Command-Line VS License Manager

For both the Linux and Windows version of the Vehicle Sim products, functionality is enabled by the License Manager application included in your software installation. The License Manager is required to execute simulation runs on Linux installations; however, it can be optionally used on Windows installations as well. You will run the License Manager for the duration of your work session, or you might leave it running indefinitely on your target machine. When the License Manager is running it will check out licenses from a license server on your LAN, or from local license files.

This memo describes how to install and use licenses with the License Manager.

License Manager Executables

The License Manager has a unique name depending on which product has been installed (Table 1).

Table 1. Product name and License Manager executable.

Product	Platform(s)	License Manager Executable
CarSim	Windows and Linux	`cs-lm-cli`
TruckSim	Windows and Linux	`ts-lm-cli`
BikeSim	Windows and Linux	`bs-lm-cli`
SuspensionSim	Windows Only	`ss-lm-cli`

For Linux installations each corresponding License Manager will be located on the path, and its name can be entered directly on the command prompt. Windows users can find the corresponding License Manager in the `Programs` directory in the installation directory. For example, if the default installation path was used when installing CarSim, the License Manager can be found at the following location:

```
C:\Program Files (x86)\CarSim2022.1_Prog\Programs\cs-lm-cli.exe
```

Finding your Host ID

For Node-Lock and Trial licenses, Mechanical Simulation will need to know the unique ID of the machine you will be using. For Linux installations, this can be found by opening a terminal window, and typing the command (Figure 1):

`HostID`

The command is case-sensitive.

Figure 1. Displaying the machine Host ID.

On Windows installations, `HostID.exe` can be found in the `Programs` directory in the installation directory (Figure 2). For example, given the default installation directory for CarSim, `HostID.exe` can be found at:

```
C:\Program Files (x86)\CarSim2022.1_Prog\Programs\HostID.exe
```
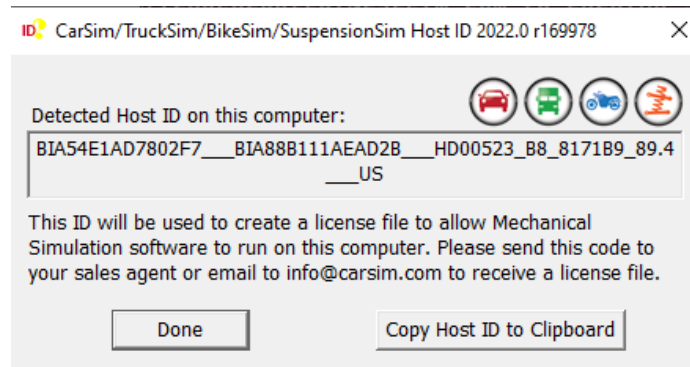
Figure 2. Displaying the machine Host ID on Windows

You will supply this ID to Mechanical Simulation (licensecontrol@carsim.com) in the process of acquiring a Node-Lock or Trial license.

Configuring Licenses

You will configure your licenses using a special directory. On Linux installations, this directory is created for you. On windows installations you will have to create the directory yourself.

To view this directory on Linux installations:

1. Open the "File" browser tool

2. Enable hidden files by pressing [CTRL+H]

3. Double click the `.config/` directory

4. Double click the `mechsim/` directory (Figure 3)

To setup the directory on Windows installations:

1. Open the "File Exploreer"

2. Create a directory named `FlexLM` at the C:\ root level

3. Create empty files and assign the names
   `license_source.cfg`
   `requested_licenses.cfg`
   `hpc.cfg` (optional, see the *Licensing for High-Performance Computing* documentation for details)
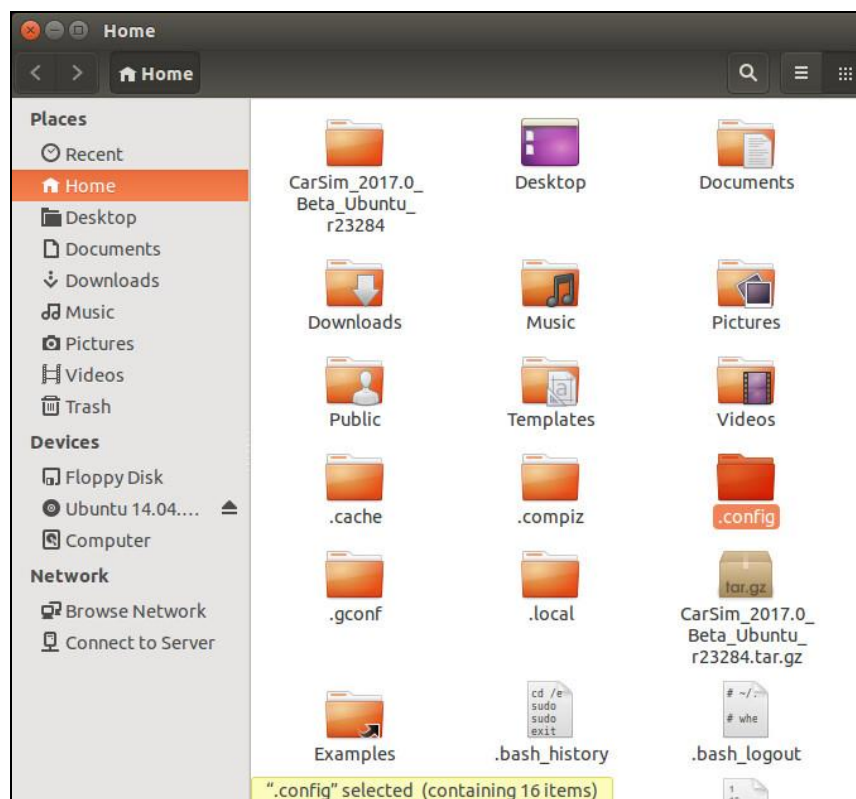
Figure 3. Finding the configuration directory on Linux

Table 2 shows the contents of a `mechsim` or `FlexLM` config directory.

Table 2. Contents of ~/.config/mechsim or C:\FlexLM.

Item	Type	Note
license_source.cfg	Text File	Configures the License Manager to work with network licenses or license files
requested_licenses.cfg	Text File	Configures which licenses will be used
hpc.cfg	Text File	Configures settings for HPC licensing mode
K*******.lic	License File(s)	Installed by user

> **Note**   For how to configure hpc.cfg, see the *Licensing for High-Performance Computing* document.

Configuring the License Files

To build the contents of the `license_source.cfg` and `requested_licenses.cfg` files interactively, run the license manager executable with the -config commandline parameter. Input the name of a license file, a directory of license files, or a license server.
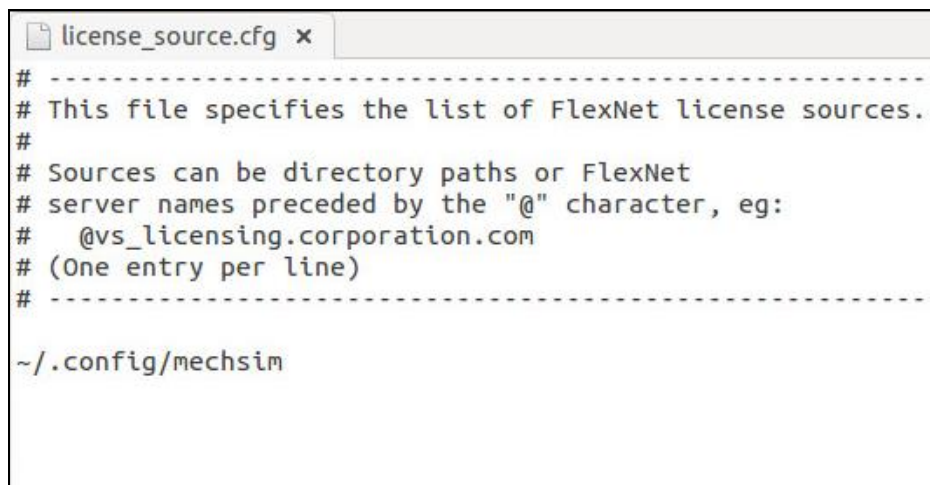
```
carsimuser@ubuntu:~$ cs-lm-cli -config

Please enter license source location (network host or license directory/file):
@mylicensehost
```

A list of available licenses will be displayed, and you may input the number of requested licenses for each available license.

```
How Many licenses of "trucksimfus" would you like to request (max 100):5
How Many licenses of "carsimwdsus" would you like to request (max 100):10
How Many licenses of "carsimwdstus" would you like to request (max 100):12
How Many licenses of "sussimus" would you like to request (max 100):
```

Manually Configuring the License Source

The first file, license_source.cfg, determines the license search path. It should point to a license file, to a directory containing license files, or to a license server (Figure 4).


```
📄 license_source.cfg ×
# ------------------------------------------------
# This file specifies the list of FlexNet license sources.
#
# Sources can be directory paths or FlexNet
# server names preceded by the "@" character, eg:
#    @vs_licensing.corporation.com
# (One entry per line)
# ------------------------------------------------

~/.config/mechsim
```

Figure 4. The license source file

The license_source.cfg file contains one line specifying your license source. If you have multiple license sources, you may list them on separate lines.

For file-based licenses (Node-lock or Dongle), the default path of ~/.config/mechsim or C:\FlexLM is appropriate. The License Manager will search this directory for license files. Alternatively, you can use the -configpath commandline parameter to configure a custom path location for your configuration files.

In the case of network licenses, please enter the address of your LAN license server, preceded by the "@" symbol, and License Manager will contact this server for licenses. For example:
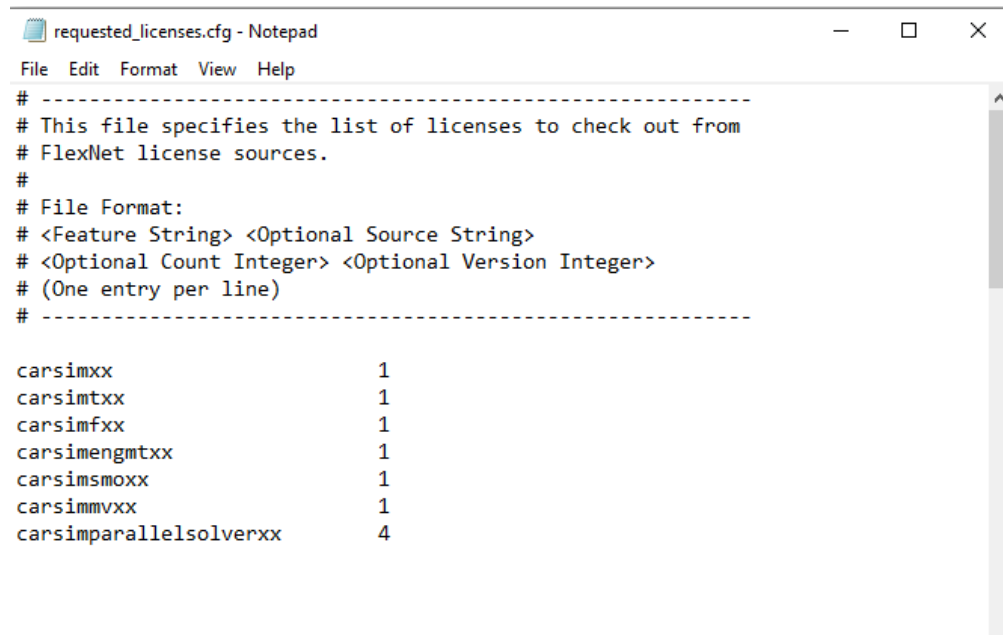
```
@license.mycorporation.com
```

Manually Configuring the Requested Licenses List

The second file, `requested_licenses.cfg`, determines the licenses that the License Manager will attempt to check out at run time. The Linux installer will provide a default config file that attempts to check out every feature supported by the version of software installed. However, in the case of network licensing, you may want to specify a subset of these licenses in order to leave licenses available for colleagues. For the Windows version, you will need to specify which features to check out. Use the below figure as a starting point.

Each line specifies a license. The format for each line is:

<Feature String> <Optional Source String> <Optional Count Integer> <Optional Version Integer>

Figure 5. The requested licenses file

The file shown in Figure 5 will check out:

- CarSim Solver

- CarSim Trailer Add-On

- CarSim Chassis Flex Add-On

- CarSim Engine Mount Add-On

- CarSim Sensors Add-On

- CarSim Extra Parallel Solver Add-On (As many as available)

If any licenses cannot be obtained, the License Manager will indicate such status by console but will continue running and providing other licenses.

Source: This parameter will specify which source from the `license_source.cfg` file to use when checking out the license. The string must match completely. For example, if in the

`license_source.cfg` file a source of `@license.mycorporation.com` is used, then the exact string of `@license.mycorporation.com` must be provided as the source string. One line in the `requested_licenses.cfg` file could appear as:

```
carsimlinuxsolverxx    @license.mycorporation.com    1
```

If the parameter is omitted, then the license manager will use the first license source that provides the feature.

Counts: Unless specified, each line will check out one count of each license.

Versions: The License Manager will always check out the latest version of each product unless the product version is specified as the third line item.

> **Note** The `cs-lm-cli` and `ts-lm-cli` executables are interchangeable. Either executable can support both CarSim and TruckSim when the appropriate licenses are combined in the `requested_licenses.cfg` file.

Installing a Dongle License

If you choose Dongle licensing, Mechanical Simulation will provide you with a USB hardware "Dongle" and a license file (e.g. `K123456.lic`).

> **Note** Dongle Licenses are only supported on Red Hat and CentOS

1. Copy the license file to the **~/.config/mechsim** or **C:\FlexLM** directory

2. Ensure that `license_source.cfg` points to your **~/.config/mechsim** or **C:\FlexLM** directory

3. Ensure that `requested_licenses.cfg` lists your desired licenses. The license names should match those in your *.lic license file.

4. Plug the dongle into your machine

5. Open a terminal (Linux) or cmd prompt (Windows) and run one of the following, depending which product you have installed:

    cs-lm-cli
    ts-lm-cli
    bs-lm-cli
    ss-lm-cli

6. You may now run the corresponding Vehicle Sim product on the command line.

The License Manager will indicate which licenses you have checked out (Figure 6).

Figure 6. Running cs-lm-cli with a Dongle

Installing Multiple Products for Linux

On Linux CarSim, TruckSim, and BikeSim are all available to be installed at once. When installing the secondary product, the steps taken are slightly different due to file structure. The first product is installed per the usual process, so don't worry if you've already done it. However, before installing the second VS product, navigate to ~/.config/mechsim/ and change the name of the `requested_licenses.cfg` file. Otherwise, the second product will not add any default configuration files, because it already sees the file there, but it doesn't know that those files only relate to the first product. Once you've renamed the file, you can then install the second product per the usual process. Once complete, combine the contents of both files for proper functionality.

Installing a Network License

If you choose network licensing, licenses will be provided by a machine on your LAN, and will be pooled amongst your coworkers. Mechanical Simulation will assist with license server setup. Once your license server is active, take the following steps:

1. Open `license_source.cfg` and enter a single line containing the address of your license server preceded by the "@" symbol, e.g. @license.company.com or @192.168.0.44.

2. Save `license_source.cfg`

3. Ensure that `requested_licenses.cfg` lists your desired licenses. If your company purchased region-locked licenses, change the "xx" at the end of each line item to reflect your two-letter country code.

4. Save `requested_licenses.cfg`

5. Open a terminal (Linux) or cmd prompt (Windows) and run one of the following, depending which product you have installed:

   cs-lm-cli
   ts-lm-cli
   bs-lm-cli
   ss-lm-cli

6. You may now run the corresponding Vehicle Sim product on the command line.

> **Note** If your license server is not using the default port, or if you prefer to specify the port, you will need to include the port number as part of the name or address (e.g. 27000@license.company.com or 27000@192.168.0.44).

Installing a Node-Lock or Trial License

Mechanical Simulation will provide a license based on your machine ID. To discover your machine ID, open a terminal and type:

   HostID

After you receive a license file (K******.lic) from Mechanical Simulation, you will need to install the license.

1. Copy the license file to the **~/.config/mechsim** or **C:\FlexLM** directory

2. Ensure that license_source.cfg points to your **~/.config/mechsim** or **C:\FlexLM** directory

3. Ensure that requested_licenses.cfg lists your desired licenses. The license names should match those in your *.lic license file.

4. Open a terminal (Linux) or cmd prompt (Windows) and run one of the following, depending which product you have installed:

   cs-lm-cli
   ts-lm-cli
   bs-lm-cli
   ss-lm-cli

5. You may now run the corresponding Vehicle Sim product on the command line.

Installing License Manager as a Windows Service

On Windows installations, the Command-Line License Manager can be run as a Windows Service. Installing the License Manager as a Windows Service requires the same configuration steps documented above, but instead of running the program at the cmd prompt a Windows Service is created to run the License Manager executable.

Creating, starting, and deleting a License Manger Windows Service can be accomplished by using the **sc** command line utility provided by Windows.

Create the License Manager Windows Service

1. Open a cmd prompt with administrator privileges.

2. Run the **sc create** command using the path of the License Manager executable as the binary path name.

   General usage of the **sc create** command:
   ```
   sc.exe create [<servicename>] [binpath= <binarypathname>] ...
   ```

   Below are 3 different examples of creating a Windows Service for the License Manager executable.

   Example 1 - Create CarSim License Manager as a Windows Service:

   ```
   sc.exe    create    "CS-LM"    binPath=    "\"C:\Program    Files
   (x86)\CarSim2022.1_Prog\Programs\cs-lm-cli.exe\""
   ```

   Example 2 - Create BikeSim License Manager as a Windows Service, passing a parameter to the License Manager:

   ```
   sc.exe    create    "BS-LM"    binPath=    "\"C:\Program    Files
   (x86)\BikeSim2022.1_Prog\Programs\bs-lm-cli.exe\"         -logpath
   \"C:\logs\licenseManger.log\""
   ```

   Example 3 - Create CarSim License Manager as a Windows Service, setting the service to automatically start each time the computer is restarted:

   ```
   sc.exe    create    "CS-LM"    binPath=    "\"C:\Program    Files
   (x86)\CarSim2022.1_Prog\Programs\cs-lm-cli.exe\"" start= auto
   ```

Starting the License Manager Windows Service

If you have created the License Manager Windows Service to auto start, you can simply reboot your computer. License Management startup settings can be managed using the Microsoft Services Management Console. Use of the Microsoft Management Console is outside the scope of this document.

To start the License Management Windows Service using the **sc start** command line utility:

1. Open a cmd prompt with administrator privileges.

2. Run the **sc start** command using the License Manager:

   General usage of the **sc start** command:
   ```
   sc.exe start <ServiceName> [<ServiceArguments>]
   ```

   Example 1 - Start the License Manager Windows Service:

   ```
   sc.exe start "CS-LM"
   ```

   Example 2 - Start the License Manager Windows Service using start parameters:

```
sc.exe start "BS-LM" -logpath "C:\logs\license.log"
```

Parameters used with **sc start** service command are passed to the License Manager executable. These parameters override the arguments that you may have set while creating the service in the binpath parameter.

Remove the License Manager Windows Service

If the License Manager Windows Service is no longer needed, the service can be removed using the **sc delete** command:

1. Open a cmd prompt with administrator privileges.

2. If the service is running, stop the service by running the **sc stop** command:

   General usage of the **sc stop** command:
   ```
   sc.exe stop [<ServiceName>]
   ```

   Example:

   ```
   sc.exe stop "CS-LM"
   ```

3. Delete the service by running the **sc delete** command:

   General usage of the **sc delete** command:
   ```
   sc.exe delete [<ServiceName>]
   ```

   Example:

   ```
   sc.exe delete "CS-LM"
   ```

License Renewal

Node Lock and Dongle License Renewal

Send an email to licensecontrol@carsim.com with the subject <product> <version> Linux Renew. (E.g., CarSim 2019.1 Linux Renew). You will receive a response within one business day. Please include your key ID in the body of the email. Your key ID can be found in the filename and contents of your `K******.lic` license file. Mechanical Simulation will email you the renewed license file.

Network License Renewal

Contact your system administrator responsible for maintaining the FlexNet License Manager or email licensecontrol@carsim.com with the subject <product> <version> Network License Renew. (E.g., CarSim 2019.1 Network License Renew). Please attached the network license file to the email. You will receive a response within one business day.

Graphical License Manager

(BSLM, CSLM, TSLM, and SSLM. Windows version only.)

Mechanical Simulation Corporation produces and distributes software tools for simulating and analyzing the dynamic behavior of motor vehicles. The simulation packages are organized into families of products named BikeSim®, CarSim®, SuspensionSim®, and TruckSim®. All are based on the VehicleSim® simulation architecture.

The main program (e.g., `carsim.exe` in CarSim) is called the *VS Browser*. It provides a GUI for managing a database of vehicle and test descriptions, running the simulation models, visualizing results, and accessing documentation.

A *VS Solver* is a program in a VehicleSim product that reads input files, writes output files, and calculates variables from an internal math model. A VS Solver DLL needs license information to run. When run under the control of a VS Browser, the VS Browser manages the license information automatically.

If you want to run VS Solvers without using the VS Browser GUI, the VS Solvers still need license information. There are two ways to do this:

1. Make sure the VS Browser is running on the same computer as the VS Solver. The VS Browser may be minimized to avoid clutter on the screen.

2. Run the stand-alone License Manager (BSLM, CSLM, TSLM, or SSLM) on the same computer as the VS Solver. The License Manager is a relatively small program that runs in the background and allows runtime operation of a VS Solver.

The Purpose of the Graphical License Manager

Some advanced users have set up simulation environments where the VS Solvers are run under the control of other software. In some alternative environments, the objective is to run many simulations with a high level of automation. Access might not be needed to documentation, visualization tools, the GUI, and/or the full database provided with the VehicleSim product. A stand-alone License Manager is provided to support alternative installations that mainly use the VS Solvers from a VehicleSim product.

The Stand-alone License Manager runs on any Windows machine without the need for installing the CVI run-time engine (RTE) and low-level drivers that are required by the VS Browser. The License Manager is tailored to each VehicleSim product. For CarSim®, it is named `CSLM.exe`. For other products, the file name is `BSLM.exe,  TSLM.exe,  and  SSLM.exe`, for BikeSim®, TruckSim®, and SuspensionSim®, respectively. The License Manager executable file is located in the `_Prog\Programs` folder for any VehicleSim product (e.g., for CarSim it is located in `CarSim_Prog\Programs`).

License Manager Options

The first time you launch the License Manager (e.g., double click on `CSLM.exe`), it shows a window with license options (Figure 7).

For normal use, you can accept the default information. All licensed features are initially checked ①. If you have networked licenses and the number of available copies is greater than 0, then the license is available to use that feature ②.

You can use this window to disable features that won't be used. If you do not plan to change the settings anymore, check the box to not show this window when starting ③.
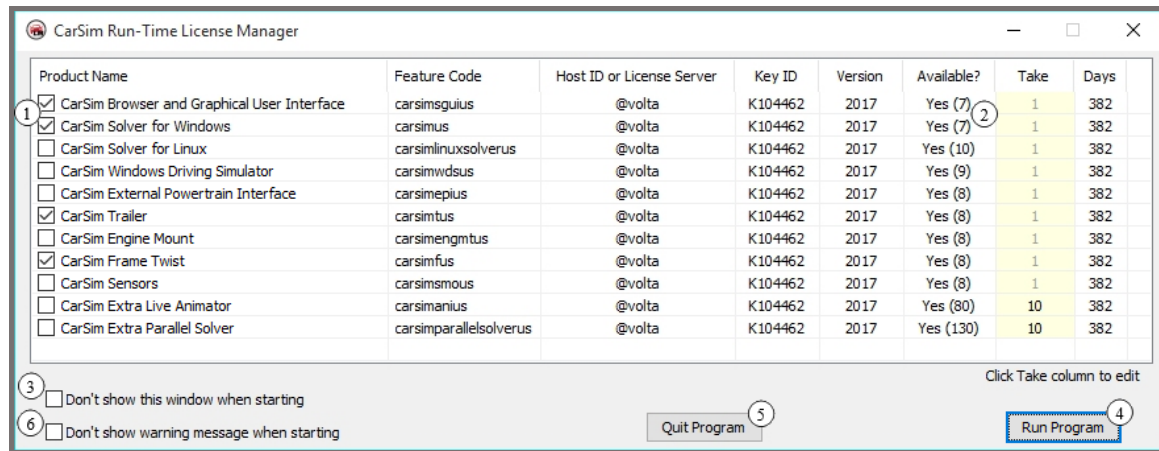

Figure 7. License Manager Settings.

After reviewing and possibly editing the settings, click the **Select** button ④ and run. (Alternatively, click the **Quit** button ⑤ to leave things alone.) As long as this program is running, your VS Solvers run just as they would under the control of the VS Browser.

If the license expires in 45 days or less, a window will pop up with a warning and options for renewing the license (this requires Internet access). You can disable the warning with the check the box ⑥. However, when the license is within a few days of expiring, the warning will appear even if the box is checked.

Launch in Hidden Mode

If you have checked the box to not show the settings window when starting ③, then starting the license manager is quicker in subsequent launches.

When running, the settings window can be accessed using the Windows control to view hidden icons (if the box ③ is checked) or running programs (if the box is not checked). For example, in Windows 7, hidden controllers are accessed from a control near the right-hand end of the task bar. You can also use the same Windows control to kill the process.

The License Manager can be launched in hidden mode using a command-line argument:

```
cslm.exe -min
```

Running Older Versions of VehicleSim Products

The stand-alone License Manager does not work with VS Solvers older than version 2017. If you are running VS Solvers older than version 2017, please run the associated VSLM.exe License Manager executable that is included with your older installation.