Getting started with SimaPro Flow

SimaPro

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1 Introduction

SimaPro Flow is an online LCA modelling tool, which allows you to use visual or non-visual modelling, or a bit of both. It is easy to create a project from scratch or import your existing project from SimaPro desktop. This document is created to guide you, as an Expert user, through this process. It describes the basic features of the modelling tool.

For additional support, please visit our SimaPro Help Center at support.simapro.com, or contact us from the platform by going clicking on support in the left-side menu.

SimaPro Flow still in Beta

Please note that SimaPro Flow is currently a beta version. That means that it is still being tested and is not fully supported yet. We welcome your feedback to make it better!

2 Setting up your SimaPro Flow project

2.1 Creating a new project from scratch in Flow

If you would like to create your LCA model from scratch follow these steps:

1. Go to https://apps.simapro.com/ and *log in*.
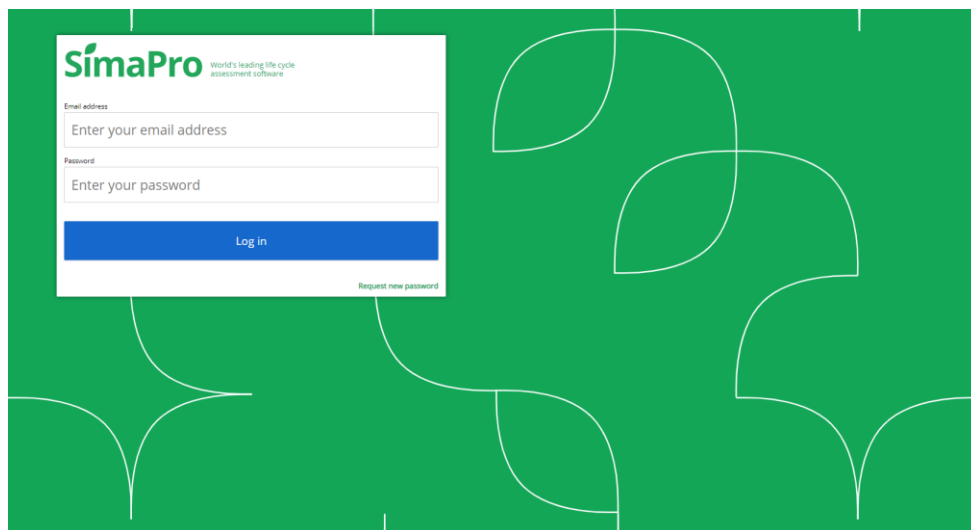
2. Click on the green +.
3. Then, select *Flow model*.
4. Change the details of your project, such as Name, Comment, Author etc.
5. Click *Save details.*
6. Go to the *Library* tab and select the libraries you want to use.
7. Go back to projects and click on the project you just created.
8. In the left-side menu, click *Canvas*.

> (i) **Tips when having multiple Expert users in a company**
>
> **Tip 1**: 🔒 You can lock a project that you have been working on, so that it is not possible to do changes in the project. This is permanent until you, as the project author/owner, unlock it.
>
> To do this: Go to the Privacy and Ownership tab > tick Lock project
>
> **Tip 2**: 👁 You can do the same with hiding a project, so other users do not see the project. This is permanent until you, as the project author/owner, unhide it. To do this: Go to the Privacy and Ownership tab > tick Hide project

Now that the project has been set up, go further to *Chapter 3, Building the model.*
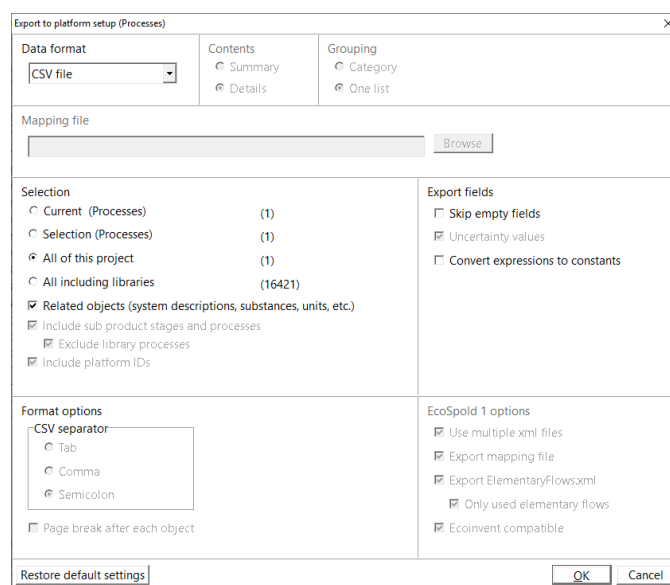
2.2 Using an existing project from SimaPro desktop

Instead of creating a project from scratch you can also create a project in Flow using one of your SimaPro desktop projects. To do that, you first have to export the project as .CSV from SimaPro desktop and then import it into Flow.

2.2.1 Exporting the project from SimaPro desktop

This export comprises processes. If you have product stages you want to export, then please contact support. If you only have or only want to export processes, please follow the steps below:

1. Open SimaPro desktop and find the project you want to export.
2. From the process list, select any process and go to *File > Export to Platform.*
3. That will show the export settings shown below:

4. Click *OK.*
5. Enter the file name and select where you want to save the file and click *Save.*

Things to keep in mind

- Import file size should be under 150 Mb

- Model should contain less than 750 processes

- This export setting will not include libraries, but when you upload your model it will be automatically link to ecoinvent if we can find a match

- At the moment, product stages related to disassembly, disposal scenarios and reuse are not supported on the online platform. They will be imported but will not be correctly linked in your model, and will require manual rework.

- Flow does not support waste scenarios at this moment.

- The distinction between processes and products are larger in Flow than in SimaPro 9 and older. Read more about this underlined here.

2.2.2 Importing to SimaPro Flow

After creating the .CSV file of your project, you need to import it into Flow. To do that:

1. Go to https://apps.simapro.com/ and login.
2. Click on the green +.
3. Then, select *Flow model*.
4. Change the details of your project, such as Name, Comment, Author, etc.
5. Click *Save.*
6. Select the *Library* tab and the relevant libraries, for example the libraries you use in your desktop project.
7. *Drag and drop* (or click *Import*) the .CSV file in the area shown below or anywhere else in your new project.

8. The upload will be processed and an import overview will be generated. Click *Continue.*

3 Building the model

There are two ways to model a process on the Platform; through the *Canvas* and through the *Processes* page. These two modelling ways can be used in parallel, however they both have certain advantages and disadvantages. These two ways of modelling are described in more details in the next sections.

Modelling in Canvas versus Processes

The Canvas is a visual display of the created model. The benefits of the canvas are that canvas can:

- Be used to create a visual schematic of the model.
- Easily keep the overview of what has been modelled and the relationship between processes.
- Connect processes, edit reference flows and delete processes from the model.
- See more in section 3.1.

More advanced editing should be done in the list of Processes of the project. When modelling in the process list it is possible to:

- Add and remove library processes.
- Add and remove direct emissions (substances) in a process.
- Connect processes, edit reference flows and delete process from the model.
- See more in section 3.2.

3.1 Using the Canvas

As mentioned above, the Canvas is a visual display of your model. It shows the processes and flows, and their relations. To start a model on the Canvas:

1. Go to the *Canvas* page in the left-side menu*.*
2. *Double-click* on the white space to create a new node.
3. Rename the node. This node is actually now a new process – with a reference product bearing the same name.
4. To create a sub-process connected to the new node, *double-click on the new node* to create a new sub-process.
5. Rename the sub-process.
6. Add as many processes and sub-processes as needed.

What you see now is the schematic of the model, and you might have noticed that there are no library processes, these need to be added from the process list (see section 3.2).

> (i) **Canvas Tips!**
>
> **Tip 1**: By default, the reference flow of the process has a value of 1 and a unit in 'p' or pieces. You can edit the value, as well as, the unit by clicking the label on the arrow.
>
> **Tip 2**: If the node was created without a link to the top process you can always drag an arrow from the top of the sub-node to the top node to link them.

Furthermore, there are other functionalities on the canvas, such as:

- *Expand and Collapse sub-processes* - When there are sub-processes for a process, there will be an option to display or not display the processes below. This is shown with a little plus sign at the bottom of the process node.
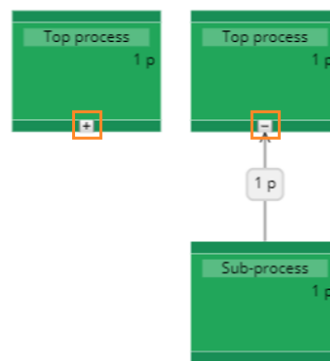
- *Node colors* - Different colors represent different types of processes:
  1. *Blue* nodes are processes which are connected to a grid question in a Collect data collection form.
  2. *White* nodes are processes created from answers from a Collect data collection form.
  3. *Pink/orange* nodes are library processes used in the current project.
  4. *Green* nodes are project processes, which are created in the current project.
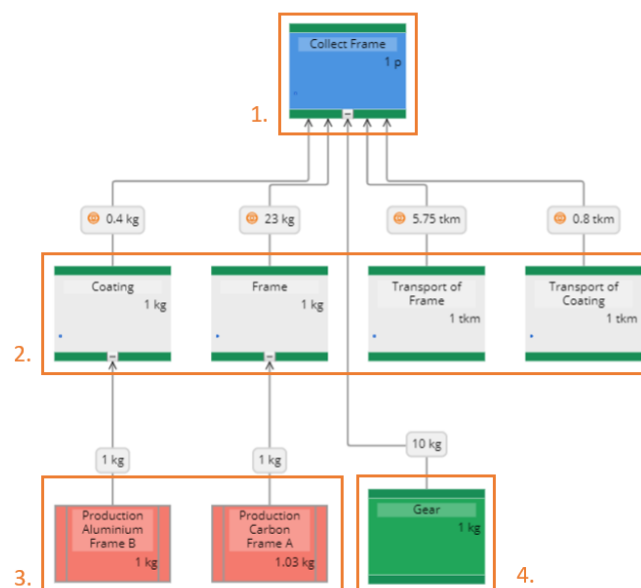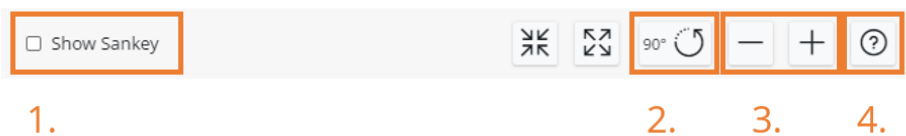
- *Descriptive numbers* - Each node and its links display two numbers. These numbers represent the reference flow (amount and unit), which can be seen inside the node, and the input flow, which can be seen in the arrow of the reference.
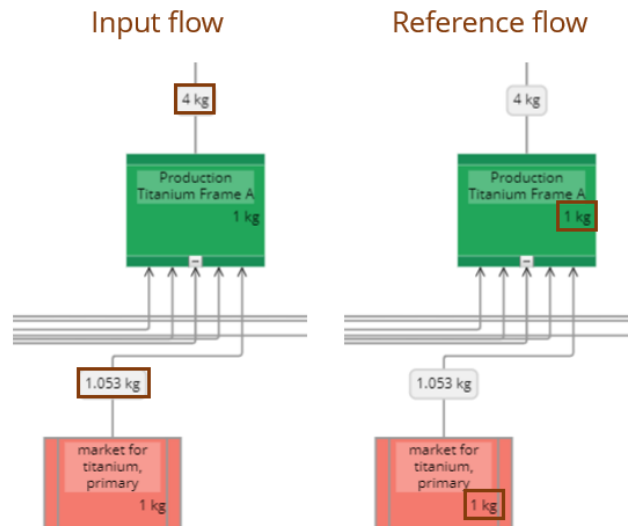
- *Handy features* - On the top of the screen, there are several useful buttons. You can find:

1. *Show Sankey*: This option allows you to see the calculation network of your model. Keep in mind that this function is only available after you have selected a default calculation set up (see section 3.5)
2. *Turn entire model 90 degrees*: This will be remembered for the specific projects, so next time you come back it has the same layout as before.
3. *Zoom in and out*: You can also zoom in and out more smoothly by holding CTRL and using the mouse wheel.
4. The question mark will give you some tips for using the Canvas.

3.2 Processes

The *Process* page shows all the different processes which are being used in the project. It has two overarching tabs *My processes* and *Library processes used.*
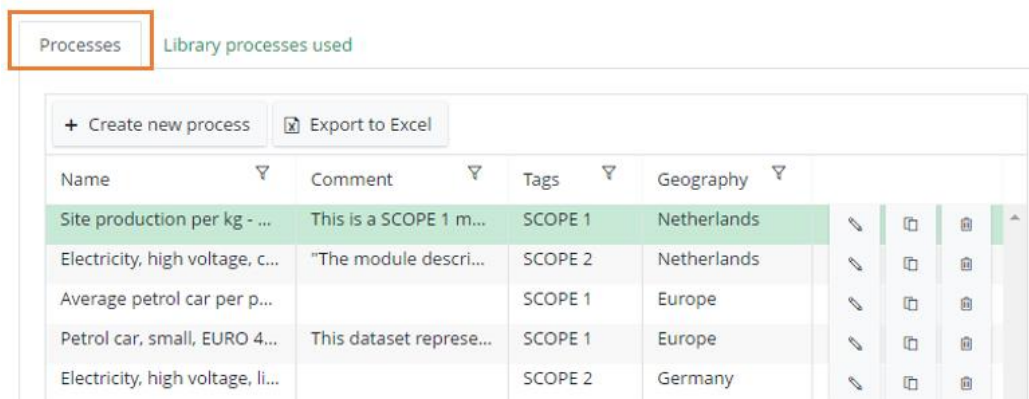
> **ⓘ Filtering Tip !**
>
> In many places on the platform there are filtering options. If you use these smartly the modeling will be a lot easier. In the processes page these filtering options are available:
>
> | Name | ▽ | Comment | ▽ | Tags | ▽ | Geography | ▽ |
>
> To filter for any of these options:
>
> 1. Click on the funnel for the category you want to filter on.
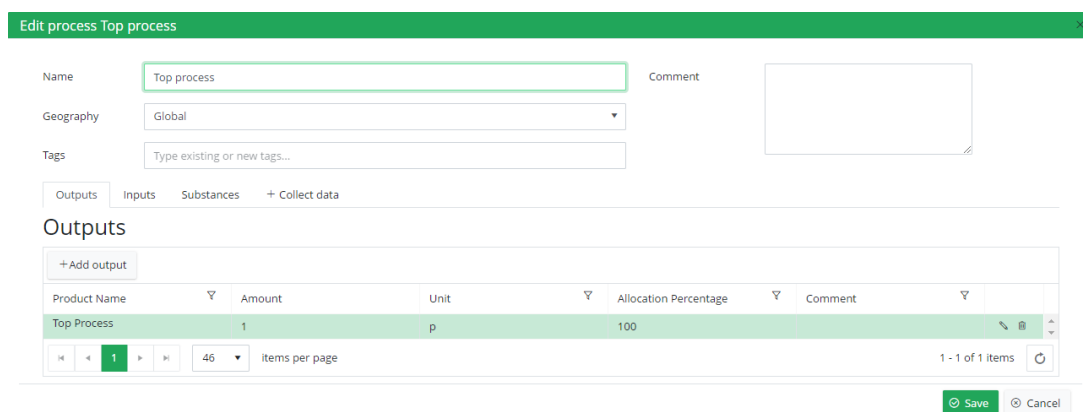> 2. Write a part of the name, and click filter.

Processes shows the processes created in this specific project.

To create a new process:

1. On the process page, click + *Create new process*.
2. Give it a *Name*, and select the *Geography.*
3. Then, go to the *Outputs* tab.

4. Click on + *Add output*. You can choose to create a new product or use one from a library. When creating a new product you can, for simplicity, you can use the process name.
5. Then, go to the *Inputs* tab.
6. Click on + *Add input*.
   - Start typing the name for the product input you want to connect to.
   - If the product already exists it will be listed, choose the correct product or press enter to create a new product.
   - Fill in the amount (and quantity and unit, only if it is a new product).

- In the drop-down below *Unit*, scroll to find the process you look for and select by clicking on the process or type a new process name and press enter.
- Select the geography, click *Save*.

ⓘ **Process Tip !**

In all the Amount, Allocation percentage and Unit fields, a parameter can be created or used. See section 3.3 for more information.

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7. Substances, or elementary flows, can be added in a similar way as the inputs and outputs.
8. Finally, it is possible to *connect the process to Collect*. This is a powerful feature that enables you to collect primary data via a Collect survey and feed the results directly into your Flow model. You can find out more about this feature and how to use it [here](#).

In *Library processes used* you can see which library processes are connected to processes from the current project, and from which library they are from. They might be from Generic libraries, such as ecoinvent, or company libraries which are created specifically in your Company. These processes cannot be edited from the current project.

3.3 Parameters

Parameters can be very useful in large, as well as smaller, projects. They can be used to either easily change the calculation, or as a switch to change between processes. As you go, you will learn more about this.

There are many ways in which you can create a parameter throughout Flow - for example, from the Canvas or directly in a process. No matter where the parameter is created, it will be listed in the Parameters page and you can always edit them there.

To create a parameter from the Parameters page:

1. Go to the *Parameters page*.
2. Click + *Create parameter*
3. Then the parameter will be added to the list and you can change the name, add an expression and/or a comment.

> **(i) Parameter Tips !**
>
> **Tip 1**: The comment field is good to use for keeping track of the unit of the parameter
>
> **Tip 2**: You can create a parameter in the label on the arrow in Canvas. Then the default value will stay 1 until it is edited in the *Parameters* page.
>
> **Tip 3**: When editing a process you can also fill in the name of a new parameter and the default value will again be 1 until it is edited in the parameter page.

The overview of list of parameters also offers a number of handy features:

Name ↓	Expression	Default value	Collect data	SimaPro type	Comment			
Wheels	2*1	2	🌐		Pieces	⤳	Used by	🗑

- *Expression* defines how the parameter is calculated. If you enter a number, then it will be the parameter's default value (see below), but you can also enter a calculation formula.

> **Allowed expressions**
>
> When creating a parameter or writing a value in any of the quantified fields such as 'Amount', 'Allocation percentage' etc. there are some expressions which are allowed. These expressions are:
>
> - Plus (+), minus (-), multiplication (*), division (/), power (^).
> - Scientific notation (2.3E-7).
> - If statements (2 IF Parameter1 == 4 ELSE 1).
> - And statements (2 if (parameter1 == 4 AND parameter2 == 2) else 5).
> - Or statements (2 if (parameter1 ==4 OR paramter2 == 2) else 5).
> - Parentheses for resolving sub expressions (2*(4-3)).
>
> **Tip !** If you change the name of the parameter in the parameter page, the name of the parameter will be changed in all the fields in which it is used throughout the platform.

- *Default value* shows the value which will be used for further calculations, this is especially interesting when you create a large expression with using other parameters or complex formulas.
- *Collect data* switch is used to connect a parameter to a Collect question. See how to do it [here](#).
- ⤳ shows which parameters and values are used to calculate the value of the current parameter.
- *Used by-button*, shows if and where the parameter has been used in your model.
- Finally, if you would like to *delete* a parameter, click on the 🗑 .

A parameter can be used in any value field throughout the platform. To call a parameter in a value field:

1. Type the exact parameter name in value field.
2. When you click out of the field, the default value with a [tag icon] is displayed.
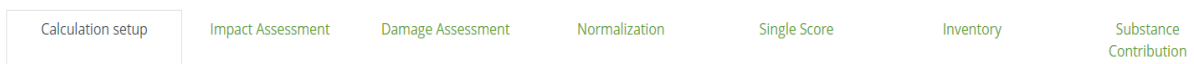
3.4 Products

On the *Products* page it is possible to edit products. This page is not important for a Flow beginner user, however it is important to understand what a product is and how it is different from a process.

Every process is producing one or more products, and each product can have one or more producing processes. For example, dairy farming produces mainly milk, however meat is also a product of this process. On the other side, a plastic bottle can be produced from injection molding as well as extrusion molding.

An interesting to know about products when modeling is that it is usual to give the product a similar name as the producing process.

3.5 Calculations

When the model is ready, calculating the results is the next step. On the *Calculations* page, there are a lot of options, some more advanced than others. The tabs on the calculation page are described below:

| Calculation setup | Impact Assessment | Damage Assessment | Normalization | Single Score | Inventory | Substance Contribution |

A. *Calculation set up*: This page is used to set up the calculation. The top process must be selected, as well as, how much of the top process should be calculated and which LCIA method to use when calculating. There are also other advanced options which can be explored.

To run a calculation:

1. Go to the *Calculations* page.
2. Select the top process of the model, see below

3. Fill in the amount and unit of the top process which will be calculated.
4. Select the appropriate LCIA method.

> ⓘ **Calculation tips !**
>
> Saving a *Default calculation setup* will allow you return to the same set up easily and use the Sankey diagram on the Canvas.
>
> If you want to adjust the results to a certain group of processes or geography, you can use analysis groups to make sets of processes from which the results are calculated. Find How to use them here.

5. Click *Calculate.*

B. *Impact assessment*: After calculating the results, this tab will open. It shows the characterized LCA results in several level of details, depending on the choices you made in the calculation setup. For more details see below.
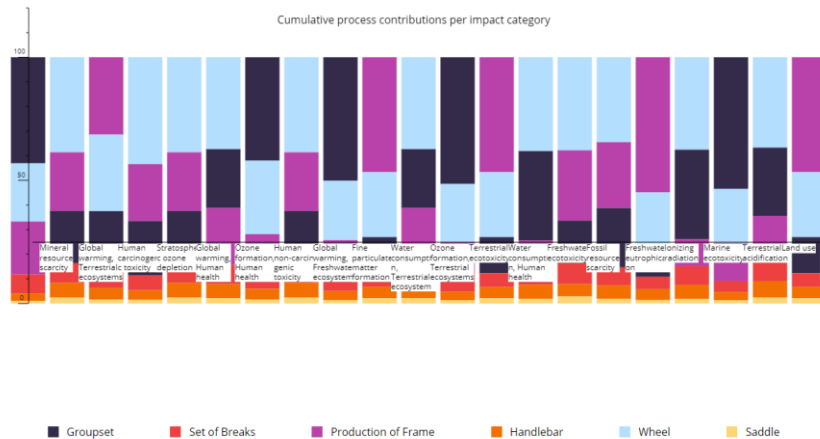
The first graph, *Most Contributing Processes* seen above, shows the impact of each process in your model, however this is not a cumulative impact. It is the impact created directly from each process in the lowest level of your model, including library processes. Therefore, normally the top tier processes are not shown since they are usually not creating direct impacts.

The table *Process contribution per impact category* corresponds to this graph. It shows the numerical values of the direct impacts and the contribution to each LCIA indicator of each process.

Finally, the middle table called *Cumulative process contribution* shows the cumulative process contribution at different levels of your model and the contribution to each LCIA indicator of each process. By default it shows 2 tiers, but this can be edited in the *Calculation setup*.

Additional resources

For more information on damage assessment, normalization, single score, inventory and substance contribution see the Introduction to LCA.

Be sure to visit support.simapro.com for a wealth of information to help you get started or better understand the applications of LCA.

Good luck and enjoy the SimaPro online platform!

For additional support, please visit the SimaPro Help Center.