

SimaPro 7: what is new?

SimaPro 7 Release Note 1, March 2006

1.1 Introduction

The SimaPro team at PRé Consultants has worked hard to bring you the new SimaPro 7. This document describes which new features you will find in SimaPro 7. The most important improvements are:

- SimaPro 7 allows **parameterized modelling** including complex non-linear equations in the Analyst, Developer and PhD versions. Parameterized modelling means that you can define a value as a parameter and use this parameter in an expression (equation). By using these equations, you will have much more flexibility in modelling and analyzing your system. See below for a more detailed explanation.
- Parameterized models can be analyzed with a powerful **scenario analysis** tool. You simply enter different values for each parameter in the new calculation setup, creating many new analysis options.
- You can enter the **uncertainty** on each parameter, allowing even more in depth analysis.
- In the SimaPro 7 Developer version, you can **link data directly to spreadsheets and databases**. This saves a lot of time if you do your preparatory work in other tools. There is no need to import or enter your data manually anymore.
- SimaPro 7 uses a new **state of the art database system**, which is more reliable and allows us to be more flexible in the future. It also gives you much faster database imports and exports.
- In the Multi user version, the creation of new users can now be done via a **user creation wizard**, or by importing users from Windows. This is especially useful for the Classroom version, where a lot of student users need to be managed.
- Set your own **colors** for the boxes used in the Network and Tree view.
- SimaPro 7 has a further **increased calculation speed**, with less memory use.
- A new **status system** is included processes and product systems.
- SimaPro 7 now has a **backup and restore system**.
- There are new **toolbar icons**, compatible with Windows XP.
- And **many more** improvements.

We also expanded the database that comes with SimaPro:

- The **Franklin and Idemat database** are now included with all SimaPro versions at no extra costs.
- The **Danish Input Output 99** database is added.
- The **Danish LCA food** database with many processes and wizards is added.
- The **Impact 2002+ and the TRACI 2** (preliminary version) impact assessment methods are added.

We hope you will enjoy working with SimaPro 7 and do like the new features. Should there be any questions or suggestions feel free to contact us via support@pre.nl.

1.2 Overview of new software functionality

Below you find a short summary of the new functionality in SimaPro 7. For details, please see the Help file.

Parameterized modelling

This feature is not available in the SimaPro 7 Compact, Classroom and Faculty versions.

In SimaPro 7, you can create parameterized models. Parameterized modelling means that you can define a value as a parameter and use this parameter in an expression (equation). Then you enter the name of the parameter or equation in processes or product stages. You can use parameters in any amount or allocation field in processes or product stages, by typing them in or using the expression editor under the right mouse button.

For example, you can define "transport distance" and "product weight" as parameters, and use these in an expression (transport=transport distance * product weight) to calculate the total transport in ton kilometres (tkm). By changing either of the values, the model is automatically updated wherever the parameters "transport distance" and "product weight" or the expression is used. You can take this further and also define weight as the sum of the weights of all product parts. Whenever the weight of a part is changed, the value calculated for the "transport" expression is automatically updated.

By using these, you have great flexibility to change your models easily. There is no need to recalculate values when a weight or distance changes, provided you have set up your model properly and consistently.

The example above is only one. SimaPro 7 allows you to use complex mathematical functions, for example to calculate emissions based on a range of inputs and related to specific conditions. You can also make intelligent models to quickly analyse the influence of electricity models of different countries. You do this by creating a "switch" between different processes. Similarly you can choose to make an expression that changes the type of transport if a certain weight or transport distance is reached. You can also use parameters to change the allocation settings instantly, or to fill a waste scenario with data.

It is clear the use of parameters opens up a wealth of options. The new *Introduction to LCA* (Chapter 10) gives you a more detailed introduction in the use of parameters. In the new *Tutorial* you find practical examples (paragraph 5.3 and 6.3). Both manuals can be found on the installation CD, our web site or via the Help menu.

Three levels

Parameters can be created on three levels:

1. Process and product stages: use the parameters in the related process or product stage only. For highly specific parameters.
2. Project: use the parameters in all processes or product stages in the current project. You normally store your parameters in this level for easy access.
3. Database: use the parameters throughout all your projects in the database. Typically you use this to define natural constants that do not need to be changed.

Parameters can simply be moved to a higher level.

Export

Parameterized models can be exported and imported as database or with CSV (processes only). During CSV or EcoSpold export, you have the option to change the parameter values to constants, so that you create a "normal" linear model which is de-parameterized.

Limitations

The use of parameters has some limitations you must be aware of:

- You cannot create an expression that creates a “looped” situation (i.e. A is an input for B which is itself an input to calculate A)
- The parameter defines a value only and does not define the unit. Similarly, expressions do not check for unit consistency. We recommend you write the default unit in the comment field wherever it is needed.
- When you change the name of a parameter, it is *not* automatically updated in the database. An error will appear when you try to calculate results.
- Parameters are not available in the SimaPro 7 Compact, Classroom and Faculty versions. Parameterized models in these versions will use the value of the actual constants and expressions, without the possibility to change them.
- Parameters cannot be used in impact assessment methods.

Scenario analysis

This feature is not available in the SimaPro 7 Compact, Classroom and Faculty versions.

When you have created a parameterized model, you can quickly analyse various parameter settings using the parameter sets in the new SimaPro calculation setup to analyze scenarios. For example, you can create and compare scenarios where you have defined 3 different transport distances, combined with 2 different electricity models. There are no limitations in the number of parameters you can choose, or the number of parameter sets you build. You can save your settings as a Calculation setup (previously called Report), so that you can easily repeat the calculations in the future.

Uncertainty on each parameter

This feature is not available in the SimaPro 7 Compact, Classroom and Faculty versions.

For each parameter you can define the uncertainty, allowing you to do extensive Monte Carlo analyses. When you use the parameter sets to analyse scenarios, you can define uncertainty for each parameter setting.

Link data directly to spreadsheets and databases

This feature is only available in the SimaPro 7 Developer version.

In processes and product stages, you can make a direct link to values found in external spreadsheets or databases. There is no need to import or enter your data manually anymore, as the data are directly read from the source and automatically update whenever a value changes. This saves a lot of time if you do your preparatory work in other tools.

It is even possible to define an external link as an expression so that you can use it with a parameterized model.

An external link manager is available to search and replace external links, for example when you move a spreadsheet from a server to your local hard drive.

Status system

Each process and product stage can be given one of the following statuses:

- Temporary
- Draft
- To be reviewed
- To be revised
- Finished

The status is shown in the index of processes and product stages, and can also be shown in the tree and network. This option will allow you to better track the progress in your modelling.

State of the art database system

Although invisible, SimaPro 7 has been fitted with a new state of the art database engine. It is faster, more reliable and allows us to be more flexible in the future.

Backup and restore

You can now create backups of SimaPro 7 databases from SimaPro itself. Of course you can also restore the database if needed. You can find this feature under File, Database management.

Further improvements

An overview of all other improvements in SimaPro 7:

User interface

- Last used: the last edited processes are shown under Edit in the menu. Your most recent calculations are shown under Calculate.
- SimaPro remembers where you were when you close a project, and will go to this position when you reopen it.
- Sort options for data in sections of processes and product stages, under the right mouse button.
- Fit to screen and set width option for processes and product stages, under the right mouse button.

Calculations

- The calculation setup has been improved and expanded with parameter settings and can now also be saved.
- The "Exclude infrastructure" option in calculations is now available in the Developer, Analyst and PhD versions.
- In the inventory results, you can now show the contribution of the subcompartments instantly. Separate calculations are not needed anymore.
- Create System processes of all processes in a library, under Edit in the menu.

Data management

- Import of CSV and EcoSpold files now allows overwriting existing processes in the same project that match on name or process identifier.
- Deleting multiple processes and product stages is now supported.
- Networked installations: you can now define where the SimaPro database must be installed. This allows easy installation on network drives rather than local hard drives.
- Pack option to rebuild your database and reduce size.
- Check option to check the database consistency.