



SimaPro



SimaPro 8 Installation Manual

Colophon

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1 Single user installation

The SimaPro 8 installation file installs temporary and indefinite licenses of SimaPro single user version. You have to enter the SimaPro registration name and code during the installation.

The installation program will install the SimaPro version and accompanying databases based on your registration name and code. After installation, activation is required when you start SimaPro, except for the educational SimaPro Faculty license.

Activation

Please note that for each user license you have one activation, i.e. only one installation is possible. To move SimaPro to another computer, you first need to de-activate. Deactivation is only possible by uninstalling the software while connected to the internet.

1.1 Installation procedure

Step 1 Download the SimaPro installation file from <http://www.pre-sustainability.com/simapro-installation> and unzip SetupSimaProNNN.zip.

Step 2 Double click the **SetupSimaProNNN.exe** file to start the installation of the software and the database.

Step 3 Follow the instructions on the screen.

Note: the end-user needs read-write access to the directory where the database is installed. You can choose a different installation directory for the database (please see section 1.2), for example a server drive. This may be preferred for backup reasons.

Step 4 Upon starting SimaPro for the first time, you are asked to activate your license. You can do this automatically via the Internet. If the connection with our activation server is blocked by a firewall, please choose one of the manual options. For more information about firewalls, please refer to section 2.2.4. To read more about activation, please see chapter 4.

Now you are ready to start using SimaPro!

1.2 Using the single user database on a network drive

It is possible to use the database on a network server. This may be preferred for backup reasons. Please note, however, that a single user database can only be opened by one user at a time.

During the installation, you can indicate the drive and path where the SimaPro database must be installed. If you have already installed the database in the default directory, you can move it to a new location.

To move the database, first make sure SimaPro is closed. A SimaPro 8 database consists of 77 numbered files with the extension *.nx1 (from ***00.nx1 to ***76.nx1). It is important that you copy or move all files at once, as the files are interconnected. You can locate these files using Windows Explorer, or please refer to Appendix 2: SimaPro Directories for the default locations. Select all files or the database folder and move it to a new location on the server (using Copy and Paste functions).

Next, start SimaPro, and go to File> Open SimaPro Database. Choose Browse to select the database directory on the server.



2 Multi-user installation

SimaPro multi-user installation installs both temporary and indefinite licenses of all SimaPro 8 multi-user versions, including the educational Classroom version. You must enter the SimaPro registration name and code during the installation.

The multi-user version is a client-server application, the installation therefore has 2 steps:

1. Installing the SimaPro Database Server
2. Installing the clients

The installation program will install the SimaPro version and accompanying databases based on your registration name and code. After installation, activation is required - except for the educational Classroom version.

Activation

Please note that for each user license you only have one activation, i.e. you have as many installations as you have users. To move the SimaPro client to another computer, you first need to de-activate. Deactivation is only possible by uninstalling the software while connected to the internet.

2.1 Multi-user configurations

SimaPro multi-user is a client-server application. The *client* is the SimaPro 8 multi-user software, which performs the calculations and handles the user input. The *server* is a program that controls the storage of the data and checks the number of users, and is called the SimaPro Database Server. The SimaPro Database Server allows multiple clients to work within a single SimaPro database.

Thus you need a computer (e.g. a server) to run the SimaPro Database Server and one or more computers (desktops or laptops) to run the SimaPro multi-user clients that connect to the SimaPro database server.

In most cases you use a Windows Server or a dedicated windows computer to run the SimaPro Database Server. However, it is possible to install both the client and the server on the same computer.

When the SimaPro database server and SimaPro clients are connected by a wired Local Area Network (LAN), the SimaPro Database server can be installed on a network server. In case a wireless network is used, it has to be a high speed, high bandwidth network to be able to handle the large data traffic, otherwise calculations might be slow.

When the connection is a long distance connection (WAN), VPN, or remote sites, then the SimaPro Database Server should be installed on an application server like Microsoft Remote Desktop or Citrix XenApp (see Appendix 3: Terminal Server Configurations), as direct access will be too slow.

2.2 Configurations on a Windows network

2.2.1 SimaPro Database Server on network server

The default configuration is:

- SimaPro Database Server: on Windows 2008/2012 server (32 or 64 bit)
- SimaPro client: on Windows 7, Windows 8 or 8.1, Windows 10
- Protocol: TCP/IP
- Network: Wired Ethernet

2.2.2 SimaPro Database Server on a workstation

SimaPro Database Server can be installed on any workstation with a Windows operating system. When a SimaPro user wants to run SimaPro 8 multi-user, both the workstation and SimaPro Database Server must be running so SimaPro can connect to the multi-user database.

The SimaPro Database Server and SimaPro client can be installed on the same computer.

2.2.3 Installation on a terminal server

You can install the SimaPro Database Server and SimaPro client on an application server like Microsoft Remote Desktop or Citrix XenApp (see Appendix 3: Terminal Server Configurations). This is recommended in case of long distance connections (WAN), VPN and remote sites, as direct access will be too slow to work. The maximum amount of concurrent users is defined by the license.

The users connect to the terminal server. Both server and client are installed on that computer/server. Users start SimaPro within the server machine to which they are connected.

Depending on the configuration, activation for each “user box” may be necessary.

No installation of SimaPro on client computers is needed, only the client software of the terminal server. In case of Windows Remote Desktop Connection it is included in Windows XP and higher. In case of Citrix, the Citrix client has to be installed once per workstation.

On Windows Server 2008 R2 the firewall is not automatically configured. You need to do this manually, both for the SimaPro database server program and the SimaPro client.

2.2.4 Firewalls

SimaPro uses TCP/IP ports 16001 and 17001. If a firewall blocks these ports the SimaPro Database Server will not be found. Note that older SimaPro versions used ports 16000 and 17000.

Some firewalls recognize new executables by size and version number. After an update you might need to reconfigure your firewall.

From Windows XP, the SimaPro software is added to the accepted programs list of the firewall during installation. On Windows Server 2008 R2 the firewall is not automatically configured, you need to do this manually.

2.2.5 Compatibility with Antivirus software

We found that some antivirus programs can interfere with the operation of the database server when they detect that database files have changed. In these situations, users may receive access violation errors at what appear to be random intervals.

To avoid these problems, it is recommended that you add the .NX1 files in your data directories to the list of virus scan exceptions. This will prevent the antivirus software from obstructing access to your data. Please see sections 2.3.1 and 2.3.4 for more information about default data directories and the aliases that reference them.



2.3 Installing SimaPro 8 Database Server

You can install the Database server as a console application or as a service. On most servers it is recommended to install as a service. The difference between a service and a console application is that you have to start the console application to get it to work, like any other software package. A service, on the other hand, is started automatically when the computer starts. It usually does its work 'in silence' and unattended.

Before you install

Please make sure that you have Administrator rights for the computer to install the software.

2.3.1 Installation as a standalone application

Follow this procedure to install the database server as a standalone application. Please note that we recommend this installation is done by experienced personnel in your IT department.

Step 1 Download the SimaPro installation file from <http://www.pre-sustainability.com/simapro-installation> and unzip SetupSimaProNNN.zip.

Step 2 Double click **SetupServerNNN.exe** to start the installation. Follow the instructions on screen.

Select 'As standalone application' when asked 'Install SimaPro Server as a service or standalone?'

Note: the database server needs read-write access to the directory where the database is installed.

Default directories

The default directory for the software is C:\Program files (x86)\SimaPro Server

The default directory for the database is '\Users\Public\Documents\SimaPro\Database' in Windows 10, Windows 8, Windows 7, Windows 2008 Server, Windows 2012 server.

You can then proceed with section 2.4 for installing the multi-user clients.

2.3.2 Install SimaPro Database Server as a service

Only for system administrators

Installing SimaPro Database Server as a Service has the advantage that you do not have to login into Windows Server to start the SimaPro Database Server.

Step 1 Download the SimaPro installation file from <http://www.pre-sustainability.com/simapro-installation> and unzip SetupSimaProNNN.zip.

Step 2 Double click **SetupServerNNN.exe** to start the installation. Follow the instructions on screen.

Select 'As service' when asked 'Install SimaPro Server as a service or standalone?'

A user named "SPServiceUser2" is automatically created. This user is granted "logon as a service" rights. SPServiceUser2 needs "local administrator" administrator rights (i.e. not on domain level).

Note: this user is deleted on uninstall, however the profile is not. You have to delete the user and the user profile to erase all traces.

When SimaPro Database Server is ready and running, you can proceed with installing the SimaPro 8 multi-user (client), as outlined in section 2.4.

For system administrators

You can use the Windows Service Controller (Start->Run->services.msc /s) to review and manage what the installer has created. The service name is "SimaPro 8.0 Database Server". Alternatively, a small application "ServiceController" has been created to install, start, stop and uninstall the database service.

2.3.3 Manually install as a service

To start the SimaPro Database as a service after installing as an application run the command: NxServer /install /start /UserName:aUsername /Password:aPassword

You need a user that has "logon as a service" rights. You can check this in "administrative tools", "local security policy" (or Start->Run->secpol.msc /s) then "local policies", "user rights assignments".

On installation as a service, SimaPro automatically creates the following user:

Username = 'SPServiceUser2'
Password = 'Exus2006\$'

You can use these details if you want to install the service manually. For example, after testing the SimaPro Database Server console application.

2.3.4 Change server settings

To change settings in the SimaPro Service start the database server management program (command: NxServer, or Start->All Programs->SimaPro Server->SimaPro Database Server). First, the service is stopped. Make your changes. When you exit the management program the service is restarted with the new settings. Remember to run the management program as an administrator (right-click the application icon and select: Run as Administrator).

Important-> Opening the database management program when the database is running as a service will log out all current users!

Information about the settings in the SimaPro database server can be found in the help file. The most common settings that are changed:

Server Name

The name of the server as it is shown in SimaPro multi-user client. By default, this is "NexusDB". If you change the name, you have to change it in all SimaPro multi-user client installations as well.

To change the name of the server:

- Open the SimaPro Database Server (run as administrator)
- Go to Server> Server Engine
- Deselect the checkbox 'Active' to stop running the server
- Change the server name
- Click Apply to save changes
- Select the checkbox 'Active' to run the server again

Aliases (Database directories)

These are names for the directories where the SimaPro databases are stored. You can store multiple databases in one directory, however it is recommended to create an alias per database. The directory is not visible in SimaPro multi-user client, only the Alias is visible. The name of the alias can only contain text, numbers and underscores.

Example:

Alias = 'Default'

Directory = '\Document and settings\Public\Documents\SimaPro\Database'

To create a new Alias:

- Open the SimaPro Database Server (run as administrator)
- Go to Server> Aliases
- Enter a new Alias Name and Path, then click Add

2.3.5 Best practices for managing user groups with several databases

If you have groups of users who have their own databases and often work independently of each other, there are some limitations to be aware of. Below you find some guidelines you can follow to simplify the independent management of these databases.

One drawback of creating several databases under the same alias is that all databases must be closed if database management tasks need to be applied. Also, while database management tasks are being applied to one database, all other databases will be unavailable. These management tasks include:

- Opening one of the databases with "local server" access;
- Checking for database errors; or
- Updating the library data or methods.

The solution to these problems is to create separate aliases for each database using the management program (see 2.3.4). At a simple level, each alias corresponds to a separate directory on the databases server's file system.

Imagine the following scenario:

<i>User group</i>	<i>Alias</i>	<i>Directory</i>
Energy	Energy	C:\Document and settings\all users\documents\SimaPro\Database\Energy
Consumer goods	FMCG	C:\Document and settings\all users\documents\SimaPro\Database\FMCG
Medical	Medical	C:\Document and settings\all users\documents\SimaPro\Database\Medical

If the above alias and directory structure is used, then all three groups can independently manage their databases without the other groups being affected. Please remember to run the database management program with administrator privileges (right-click the icon: Run as Administrator) when adding aliases.

2.4 Installing SimaPro 8 multi-user (client)

Please note: the SimaPro Database Server must be installed first!

The SimaPro 8 installation installs both temporary and indefinite licenses of Professional multi-user versions and educational multi-user Classroom. You must enter the registration name and code during the installation. The client must be installed on a local computer.

You may need Administrator rights for the computer to install the software. Please contact your IT department for details on how to login with Administrator rights.

For installing clients for the SimaPro Classroom version, please read section 2.6 on automatically configuring clients to avoid extra work.

Step 1 Go to the location where you downloaded and unzipped SetupSimaProNNN.zip. Double-click the **SetupSimaProNNN.exe** to start the installation. Follow the instructions on the screen.

The default directory where the software is installed is '\Program Files (x86)\SimaPro Multi user'

Step 2 After starting SimaPro, activation is required - except for the educational Classroom license. You can do this automatically via the Internet. If the connection with our activation server is blocked by a firewall, please choose one of the manual options. See also section 2.2.4.

Step 3 Selecting the server

Upon starting SimaPro 8 multi-user, you will get the 'Open database' window. In most cases the SimaPro Database Server name appears on screen. It will show as SPSERVER@10.46.0.7, SPSERVER@MYSERVER.MYDOMAIN or SPSERVER@EXAMPLE.ET (only examples!).

If a server name does not appear, click 'Servers' then 'Scan'. If the list stays empty, click 'New' and type in the name of the SimaPro Database Server in your organization. You can find this name in the SimaPro Database Server, it is a combination of the server name and the IP address (ServerName@IPAdress). The server name is found under Server> Server Engine. The IP address is found under Statistics> TCIPv4Transport at the Local Address.

Type the name correctly as typing errors will prevent SimaPro from finding the server. Next, click OK and SimaPro will try to connect to the SimaPro Database Server. If successful, a list of locations will appear. Locations are aliases for directories on the SimaPro Database Server.

Note: only databases in one of the aliases can be opened. Aliases (an alias points to a location) can only be created using the SimaPro Database Server software. If you use a professional license, you can also select the local server in which you can use the browse options to point to a local directory.

Step 4 Log into the database as Manager. By default, there is no password defined for the manager. Simply leave the password field blank and press enter. To login as one of the predefined users, use the user name as the password.

To change the manager password (highly recommended), or to create new users and user types, go to Tools> User Management. The import wizard can guide you in creating multiple user accounts (see section 2.7).

The Manager has all the rights to edit the database, import data, and create users and user types with different access possibilities to the various projects. Please make sure that the person who manages the database in practice, knows the manager password and the associated responsibilities.

2.5 Using SimaPro Multi-user as pseudo single user

All professional SimaPro multi-user clients can work as pseudo single user version, if the multi-user client is installed locally. This means that users can work in SimaPro as if it was a single user version on a database that is stored on the computer locally. This is especially useful for updating databases or showing result to clients on location.

Note: this feature is not available in the Classroom license.

SimaPro databases on the local hard drive can be opened by choosing "Local server" in the open database window. Next, browse to the directory where the SimaPro database is located.

If you wish to copy a SimaPro multi-user database to the local hard drive, make sure no users are logged in and that you copy all 77 *.nx1 database files at once.

Note: If you copy a multi-user database that is protected with a manager password, this password is still needed to open the database locally!

We recommend that users work (edit/create) in the multi-user version, and local copies opened in the “pseudo single user” are used for viewing or calculations only as changes made in the local database will not be reflected in the multi-user database!

2.5.1 Transferring projects

Databases cannot be synchronized, projects can only be imported into another database, overwriting the projects with the same name. So try to work in the shared multi-user database as much as possible. If users work in several pseudo single user databases this can give synchronization problems.

To move projects from a local database to the multi-user database on the server, you need to import the project(s) on which you have worked into the multi-user database. You need to use the Import SimaPro Database function under the File menu, which is only available when you log in as manager.

Important notice

Never copy or move a database from your local hard drive to the location of the multi-user database, as this will overwrite all data and destroy all new work made by other users (unless you are absolutely sure no one has worked in the database).

2.5.2 TCP Problems

Sometimes SimaPro cannot find the local database server. This is caused by the fact that Windows disables TCP/IP when the computer is not connected to a network or internet. To enable TCP/IP in this situation you need to activate the ‘Local loopback adaptor’. This is a setting in Windows. Search the Microsoft Knowledge Base for installation guidelines.

2.6 Installing client software centrally (Classroom)

This procedure only works for the educational SimaPro Classroom license. Do not use it for the professional multi-user version, as deactivation of the multi-user client software will not be possible.

In a multi-user environment with many clients, as is the case with the SimaPro Classroom, you can use the following procedure to speed up the rollout. It also prevents you from updating all client installations when an update is available, as there is only one client to update.

1. Install the SimaPro multi-user client on the server in a Shared directory or a directory in which the target group has read access. Alternatively, copy an existing SimaPro multi-user client installation (SimaPro.exe + DLLs and other files) to a shared directory.
2. Copy the SimaPro.LCS file to this Shared directory as well. Default locations for this file are:
 - o Windows 7, Windows 8, Windows 10, Windows 2008 Server and Windows 2012 Server:
C:\ProgramData\SimaProLicense\Multi
3. Create a shortcut to the file SimaPro.exe on all users’ desktops or start menus. You can use logon-scripts, profiles or other network management tools.

4. Use command line parameters in this shortcut. For an overview of all command line parameters please refer to the Help menu of the SimaPro Database server.

Example: F:\Shared applications\SimaPro\SimaPro.Exe /Server:SPServer@central.local /Alias:default /Database:Professional

Note: The command line parameters Server, Alias and Database will not work if the user has opened a database in SimaPro before.

2.7 Importing Users from Windows

You can import users from Windows or Active directory with a wizard. Go to Tools> User Management> Users and select 'Import wizard'.

1. Select a domain, a computer or an Excel file.
2. Select the users and groups you want to import.
3. You can choose to create a project for every user.
4. You can choose to create passwords.
5. The results are stored in an Excel file that you can use to mail merge the users.



3 Using SimaPro in special situations

3.1 Running SimaPro with terminal services

Because SimaPro is an executable without the need of many dll's, you can easily run SimaPro with Windows Terminal Service or Citrix XenApp. SimaPro uses no special external programs, except for the Excel link if Excel is running. If Excel is not running on the computer, SimaPro reads the Excel files directly. See also Appendix 3: Terminal Service Configurations.

3.2 Running SimaPro on Apple or Linux

SimaPro works with Windows operating systems. Should you wish to run SimaPro on a Macintosh, or a PC with Linux as operating system, you need to use Windows emulation software. As the emulation software itself will use a lot of internal memory, you may need to add memory to your computer to achieve reasonable performance.

Please note: we do not support, nor guarantee the functionality of SimaPro on non-Windows operating systems, even when it is run using emulation software. You do this at your own risk; PRé or their local partners cannot provide any technical support to solve problems.

Remote access to a Windows computer on which SimaPro is installed may be a suitable workaround.

4 Activation

When you first install SimaPro and register your license, you need to activate. Activation is not needed for the educational Classroom and Faculty licenses.

During the activation process, no personal information is collected. The activation is based on a "machine-ID", which is generated by SimaPro from the hardware properties in a PC. This makes the activation code specific for the computer for which it was requested.

Note: for each user license, you have only one activation. If you want to move SimaPro to a new computer, you must uninstall the software while connected to the internet.

For more information on activation and deactivation, please check our Support Corner or <http://www.pre-sustainability.com/faq>.

5 Database backups

We recommend that you make regular backups. The backup should not be located on your own PC, but on a CD or a server drive for example. If your server is centrally backed up every night, make sure all the SimaPro database files are included, that the SimaPro database is not in use, and that it is indeed possible to retrieve the database from the backup file.

To create a backup, you can use the backup function in SimaPro, under File> Database Management. If you make central backups, this information will be useful:

- When you make a backup, SimaPro must be closed and no users can be logged in the multi-user version.
- A SimaPro 8 database consists of 77 numbered *.nx1 files, in the format DatabaseName00.nx1 to DatabaseName76.nx1.

- All files must be saved at the same time, as they are interconnected.
- The default location of SimaPro databases is:

Windows 7, Windows 8, Windows 10, Windows 2008 Server, Windows 2012 Server:
C:\Users\Public\Documents\SimaPro\Database\

Needless to say: we sincerely hope you never need your backup!

6 Updates

PRé Consultants will regularly make software and database updates available to users with a valid service contract. To inform you of the availability of new updates, it is important that we have your correct contact details, most importantly your e-mail address. Please notify us of any changes in your contact details, especially if the main contact person for SimaPro changes.

You can check if updates are available via the 'Check for update' option under Help in the SimaPro menu. This option will check if the latest software is installed, but not if all database updates are done. The check is only available if you have a valid service contract. Additionally you will find information on available updates in the About screen.

Updates can be downloaded via our website and come with clear installation instructions. If you do not have a valid service contract and want to install any updates, you need to upgrade to the current version first. Please contact PRé Consultants or your local partner for information on how to order an upgrade.

7 Database compatibility

Databases from previous SimaPro versions can be converted to SimaPro 8 database format without loss of data.

SimaPro 7.0 and 7.1 databases

SimaPro 7.0 and 7.1 databases are automatically converted to SimaPro 8 format on opening the database. A backup will be made.

After conversion, the converted database cannot be opened with SimaPro 7.0 or 7.1 anymore. If you need the original database, restore the backup.

During conversion several checks are performed. If SimaPro tells you there are problems in the database, please save the error report. In this case, run a database check (File, Database management, Check) and send the results of the check together with the error report to the helpdesk using the "E-mail helpdesk" option in the Help menu.

Note: a technical conversion does not mean the database is updated with the latest data! You will still need to import the update database. See the update instructions that come with each database update.

SimaPro 6.0 databases

SimaPro 6.0 databases must be converted with a special conversion tool to SimaPro 7 format. Please contact the helpdesk for more information.

SimaPro 5, 6, 7.0 and 7.1 CSV files



CSV files in SimaPro 5, 6, 7.0 and 7.1 format can be imported by SimaPro 8. CSV files created by SimaPro 7 and SimaPro 8 cannot be imported in SimaPro 5 and 6, due to the fact that the format has been extended.

Previous versions

Please contact us via support@pre-sustainability.com or phone +31 33 4504010 to obtain detailed information.

8 Language support

The SimaPro software can be run in various languages. To change the language in which SimaPro is run, go to Tools in the menu and select Language. Although SimaPro will instantly update with the selected language, not all text is translated the first time. Therefore we recommend to restart SimaPro.

Note: the SimaPro database, help file and manuals are only available in English.

9 Support

If you have any questions, first check the Support Corner on our website to see if the answer you are looking for is already there: <http://www.pre-sustainability.com/faq>.

If you live in a country where we have a partner, please contact that partner to receive support in your own language <http://www.pre-sustainability.com/global-partner-network>.

To contact PRé directly, use the “Contact SimaPro helpdesk” feature under Help in the SimaPro menu. This will generate an email with technical information about your license, which helps the helpdesk to answer your question more quickly. Please give as much information as possible, such as a clear stepwise description of the actions you made, screenshots etc, that will help us to understand your question and to reproduce your problem.

You can contact the SimaPro helpdesk via:

- In SimaPro: Help > Contact SimaPro helpdesk (**recommended**)
- Web site : <http://www.pre-sustainability.com/contact>
- E-mail: support@pre-sustainability.com
- Phone: +31 33 4504010

Appendix 1: SimaPro 8 System Requirements

1. SimaPro 8 single and multi-user client

1.1 Operating system

SimaPro 8 is a 32 bits Windows application which also runs on 64 bits Windows. It runs on

- Windows 10
- Windows 8 and 8.1
- Windows 7
- Windows Server 2012, Windows Server 2012 R2
- Windows Server 2008, Windows Server 2008 R2

It is highly recommended to have the latest service packs installed. Earlier operating systems are not supported, which does not mean SimaPro could not work on these systems.

1.2 Internal Memory

We recommend at least 4 GB of physical memory for 32 bits Windows, 8 GB (minimum 6 GB) for 64 bits Windows.

1.3 Screen resolution

The minimum resolution for SimaPro is 1280 x 1024, higher is recommended.

1.4 Processor

Some parts of SimaPro (the database manager and parts of the calculation routine) are multi-threaded. We recommend that you use a multi core processor in combination with a 64 bit operating system for optimal performance.

1.5 Hard disk

You need at least 2 GB disk space for your database(s) when using the single user version. For the multi-user version the database is installed on the server. In addition, both the SimaPro single user and multi-user client may need up to 10 GB of free (local) hard disk space for temporary files.

2. SimaPro 8 Database Server

2.1 Operating system

The SimaPro 8 Database Server is a 32-bit Windows application, which also runs on 64 bits Windows. It runs on

- Windows 10
- Windows 8 and 8.1
- Windows 7
- Windows Server 2012, Windows Server 2012 R2
- Windows Server 2008, Windows Server 2008 R2

It is highly recommended to have the latest service packs installed. Earlier operating systems are not supported, which does not mean SimaPro could not work on these systems.

2.2 Internal Memory

We recommend a minimum of 4 GB (32 bit) or 8 GB (64 bit) internal memory.

2.3 Hard disk

Although the SimaPro Database Server itself is small (10 MB), at least 2 GB space is needed for each installed database.



Appendix 2: SimaPro Directories

Below you can find the default directories of SimaPro. It is assumed that C: is your default drive.

- **Software**

Filenames: various

C:\Program files (x86)\SimaPro

C:\Program files (x86)\SimaPro Multi

C:\Program files (x86)\SimaPro Server

- **Manuals**

Filename: *.pdf files

Subdirectory \Manuals (under Software)

Check our website for the most recent versions of the manuals:

<http://www.pre-sustainability.com/content/manuals>

Ecoinvent manuals are available on www.ecoinvent.org (login required).

- **SimaPro Database**

77 numbered *.nx1 files, default name: professional00.nx1 to professional76.nx1

Windows 7, Windows 8, Windows 10, Windows 2008 Server and Windows 2012 Server

C:\Users\Public\Documents\SimaPro\Database\

- **License**

Filename: simapro.lcs, simapro.aii

Windows 7, Windows 8, Windows 10, Windows 2008 Server and Windows 2012 Server

C:\ProgramData\SimaProLicense\[Single/Multi]

- **User output and export**

Filenames: *.txt, *.xls, *.csv, *.bmp, *.xml

The default location is the user's "My documents/SimaPro/" directory.

Appendix 3: Terminal Server Configurations

Using terminal server software such as Microsoft Remote Desktop or Citrix XenApp is an ideal way to use SimaPro when users have limited bandwidth. This is often the case when users are connected to a Wi-Fi network, a WAN (wide area network) or through a VPN (virtual private network). VPNs often operate over public internet connections.

At the time of writing, PRé has only tested SimaPro in conjunction with a VPN and Microsoft Remote Desktop Services (RDP). Although no XenApp servers are currently available to PRé Consultants, the added overheads of such an environment are assumed to be similar to RDP. When actual tests using these other packages are carried out, such experience will be added to this document.

A number of our clients are currently known to be using SimaPro on XenApp or Remote Desktop servers. While we cannot give technical support on these specific implementations, we see no reason why such configurations should be problematic. Indeed, we believe that the investment in such environments will improve the user experience when bandwidth is at a premium.

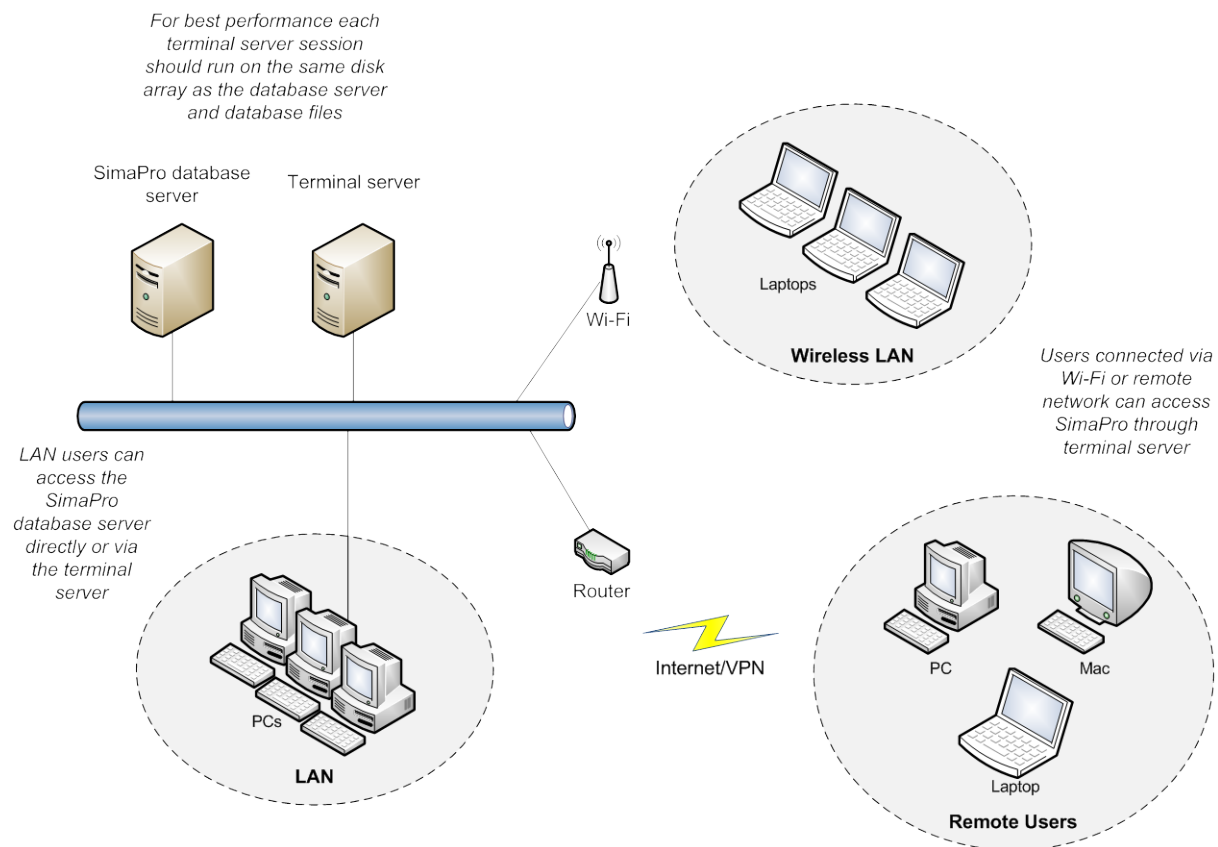


Figure 1: Terminal Server Configuration



9.1 Technical Requirements

This document is based on the experience of PRé Consultants' with its own in-house terminal server. Its configuration is Microsoft Remote Desktop running in a VMware ESXi 4.0 virtual machine on a Windows 2003 server with a maximum of 5 users¹. Industry literature indicates that XenApp offers better security, better load balancing features, and a more natural feeling when connecting to the desired application. These features are more likely to be important when implementing a solution with a large number of users. The points below are based on our experiences and are by no means an exhaustive test of the capabilities and limits of such a solution.

Server Requirements

The minimum hardware requirements of the server are 2 GB of memory (RAM), a 2 GHz quad core processor and Windows 2003 server. Fast hard drives and about 1 GB of free memory are important as a lot of data is transferred between the SimaPro database server and internal cache buffers. For this reason, it is recommended to install the database server and files on the same disk array as the terminal server software. More memory will only be a benefit if you install a 64 bit operating or if you create separate virtual machines for the SimaPro database server and terminal server. Note that it is possible to have several installations of terminal server with the SimaPro client, all connecting to the same SimaPro database server.

Regarding software, a default Microsoft Windows server installation only allows two remote desktop connections and is designed primarily for system administrator access. In the majority of cases, special "Terminal Server Client Access Licenses" have to be purchased from Microsoft for each intended SimaPro user. Additionally, the "Terminal Server Licensing Service" will have to be installed and configured. For Citrix, please refer to their web site for details of software and licensing arrangements.

"Out of the box" the professional database occupies 1 GB of disk space. This only grows significantly when users copy entire libraries, especially those from ecoinvent. The database server software can use up to 10 GB of temporary disk space when accessed by multiple users, but this is managed dynamically based on available disk space.

We have no market preferences for any hardware. Our own server, which performs very well, has a quad core CPU with 16 GB of RAM. Its good performance is likely due to its processing power, its 15000rpm disks, its separation of different application servers using virtual machines, and its connection to a 1 Gbps local network.

Client Session Requirements

With Remote Desktop, each SimaPro client uses on *average* 250 MB with a session overhead of about 50 MB. Each session should have access to the equivalent of a single core 1 GHz CPU. Overworked local area networks (LANs) can have a serious impact on database functions, so it is recommended to use a 1 Gbps network.

Processor and memory demands are relatively low except with functions such as calculating network trees with unit processes, comparing network trees, performing Monte Carlo analyses of several thousand runs, importing SimaPro databases, and copying projects, all of which require large floating point matrices or data buffers to be manipulated. In extreme cases the SimaPro client can use more than 2 GB of memory so be

¹ SimaPro supports up to 40 concurrent users. Memory limits of your terminal server are likely to be the limiting factor when connecting a large number of users.

careful not to limit the available memory. Windows 7 or later is recommended for the SimaPro client, and Windows Server 2003 or later is recommended for the SimaPro database server.

For complex calculations SimaPro caches opened libraries in temporary files on the hard disk. So for optimal speed it is recommended to have at least 2-3 GB free disk space while using SimaPro. When SimaPro is closed these temporary files are deleted. If the user exports data, the file size will vary based on the quantity of data selected, i.e. anywhere between a few KBs and 1 GB. Exporting of graphs requires only a few kilobytes for JPEGs and about 1 MB for bitmap files.

Remote Client Requirements

Requirements for the remote client software are very low with the most important requirement being a stable communication link. SimaPro does not make use of animation or sophisticated graphical features, so a 128 Kbps upload/download link should suffice.

For security reasons we recommend that terminal sessions should not be run from a public computer. Extra protection can be implemented hosting the terminal server in a DMZ (demilitarized zone) or requiring a secure VPN connection is made to the network hosting the terminal server.

9.2 Installation

There are no special requirements for the SimaPro client on a terminal server that are different to the installation of any other software packages in this kind of environment. With Citrix XenApp, the SimaPro client should be loaded in 'install mode'. As mentioned before, install the SimaPro database server, database files and SimaPro client program on the same disk array for optimal performance.

The SimaPro multi-user version operates as a client-server system. Although not ideal, if the client and database are separated by a firewall device, then TCP and UDP ports 16001 should be open (for unsecured transport) and 17001 should be open (for secured transport).

It is common for terminal server sessions to have limited directory creation privileges. To allow correct registration and activation of SimaPro, each session running the SimaPro client should have read/write access to the "Document and Settings" and "ProgramData" directories mentioned in Appendix: SimaPro directories.

PRé Consultants does not offer software installation services. Our helpdesk will however answer any specific questions where possible and suggest other options to explore for questions outside their area of expertise.

9.3 Maintenance

Backups

The SimaPro database files can be backed up in a multi-user environment, providing no users are editing the database. Unfortunately, no special software agents are available to guarantee a tape backup system can archive the database when it is being used. An alternative method is to use the manual backup function within the SimaPro client software. We recommend performing regular nightly backups in the early hours of the morning when all users are likely to be logged out.



Database Server Crash

In the event of a database server or machine crash, large temporary files may be left in the default Windows TEMP directory. In such cases, you need to remove these SimaPro database server files manually. They can be recognized by the format: XXXX_XXXXXXX.tmp. The SimaPro client will always remove its temporary files automatically upon restarting the application.

Database and Program Administration

Each database has a manager user with its own password. This is required to create user accounts and set project access rights (via Tools, User management). The database manager has full access to all data and projects within a database.

We recommend the client software is installed in a central location and a short cut is made in each client environment, as this minimizes the work needed when a client update is available.

Locked User Sessions

When using terminal sessions and SimaPro, it is possible for users to close their terminal session without shutting SimaPro down. This can occur if their communication link is broken or sometimes it is done intentionally, so users do not need to close off all their work (see Figure 2). When this occurs, the SimaPro client session stays active, which prevents the license from being used by someone else. Additionally, in rare cases, SimaPro can crash but its process stays active in memory, even though no user interface is visible. This will stop the same user being able to log back into SimaPro.

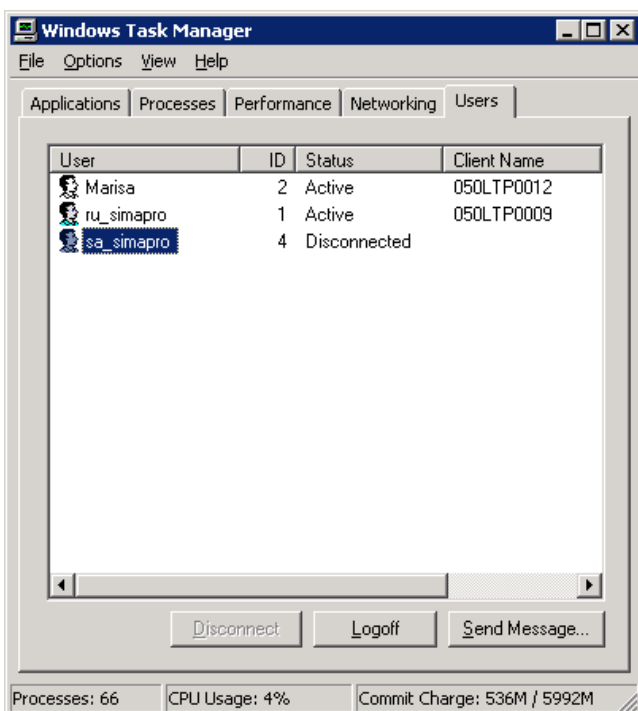


Figure 2: Disconnected but active remote desktop session

The solution to these occurrences is to either:

- Open the terminal session again and shut it down properly, i.e. Log off; or
- Open the Task Manager (left-click the task bar), select SimaPro.exe, and click **End Process** (see Figure 3)

The latter option should only be done as a last resort as it does introduce the risk of corrupting the database.

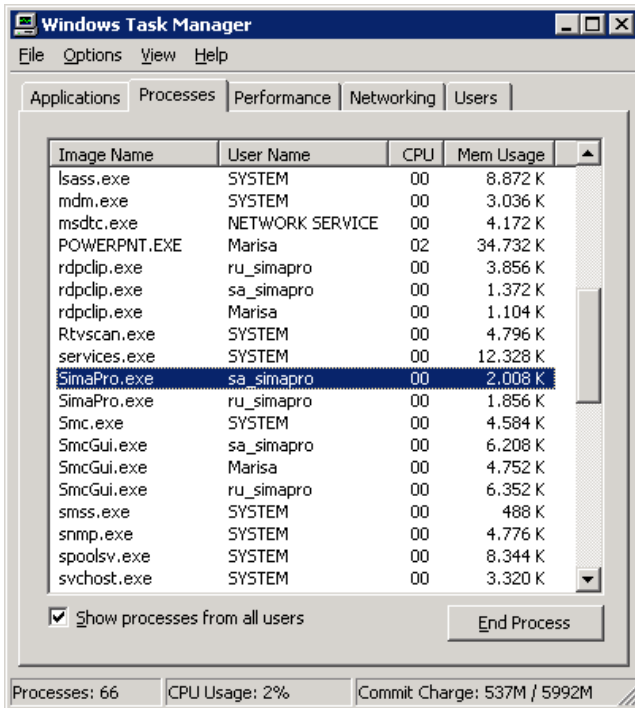


Figure 3: Terminating SimaPro