is also good practice to directly compare the inventory results of your product system.

    c. You will always find differences in the inventory between one version of ecoinvent and another version of ecoinvent and most likely they are in the range of a few percent. Differences are due to new added processes and updated processes which will appear somewhere in the very large supply chain. Processes in ecoinvent are strongly interlinked with around 15000 processes involved in a single one.

    d. In some cases, where more significant changes of the involved background data was made from one ecoinvent version to another, of course, the differences of the old and the new user model will be higher than a few percent.