

How to install GEM-Selektor v.3 on your local PC (desktop or laptop)

GEM-Selektor version 3.8.0 and higher

1. On Windows 10 (11):

Installers for Windows 10 are now built using the Qt Installer Framework. By default, they install the GEM-Selektor into the user (home) folder (e.g. C:\Users\

1.1. Download or copy the installer file (e.g. Gems3.9.6-7f2d47b.9a8c970-qt6-win64-install.exe) into a temporary location and execute it (as Administrator, if possible). The installer will ask where to install/update, suggesting e.g. C:\Users\

1.1A ATTENTION! If, upon the first start, the GEM-Selektor fails with errors like “GEMS DB directory is not readable” or “Error writing configuration file (gemsdbf.conf)”, then please use a temporary workaround as follows. With the file manager, create a folder (assuming that the your user login name is "my_user")

C:\Users\my_user\Library\Gems3\projects

then open the folder

C:\Users\my_user\GEMS396\Gems3-app\Resources\projects

and copy all the files and folders from there into the folder

C:\Users\my_user\Library\Gems3\projects

Now, start GEM-Selektor in a usual way from the system menu or from command line as described below.

1.2. To add your existing backed-up old GEMS modelling project folders, use any file manager to copy-paste them from backup location into C:\Users\

1.3. Attention! Before updating the GEM-Selektor code, if you added third-party database files (e.g. Cemdata18) to the default thermodynamic database, you may wish to back up the whole DB.default folder to another location in your user directory. Use your file manager to locate the Resources folder inside of gems3-app, e.g. C:\Users\

1.4. To update the GEM-Selektor code, start the installer and browse to the location where GEMS3 has been previously installed, for example, to C:\Users\

other folder (e.g. C:\Users\\GEMS397) and then copy necessary files from the previous location of GEM-Selektor, or skip installing Resources in the installer widget (this is not recommended because the changes in help pages etc. will not be taken over).

1.5. If you backed up the DB.default folder with third-party thermodynamic database files, you can now use the file manager to compare and copy the files between the folders

C:\Users\\backup\DB.default and C:\Users\\GEMS396\gems3-app\Resources\ or from the old to the new GEM-Selektor Resources location.

1.6. To remove or upgrade the GEM-Selektor package, launch the MaintenanceTool.exe program (automatically installed) e.g. C:\Users\\GEMS3\MaintenanceTool.exe. Your modelling projects and logs will remain intact and in place.

2. On Mac OS X 10.13 and higher (Intel processors):

In MacOS, the default locations of the program (/Users/<myuser>/GEMS3/Gems3.app) and user's projects (/Users/<myuser>/Library/Gems3/projects/) are similar to those now used in Windows 10.

2.1. Download the installer .dmg file (e.g. Gems3.9.6-7f2d47b.9a8c970-qt5-macos-x86-64.dmg) and double-click to mount it. A small window appears showing the application gems3.app icon. In your home folder, create a subfolder "GEMS" (this can be done in Finder using the "Go" "Home" menu, or in the terminal using commands "cd ~" and then "mkdir GEMS"). In Finder, drag and drop the "gems3.app" item from the window of the opened dmg installer into the /Users/<myuser>/GEMS/ folder.

The alternative old route (in Finder): Drag and drop the "gems3.app" item into the /Applications folder. Another alternative: drag "gems3.app" to /Users/<myuser>/Applications folder. The gems3.app contains the program and resources, including the help database and Resources/DB.default/ folder with the thermodynamic database. To access gems3.app resources in Finder, right-click on the "gems3.app" item and choose "Show package contents", then expand "Contents" and then expand "Resources". Regardless of the location of "gems3.app", your modelling projects will be located in /Users/<myuser>/Library/Gems3/projects/. If this folder does not exist, it will be created upon the first start of GEM-Selektor and populated with some test projects.

2.2. To normally start the GEM-Selektor, go (in Finder) to any of the three locations described above where you have placed the "gems3.app" item, and double-click on it. Next time, you can launch GEM-Selektor from the Dock icon. To add the GEM-Selektor icon to Dock, now just right-click on the icon (when the program is running), and select "Keep in Dock". You can also launch the program from terminal (for instance, if a special command-line key is needed). For example, if the program is located at /Users/<myuser>/GEMS/gems3.app then the command in terminal to launch from the home directory may look like this: `exec /Users/<myuser>/GEMS/gems3.app/Contents/MacOS/gems3 -f -d`

2.3. If the GEM-Selektor does not start by clicking on gems3.app icon then try the following: right-click on gems3.app and choose "Show package contents", then click on Contents, then on MacOS and then double-click on gems3 file. Alternatively, starting GEM-Selektor is possible from the terminal. If gems3.app is located in user's "Applications" folder, use the commands:

```
% ~/Applications/gems3.app/Contents/MacOS/gems
```

If gems3.app is located in the user's "GEMS" folder then type:

```
% ~/GEMS/gems3.app/Contents/MacOS/gems
```

2.4. You can add your old modeling project folders by copying them into `~/Library/Gems3/projects/` (a shorter form of `/Users/<myuser>/Library/Gems3/projects/`). To locate this folder in Finder in MacOS versions older than Catalina, click on the desktop, then select in the top menu "Go" "Go to folder...", type `~/Library` in the appearing dialog, and click the "Go" button. To add your old projects folders into `~/Library/gems3/projects/`: shut down GEM-Selektor, copy the project folders from your backup locations, and start GEM-Selektor again. A regular backup of your modelling projects is recommended (about once per week).

2.5. if you added third-party database files (e.g. Cemdata18) to the default thermodynamic database, you may wish to back up the whole `DB.default` folder to another location in your user directory. For that, you need to navigate to program `Resources/DB.default/` folder with the thermodynamic database. To access `gems3.app` resources in Finder, right-click on the "gems3.app" item and choose "Show package contents", then expand "Contents" and then expand "Resources" to see the "DB.default" folder. Use Finder to copy this folder to another location, such as `/Users/<myuser>/GEMS-tdb-backup/`.

2.6. To update GEM-Selektor: just move `gems3.app` from its installed location to Trash, and proceed with step 2.1. Only files in `gems3.app` will be replaced; your own modelling projects, located in the `~/Library/gems3/projects/` folder, will not be affected. If you have backed up the `DB.default` folder, later on you can merge additional contents from there into the upgraded `/Users/<myuser>/GEMS/gems3.app/Contents/Resources/DB.default` folder.

3. Linux (Ubuntu >= 18.04, Debian, RedHat), new AppImage installer

3.1. Starting from version 3.9.2, GEM-Selektor binary package for Debian- and RedHat-based Linux x86-64 systems is packaged using the `linuxdeployqt` utility (<https://github.com/probonopd/linuxdeployqt/>), which uses AppImage format and tools (<https://github.com/AppImage/AppImageKit>). In this way, a distribution bundle similar to `.dmg` for MacOS is produced (for GEM-Selektor version 3.9.6 and later). It is super-easy to run an application from an AppImage bundle: simply download it to a location in your home directory ("`/home/<you>/GEMS396`"), make it executable (in terminal:

```
$ chmod u+x ~/GEMS396/<filename>.AppImage ),
```

and launch by clicking on the `.AppImage` file name in file manager or in the terminal by a command

```
$ cd ~/GEMS396
$ <filename>.AppImage
```

3.2. When the GEM-Selektor starts, you can locate it in the task bar and pin there for an easy start next time. Upon the first start, the program will create a directory `~/Library/Gems3/projects` and copy there some test GEMS modelling projects from the bundle. Later on, your new modelling projects will be added to this location (which is recommended to backup regularly). Any newly-installed GEM-Selektor version will recognize the existing `~/Library/Gems3/projects` folder and not overwrite or delete anything there.

3.3. What to do with the AppImage bundle if, for example, there is a need to add a set of third-party default thermodynamic database files such as Cemdata18 or MINES19 TDB? This problem is really easy to solve. The AppImage is also a self-extracting archive that can be expanded into a folder at any time by launching it with a command (in terminal):

```
$ <filename>.AppImage --appimage-extract
```

This will produce a directory “~/GEMS396/squashfs-root” that contains the “unbundled” GEM-Selektor application image, which can be launched after diving into the squashfs-root directory and clicking (executing) the file *AppRun* (eventually with command-line parameters of the gems3 executable file). Diving into the “squashfs-root/usr/bin/Resources/DB.default” directory allows you, for instance, to add or update some [third-party] thermodynamic database files in this installation of GEM-Selektor.

3.4. The unbundled application folder can be bundled back into an AppImage file using the appimagetool:

```
$ cd ~/GEMS396
$ ./appimagetool-x86_64.AppImage ./squashfs-root
```

This will produce a bundle file “GEM-Selektor-x86_64.AppImage” that can be renamed as desired, e.g. into “GEM-Selektor-MyOwnMod-x86_64.AppImage”. GEM-Selektor can be started by clicking directly on this new bundle, which is also good as a backup (if copied to a different location). The appimagetool utility can be downloaded from here: <https://github.com/AppImage/AppImageKit/releases/>

3.5. If the AppImage bundle of GEM-Selektor does not run on a given Linux system then the only way remains to git clone the code from the public git repository <https://bitbucket.org/gems4/gems3gui.git> and compile/build GEM-Selektor in several steps, as described in the "Overview" there (requires installation of the Qt5 toolkit).

4. Linux, old zipped installers (up to GEM-Selektor v 3.9.2)

4.1. Get the installer (e.g. *Gems3.9.2-96323c0.8986188-linux-x64-qt5.tar.gz*) downloaded from the GEMS web site) into your home directory ~/ (in full, /home/<myuser>/).

4.2. Unpack the installer to your home directory:

```
cd ~ && tar -xzf Gems3.9.2-96323c0.8986188-linux-x64-qt5.tar.gz
```

This will create a folder /home/<myuser>/GEMS3/ with a subfolder *Gems3-app/* that contains the program and its *Resources/*, including the help database and a *Resources/DB.default/* folder with the thermodynamic database. If it does not exist, a folder /home/<myuser>/Library/Gems3/projects will be created and populated with some test projects. Your new modelling projects will be added to this location, regardless of where the currently used *gems3-app* is located. For instance, the folder /home/<myuser>/GEMS3/ can be renamed e.g. to /home/<myuser>/GEMS392/, and another version of GEM-Selektor can be installed later e.g. into a folder /home/<myuser>/GEMS3/ and then renamed to /home/<myuser>/GEMS393/.

4.3. To start GEM-Selektor from the terminal: `cd ~/GEMS3 && ./AppRun` (or alternatively, `cd ~/GEMS3/gems3-app && ./rungems.sh -d`). The GEM-Selektor v.3 program should launch. If the program does not start, this most probably means that the Qt5 toolkit is present in the system path (as in KDE linux distributions such as kubuntu 18.04 or older). Then make sure that Qt5 is installed in the system path completely. On the Kubuntu Linux, run in terminal a command:

```
sudo apt-get install qt5-default qttools5-dev libqt5svg5 libqt5help5
```

Then try to start the *gems3-app* executable directly (i.e. without using *rungems3.sh*), first time as:

```
/home/<myuser>/GEMS3/gems3-app/gems3 -d
```

and any next time (if it did not crash), start GEM-Selektor as

```
/home/<me>/GEMS/gems3-app/gems3 -c
```

On Linux systems such as OpenSuse, CentOS, RedHat Enterprise, etc., this pre-built GEM-Selektor package still may not work because of system library incompatibilities. In this case, it may be necessary to git clone the code from the public git repository <https://bitbucket.org/gems4/gems3gui.git> and compile/build GEM-Selektor as described in the "Overview" there.

4.4. You can copy the existing third-party projects, or your old project folders into

```
/home/<myuser>/Library/Gems3/projects/
```

. Backup of modeling projects to a different location is strongly recommended to do once a week.

4.5. To create a desktop shortcut for starting GEMS3: copy the file GEM-Selektor.desktop from ".../gems3-app/share/applications/" to the "~/Desktop/" folder; right-click on the GEM-Selektor icon on your desktop, select "Properties", and edit the actual location of the GEMS3 icon (e.g. /home/<myuser>/GEMS3/gems3-app/gems3.png). Then, if necessary, edit the program start location in the command line (e.g. "/home/<myuser>/MyGEMS/gems3-app/rungems3.sh -c" or "/home/<myuser>/MyGEMS/gems3-app/gems3 -c"), and save.

4.6. Start the GEM-Selektor program by clicking on the desktop icon. If it does not start, check the path in the icon again, or edit the rungems3.sh file by replacing "#!/bin/sh" with "b#!/bin/bash" (depends on the particular linux distribution). On Ubuntu linux 16.04 or up, you can drag the launcher icon from desktop to the launch bar (on the left side) and start GEM-Selektor by clicking on that icon in the launch bar.

A4.7. To update GEM-Selektor: delete the Gems3-app folder, download the new installer, and unpack it as described in paragraph A3.2. Your modelling projects remain intact in /Library/Gems3/projects/. To remove GEM-Selektor package from your PC completely, simply delete both "/Gems3-app/" and "/Library/Gems3/" folders where you have them in your home directory. All operations described above (except one using apt-get) do not require root privileges. Enjoy using GEM-Selektor v.3!