

LightTools Installation Guide

for Fixed and Floating Licensing (OSG Floating License Manager)

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SYNOPSYS®

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FOSS Notices

Free and Open Source Software (FOSS) notices are located in the LightTools installation folder under \Doc\FOSS (e.g., C:\Program Files\Optical Research Associates\LightTools 9.0.0\Doc\FOSS).

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Chapter 1 Getting Started

This chapter lists LightTools system requirements and tells you how to contact LightTools Support.

You can run LightTools using either a *fixed* license or a *floating* license. A fixed license allows you to run LightTools only on the computer on which it is installed (see *Installing LightTools with a Fixed License* on page 5). A floating license, which is installed on a network server, allows you to run LightTools on any computer on the same network (see *Installing LightTools with a Floating License* on page 15). The number of users that can use LightTools concurrently is limited by the licensing software.

System Requirements

To install LightTools to run with either a fixed or floating license, you must have:

- A personal computer with an Intel or AMD processor supporting SSE2 (such as Intel Core, Intel Atom, AMD Athlon 64, etc.)

To get maximum performance from multi-threaded simulations, we recommend 4 to 16 CPU cores. LightTools simulation performance scales well with the number of cores, so a computer with 12 or 16 cores can secure an almost linear increase in performance.

If Intel Hyper-Threading Technology is available on your computer, enabling it will further increase multi-threaded simulation performance.

- Operating system: Windows 10 or Windows 7 with Service Pack 1 (SP1) for 64-bit
- Random Access Memory (RAM): 8 GB minimum, 16 GB recommended (or more for large models or large simulations)
- Free disk space as listed to install LightTools components:

Component	Disk Space
Base LightTools product	4964 MB, plus virtual memory equal to 3 times the RAM
Online documentation	131 MB
Tutorial Files	97 MB
Data Exchange Modules, <i>excluding</i> CATIA V5	413MB
CATIA V5 Modules	1456 MB
SOLIDWORKS Link Module	58 MB

- Free disk space on the *system drive* (i.e., the drive on which the operating system is installed) for prerequisite software and for processes and temporary files required when running the product: 10 GB. If LightTools is installed on a drive other than the system drive, that drive should also have at least 10 GB free disk space.

Large models and complex analyses may require significantly more disk space.

- License keys provided by Synopsys OSG via SolvNetPlus SmartKeys or your local LightTools software distributor. The following modules require a separate license:
 - LightTools Core Module
 - LightTools Illumination Module
 - LightTools Optimization Module
 - LightTools Advanced Physics Module
 - LightTools Advanced Design Module
 - LightTools Imaging Path Module
 - LightTools SOLIDWORKS Link Module
 - LightTools Parasolid Exchange Module
 - LightTools STEP Exchange Module
 - LightTools IGES Exchange Module
 - LightTools SAT Exchange Module
 - LightTools CATIA V4 Exchange Module
 - LightTools CATIA V5 Import Module
 - LightTools CATIA V5 Export Module
- License dongle and a USB2.0 (or higher) port (for Type A)
- To access documents in the LightTools Electronic Document Library, which are provided as Portable Document Format (PDF) files, you must have Acrobat Reader version 8.x or higher installed on your computer. If Acrobat Reader is not installed, some browsers may allow the files to open, but hyper-links and other features in the PDF files may not work as designed.

For the LightTools SOLIDWORKS Link Module, you need a licensed version of SOLIDWORKS 2016 or later (with the latest service pack, if possible) installed on the same computer as LightTools.

- Display:
 - A monitor supporting 1280 x 1024 or better resolution, with 16-bit (65536) colors or more. LightTools supports monitors with high resolution or high DPI (dots per inch).
 - An OpenGL compliant graphics card with stable ICD driver support recommended. We recommend that you always use the latest version of the driver for your graphics card.
- A DVD drive, if installing from a DVD
- If you will be running LightTools with a floating license, you must also have:
 - TCP/IP network protocol
 - Floating license manager software provided by Synopsys OSG. This guide provides instructions for installing the OSG Floating License Manager (a Sentinel RMS license manager that has been customized for Synopsys OSG software), which is provided on SolvNet. See *Using SolvNetPlus to Obtain LightTools Software and Licenses* on page 39 for details.

Contacting LightTools Support

If you need help or have questions about LightTools that are not answered in the documentation or the online help, you can contact the LightTools Support team or your local distributor.

- The LightTools Support team is available from 8 a.m. to 6 p.m., Pacific Time.
 - Support Hotline (800) 243-8672 (U.S. and Canada only)
 - Telephone (626) 795-9101
 - Fax (626) 795-0184
 - Email: lighttools_support@synopsys.com
- For customers working with distributors, please contact your local LightTools software distributor for support. See the [Synopsys Optical Solutions Group Global Contacts](#) page for contact information.

Chapter 2 Installing LightTools with a Fixed License

You can run LightTools using either a *fixed* license or a *floating* license. This chapter describes how to install the product to run using a fixed license, which allows you to run LightTools only on the computer on which it is installed.

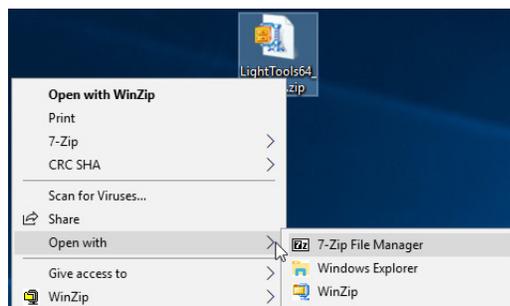
These instructions assume that you have already downloaded LightTools from the Synopsys SolvNetPlus website via electronic software transfer (EST) or that you ordered and received a LightTools DVD. It is also assumed that you have obtained license keys. If you have not done so, see *Using SolvNetPlus to Obtain LightTools Software and Licenses* on page 39.

Installing LightTools

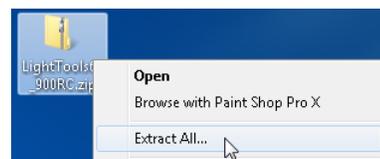
1. Log on to your computer as Administrator.
2. Navigate to the folder where the LightTools installation file *LightTools64_900FCS.zip* is located.
3. Right-click the file and select one of the extract options on the pop-up menu. For example:
 - If you have WinZip, select WinZip > Extract to. In the WinZip Extract dialog box, navigate to the desired location on your local drive and click Unzip.
 - If you have 7-Zip, select 7-Zip > Extract files. In the Extract dialog box, navigate to the desired folder and click OK.
 - If you have the Windows extract tool, select Extract All. In the Extract Compressed (Zipped) Folders dialog box, navigate to the desired folder and click Extract.

The following figures show an example on Windows 10 and Windows 7.

Windows 10



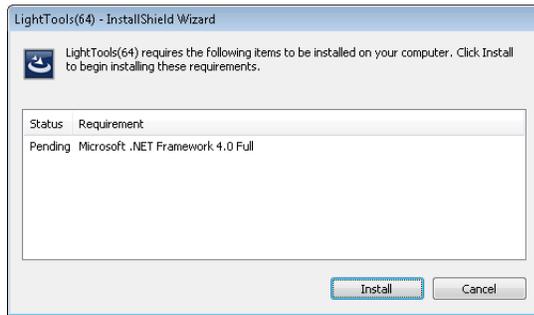
Windows 7



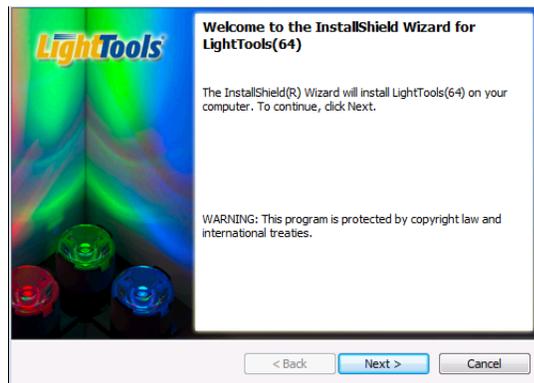
4. When the extraction is complete, navigate to the folder to which the files were extracted.
5. Double-click the setup file setup.exe.

On Windows 10, if a User Account Control dialog box is displayed with the message *Do you want to allow this app to make changes to your PC?*, click Yes to continue.

6. If you are prompted to install a Microsoft Visual C++ redistributable package or the .NET Framework, as shown in the following example, click the Install button.



The InstallShield Wizard is displayed, shown in the following figure.



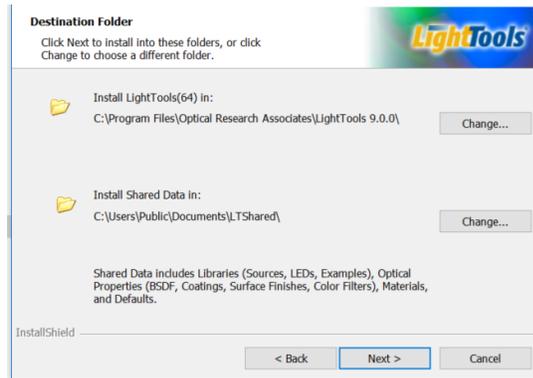
7. Click Next to continue.

The End-User License Agreement screen is displayed.

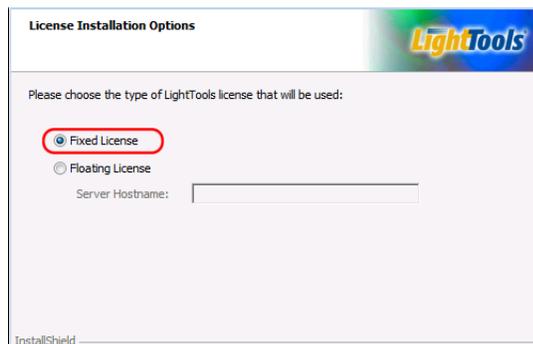


8. Click the I accept option and click Next to continue.

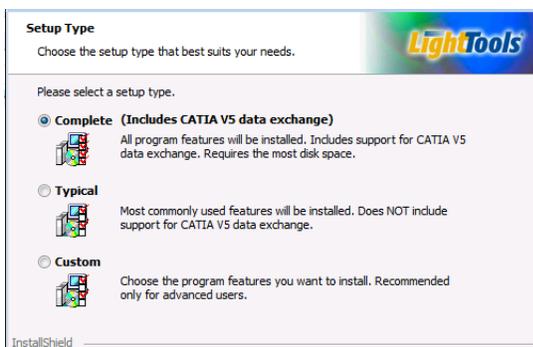
The Destination Folder screen is displayed.



9. To accept the default location for the program and Shared Data files, click Next.
The License Installation Options screen is displayed.
10. Make sure the Fixed License option is selected (it's the default setting) and click Next to continue.



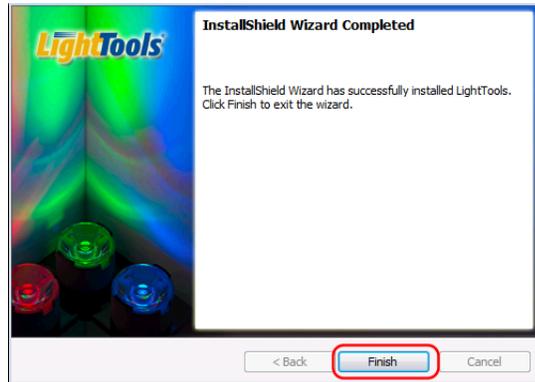
The Setup Type screen is displayed.



Note: During a Complete installation, all LightTools features are automatically installed, including the large CATIA V5 data exchange module. If you do not intend to license and use the CATIA V5 module, you can choose the Typical setup option to install all features *except* the CATIA V5 module, or select the Custom setup option, which allows you to manually control which features are installed.

11. Select the type of installation you would like to run and click Next to continue.
12. On the Ready to Install the Program screen, click the Install button to begin installing LightTools.

- When the installation is complete, click Finish to close the wizard.



If you already have a license key for this product, skip to *Installing a License Key for a Fixed License* on page 9. If you do not yet have a license key, continue with *Obtaining the Host ID for a License Dongle* on page 8.

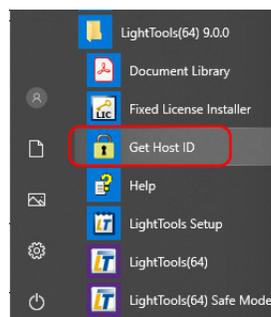
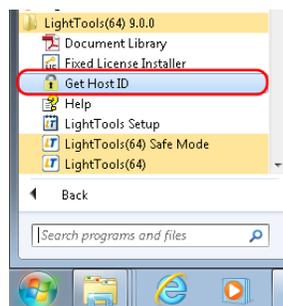
Obtaining the Host ID for a License Dongle

A license key is designed to work for only one USB dongle, so the license key is associated with a unique value encoded on the dongle called a *Host ID*. Because of this, you need to know the Host ID for the license dongle before you can retrieve a license key. The Host ID is printed on a label on the USB dongle; if you're unable to read the ID on the label, you can also obtain the Host ID by running a program that reads it from the dongle. In the LightTools installation, the GetHostID utility is provided for this purpose. Follow these steps to run the GetHostID utility.

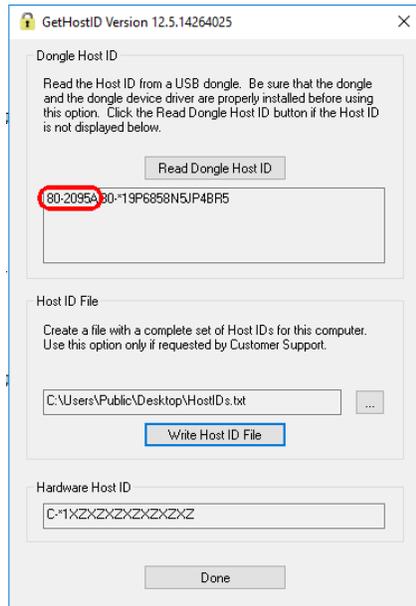
- Insert the USB dongle in an active USB port.
- Click the Windows Start button and select:

Windows 7: All Programs > LightTools > GetHostID

Windows 10: LightTools > GetHostID



The GetHostID utility is displayed, as shown in the following figure. Under the Read Dongle Host ID button, a short Host ID and a long Host ID are displayed side by side. To obtain a license key at this time, you need only the *short* Host ID (the first eight characters). In this example, the short Host ID is **80-2095A**. (Note that the amount of space between the two Host IDs varies, depending on the display configuration.)



3. Copy the short Host ID to use when you retrieve your license key on the Synopsys SolvNetPlus website. See *Retrieving License Keys* on page 46 for instructions.
4. Click Done to close the GetHostID utility.

After you retrieve your license key, go to *Installing a License Key for a Fixed License* on page 9.

Installing a License Key for a Fixed License

To install the license key for LightTools, you must have:

- LightTools installed (see *Installing LightTools* on page 5)
- A license dongle
- A valid license key (in previous releases, license keys were called license *codes*.) This procedure assumes that you have already obtained license keys from the SolvNetPlus SmartKeys web page. If you have not done so, see *Retrieving License Keys* on page 46 for instructions.



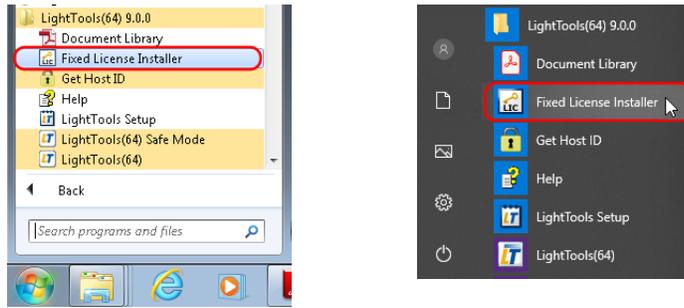
Note: If you try to start LightTools before you install your license key, the License Manger Error dialog box is displayed. Click the Install License button on that dialog box to display the Fixed License Installer and follow steps 3 through 6.

Follow these steps to install your license key.

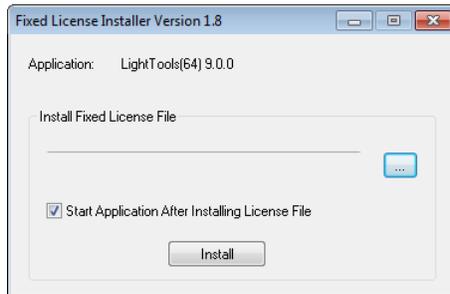
1. Insert the license dongle in an active USB port.
2. To install your license key, click the Windows Start button and select:

Windows 7: **All Programs > LightTools > Fixed License Installer**

Windows 10: **LightTools > Fixed License Installer**

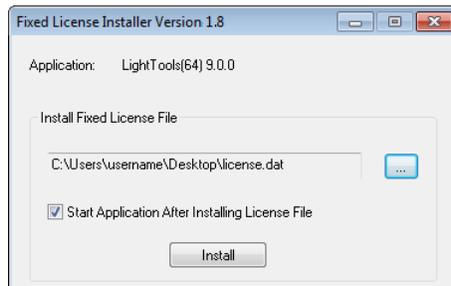


The Fixed License Installer is displayed, shown in the following figure.



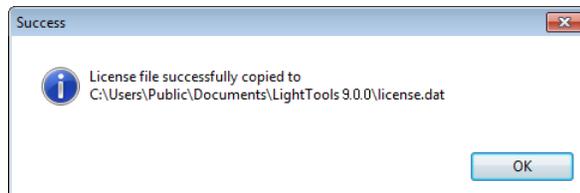
3. Click the Browse button .
4. In the Open dialog box, navigate to the license file, select it, and click Open.

The Open dialog box is closed, and the path to the license key file is shown in the Fixed License Installer.



5. Click the Install button.

The license key is installed, and the Success dialog box is displayed.



6. Click OK.
LightTools starts automatically.

Modifying License Options

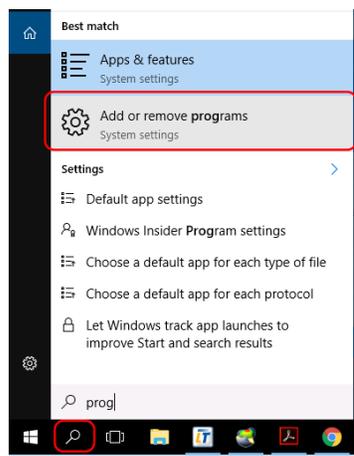
If you need to change the type of license (e.g., fixed or floating) for your LightTools installation, follow these steps.

1. Open the InstallShield Wizard:

- If you have a LightTools DVD, insert it into the DVD drive and choose **Modify > Change Licensing Options**.
- If you do not have a DVD, follow these steps:

For Windows 10:

- a. Click the Windows Search icon, enter *prog*, and select *Add or remove programs* in the results list.



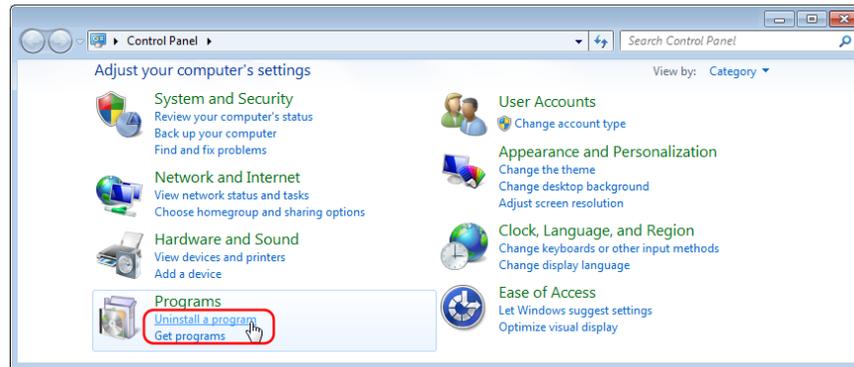
- b. In the Settings dialog box, locate and click LightTools in the list of Apps & Features. Buttons labeled Modify and Uninstall are displayed below the LightTools program name.
- c. Click the Modify button and then go to step 2 on page 12.

For Windows 7:

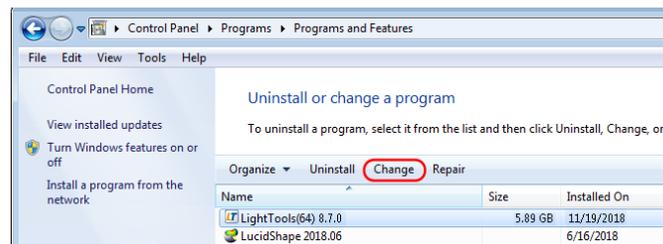
- a. Click the Windows Start button, right-click Control Panel, and select Open on the pop-up menu.



- b. Under Programs, click Uninstall a Program.



- c. In the Name column of the Control Panel list of Programs and Features, locate and select the LightTools program you want to modify.
- d. Click the Change button.



- 2. When the InstallShield Wizard is displayed, click Next.
- 3. On the Program Maintenance screen, make sure the Modify option is selected and click Next.
- 4. On the Installation Options page, click the option for Change Licensing Options and click Next.
- 5. On the License Installation Options page, select the type of license that will be used. If you select Floating License, enter the Server Hostname as well.
- 6. Click Next.
- 7. On the Ready to Modify the Program page, click Install.

When the licensing option has been updated, the wizard displays the InstallShield Wizard Completed screen.



- 8. Click Finish to close the wizard.

Chapter 3 Installing LightTools with a Floating License

You can run LightTools using either a *fixed* license or a *floating* license. This chapter describes how to install the product to run using a floating license on a network server, which allows you to run LightTools on any computer on the same network, and describes how to install LightTools on one or more client machines. The number of users that can use LightTools concurrently is limited to a predetermined number by the licensing software. A single user can open up to eight concurrent LightTools sessions per floating license per computer. If a user opens more than eight concurrent LightTools sessions on the same computer, an additional floating license will be used (if available).

The floating license capability is supported by the OSG Floating License Manager, which is a Sentinel RMS license manager that has been customized for Synopsys OSG software. If you install other Synopsys OSG software products, they will share the same license management software, and their license keys will be written to the same license key file. The applications cannot share licenses; they share only the license server software.



Note: Installing a floating license requires system-administration-level training and should be performed by someone who is familiar with your network structure. To perform this installation, you must be logged on as administrator.

The steps for installing LightTools to run with a floating license are:

1. *Selecting a License Server* on page 15
2. *Downloading and Installing the OSG Floating License Manager* on page 16
3. *Installing a License Key for a Floating License* on page 23
4. *Installing LightTools on Client Machines* on page 24
5. *Optional: Administering Floating Licenses* on page 29
6. *Optional: Logging Floating License Usage* on page 34

Selecting a License Server

Before installing any software, you must identify the computer that will act as the license server. This must be a computer connected to a network that can grant access to one or more client machines.



Note: The OSG Floating License Manager communicates via port 5093. If you will be running LightTools across different subnets, you will have to configure your routers or firewalls to allow two-way communication across this port.

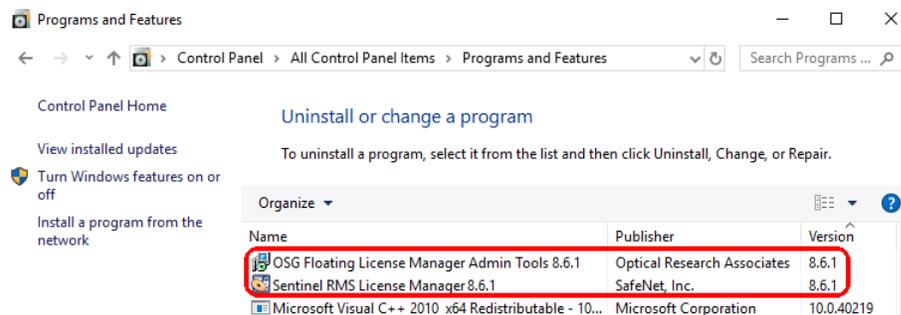
Downloading and Installing the OSG Floating License Manager

To run this version of LightTools, you must have the latest version of the OSG Floating License Manager, which is provided on the SolvNetPlus website on the same Downloads page as the product software. (See *Using SolvNetPlus to Obtain LightTools Software and Licenses* on page 39 for details.) Follow these steps to install the OSG Floating License Manager on the license server.



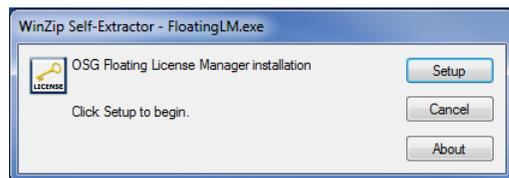
Note: If you have a different version of the Sentinel RMS software, you must first uninstall the older version, as described in step 2.

1. Log on to the license server with administrator privileges.
2. If any version of the OSG Floating License Manager or the Sentinel RMS License Manager software is installed on the license server computer, you must uninstall it using the following substeps. If no prior version is installed, skip to step 3.
 - a. Open the **Control Panel** and select **Programs and Features**.
 - b. If the list includes both the OSG Floating License Manager Admin Tools and the Sentinel RMS License Manager, shown in the following figure, you must uninstall *both* of these.



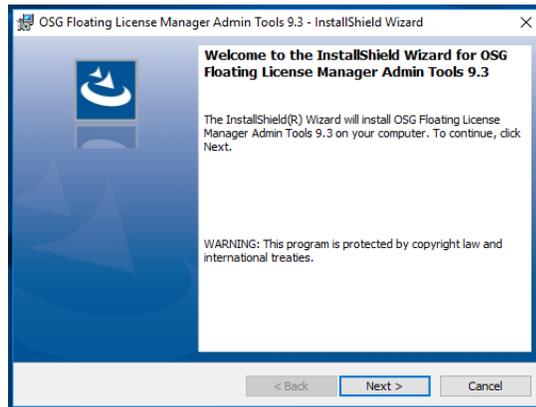
- c. Select the program to uninstall and then click **Uninstall/Change**.
 - d. Follow the instructions on screen.
3. Navigate to the folder where you downloaded the OSG Floating License Manager, FloatingLM.exe.
4. Double-click the file FloatingLM.exe.

The WinZip Self-Extractor for the OSG Floating License Manager installation is displayed.



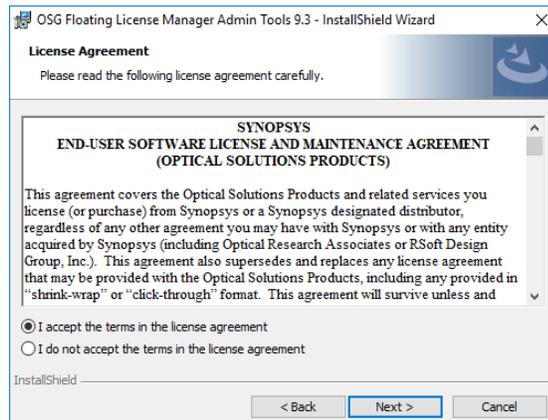
5. Click Setup.

The Welcome screen for the OSG Floating Manager Admin Tools wizard is displayed.



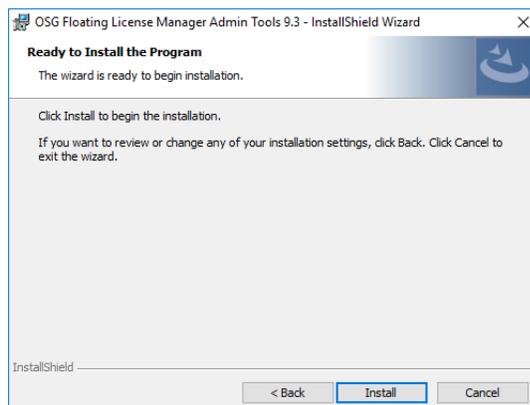
6. Click Next.

The License Agreement screen for the OSG Floating License Manager Admin Tools is displayed.



7. Click the I Accept option and click Next to continue.

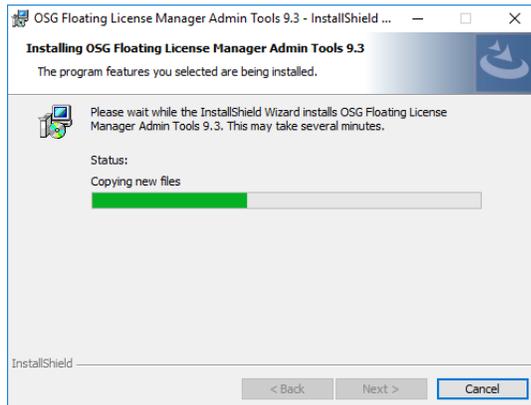
The Ready to Install screen is displayed.



8. Click Install.

The progress screen is displayed while the software is installed.

CHAPTER 3 Installing LightTools with a Floating License



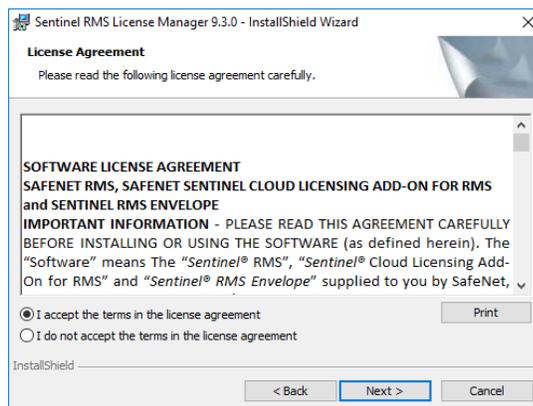
9. Accept the default settings for all options.

The Welcome screen for the Sentinel RMS License Manager is displayed.



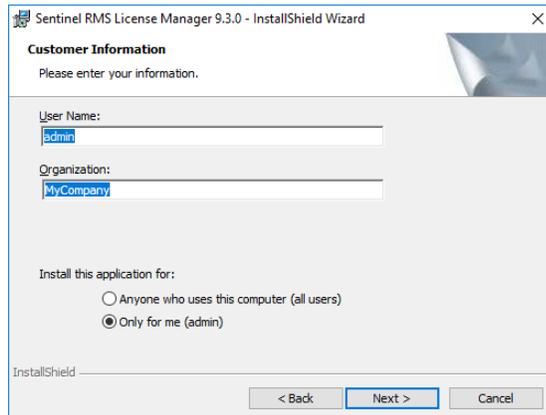
10. Click Next.

The License Agreement screen for the Sentinel RMS License Manager wizard is displayed.

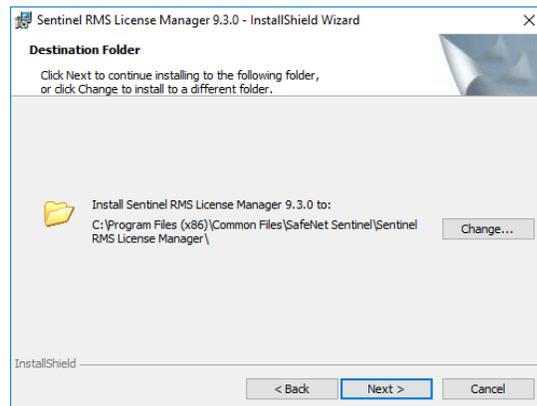


11. Click the I Accept option and then click Next to continue.

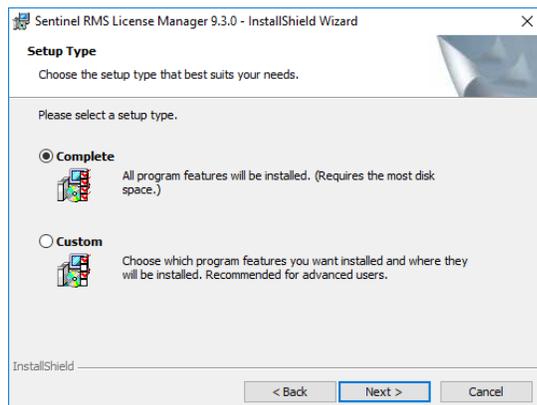
The Customer Information dialog box is displayed.



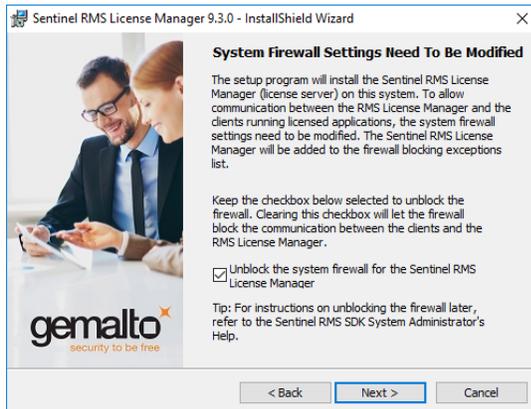
12. Click Next to accept the defaults and continue.
The Destination Folder screen is displayed.



13. Click Next to accept the default and continue.
The Setup Type screen is displayed.



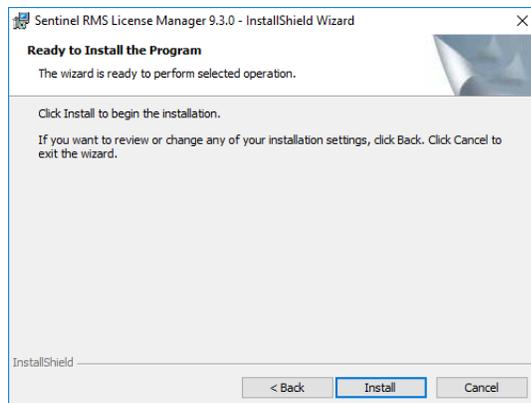
14. Click Next to accept Complete (recommended) and continue.
The System Firewall Settings screen is displayed.



15. Leave the option turned on (checked) and click Next.

This setting allows the Floating License Manager to add inbound rules. If you change this setting, LightTools will not be able to obtain the license needed to run.

The Ready to Install screen is displayed.



16. Click Install.

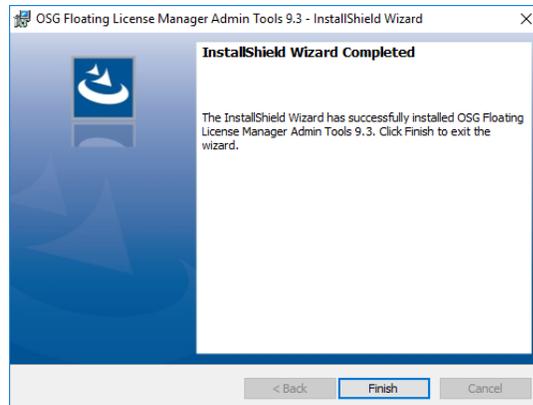
The progress screen is displayed while the software is installed.

When the installation is finished, the Completed screen for the Sentinel License Manager is displayed.



17. Click Finish.

The Completed screen for the OSG Floating License Manager Admin Tools is displayed.



18. Click Finish.

The installation is complete.

19. Reboot your computer if prompted to do so.

If you already have a license key for this product, skip to *Installing a License Key for a Floating License* on page 23. If you do not yet have a license key, continue with *Obtaining the Host ID for a License Dongle* on page 22.

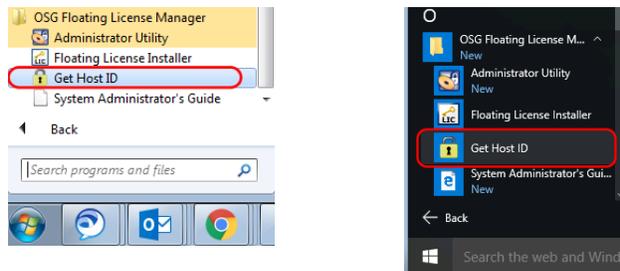
Obtaining the Host ID for a License Dongle

A license key is designed to work for only one USB dongle, so the license key is associated with a unique value encoded on the dongle called a *Host ID*. Because of this, you need to know the Host ID for the license dongle before you can retrieve a license key. The Host ID is printed on a label on the USB dongle; if you're unable to read the ID on the label, you can also obtain the Host ID by running a program that reads it from the dongle. In the OSG Floating License Manager installation, the GetHostID utility is provided for this purpose. Follow these steps to run the GetHostID utility.

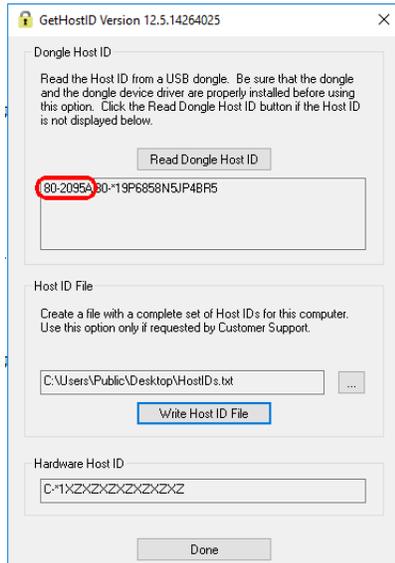
1. Insert the USB dongle in an active USB port on the license server.
2. Click the Windows Start button and select:

Windows 7: All Programs > OSG Floating License Manager > GetHostID

Windows 10: OSG Floating License Manager > GetHostID



The GetHostID utility is displayed, as shown in the following figure. Under the Read Dongle Host ID button, a short Host ID and a long Host ID are displayed side by side. To obtain a license key at this time, you need only the *short* Host ID (the first eight characters). In this example, the short Host ID is **80-2095A**. (Note that the amount of space between the two Host IDs varies, depending on the display configuration.)



3. Copy the short Host ID to retrieve your license key on the Synopsys SolvNetPlus website. See *Retrieving License Keys* on page 46 for instructions.
4. Click Done to close the GetHostID utility.

After you retrieve your license key, go to *Installing a License Key for a Floating License* on page 23.

Installing a License Key for a Floating License

After you install the license server software and retrieve a license key, you need to install the license key on the license server before client machines can successfully run LightTools. The Floating License Installer is provided for this purpose.

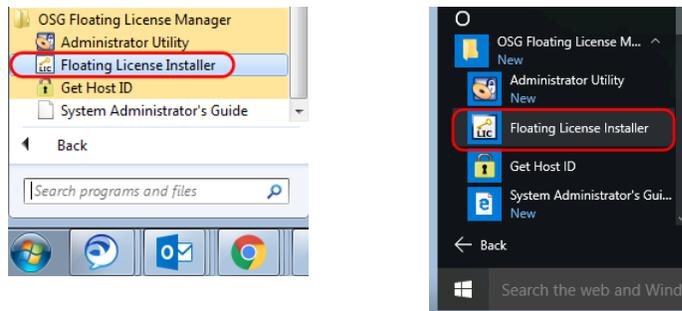
This procedure assumes that you have already obtained a valid license key from the SolvNetPlus SmartKeys web page. If you have not done so, see *Retrieving License Keys* on page 46 for instructions.

Follow these steps to install your license key file.

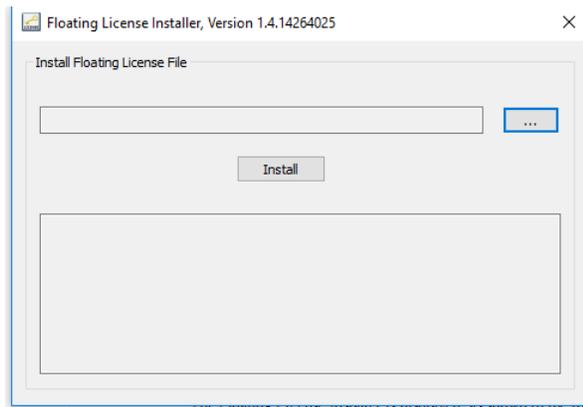
1. Make sure that the license dongle is inserted in an active USB port on the license server.
2. Click the Windows Start button and select:

Windows 7: All Programs > OSG Floating License Manager > Floating License Installer

Windows 10: OSG Floating License Manager > Floating License Installer

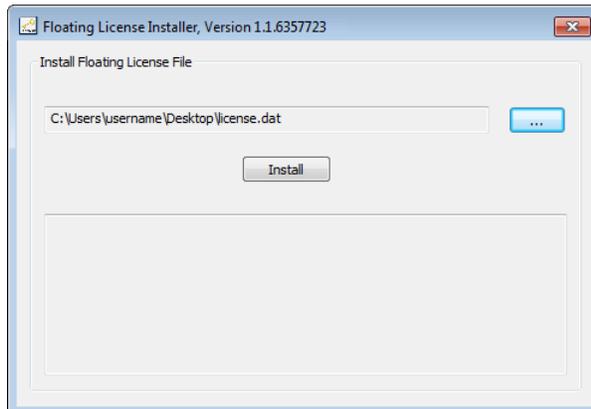


The Floating License Installer is displayed, as shown in the following figure.



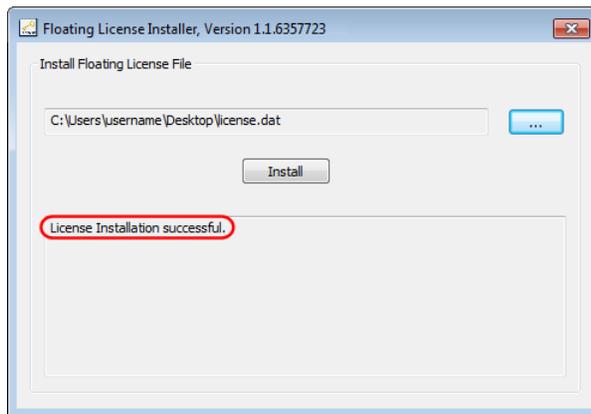
3. Click the Browse button  .
4. In the Open dialog box, navigate to the license key file, select it, and click Open.

The Open dialog box is closed, and the path to the license key file is shown in the Floating License Installer.



5. Click the Install button.

The license key file is installed, and the Success dialog box is displayed.



6. To close the Floating License Installer, click the X in the top right corner.

Continue with *Installing LightTools on Client Machines* on page 24.

Installing LightTools on Client Machines

LightTools must be installed on each client machine where it will be used. During the installation, you select Floating License as the license type and then specify the name of the server, which is the computer on which the license manager is installed.

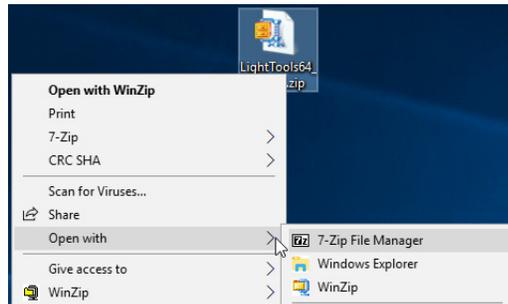
These instructions assume that you have already downloaded LightTools from the Synopsys SolvNetPlus website via electronic software transfer (EST) or that you ordered and received a LightTools DVD. If you have not done so, see *Using SolvNetPlus to Obtain LightTools Software and Licenses* on page 39.

1. Log on to your computer as Administrator.
2. Navigate to the folder where the LightTools installation file *LightTools64_900FCS.zip* is located.
3. Right-click the file and select one of the extract options on the pop-up menu. For example:
 - If you have WinZip, select WinZip > Extract to. In the WinZip Extract dialog box, navigate to the desired location on your local drive and click Unzip.

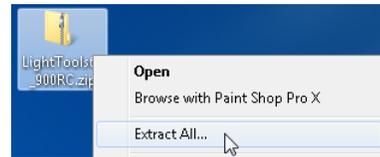
- If you have 7-Zip, select 7-Zip > Extract files. In the Extract dialog box, navigate to the desired folder and click OK.
- If you have the Windows extract tool, select Extract All. In the Extract Compressed (Zipped) Folders dialog box, navigate to the desired folder and click Extract.

The following figures show an example on Windows 10 and Windows 7.

Windows 10



Windows 7



4. When the extraction is complete, navigate to the folder to which the files were extracted.
5. Double-click the setup file setup.exe.

On Windows 10, if a User Account Control dialog box is displayed with the message *Do you want to allow this app to make changes to your PC?*, click Yes to continue.

6. If you are prompted to install a Microsoft Visual C++ redistributable package or the .NET Framework, as shown in the following example, click the Install button.



The InstallShield Wizard is displayed, shown in the following figure.



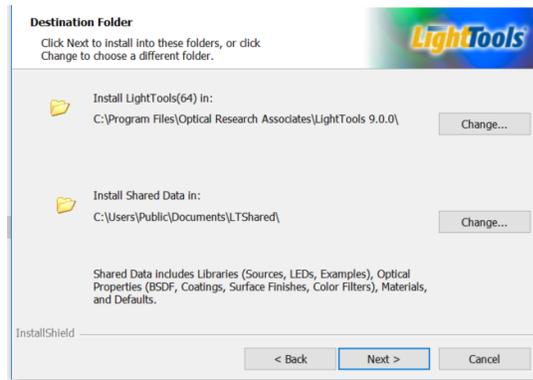
7. Click Next to continue.

The End-User License Agreement screen is displayed.



8. Click the I accept option and click Next to continue.

The Destination Folder screen is displayed.

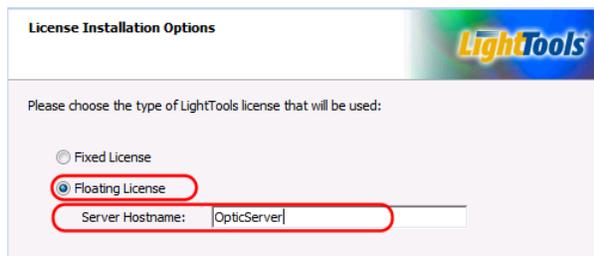


9. To accept the default location for the program and Shared Data files, click Next.

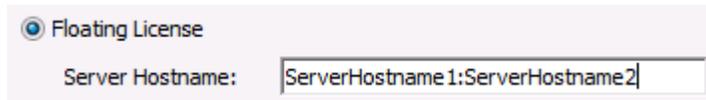
The License Installation Options screen is displayed.

10. Select the Floating License option.

11. Next to the Server Hostname, enter the name of the computer on which the license manager was installed and click Next to continue. In the following figure, the name *OpticServer* is used as an example; be sure to enter the name of your license server in this field.

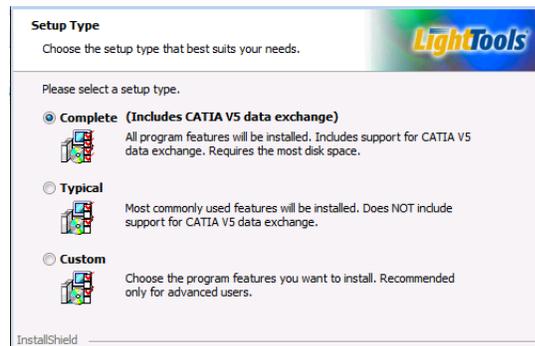


If you want to enter more than one server name, you can do so, as long as you separate the names with a colon, as shown in the following example. The names *ServerHostname1* and *ServerHostname2* are examples; be sure to enter the names of your license servers in this field.



12. Click Next.

The Setup Type screen is displayed.



Note: During a Complete installation, all LightTools features are automatically installed, including the large CATIA V5 data exchange module. If you do not intend to license and use the CATIA V5 module, you can choose the Typical setup option to install all features *except* the CATIA V5 module, or select the Custom setup option, which allows you to manually control which features are installed.

13. Select the type of installation you would like to run and click Next to continue.

14. On the Ready to Install the Program screen, click the Install button to begin installing LightTools.

15. When the installation is complete, click Finish to close the wizard.



Modifying License Options

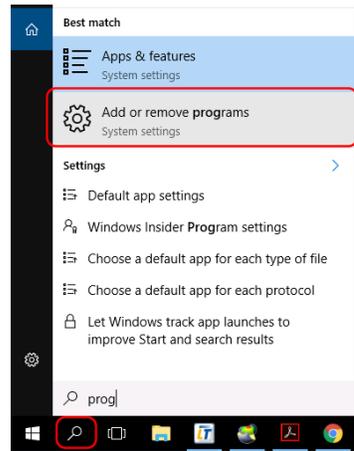
If you need to change the type of license (e.g., fixed or floating) for your LightTools installation, follow these steps.

1. Open the InstallShield Wizard:
 - If you have a LightTools DVD, insert it into the DVD drive and choose **Modify > Change Licensing Options**.

- If you do not have a DVD, follow these steps:

For Windows 10:

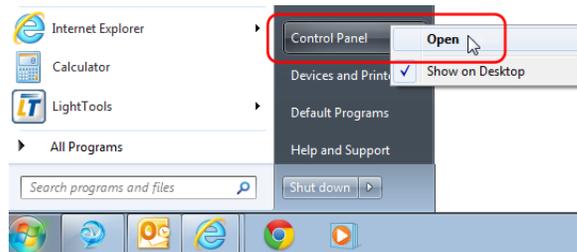
- a. Click the Windows Search icon, enter *prog*, and select *Add or remove programs* in the results list.



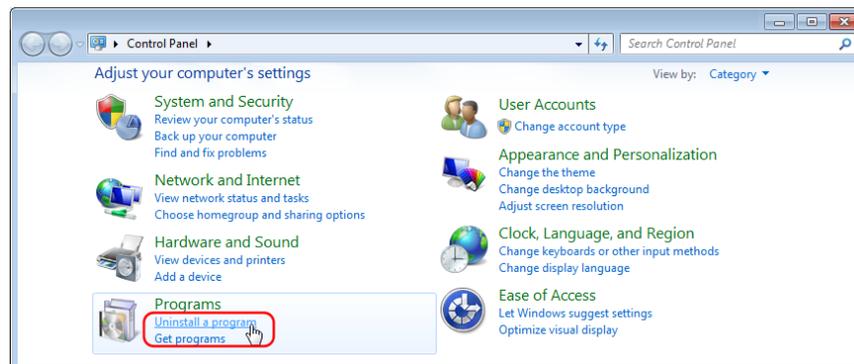
- b. In the Settings dialog box, locate and click LightTools in the list of Apps & Features. Buttons labeled Modify and Uninstall are displayed below the LightTools program name.
- c. Click the Modify button and then go to step 2 on page 29.

For Windows 7:

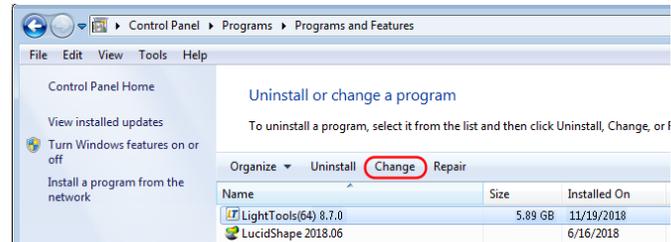
- a. Click the Windows Start button, right-click Control Panel, and select Open on the pop-up menu.



- b. Under Programs, click Uninstall a Program.

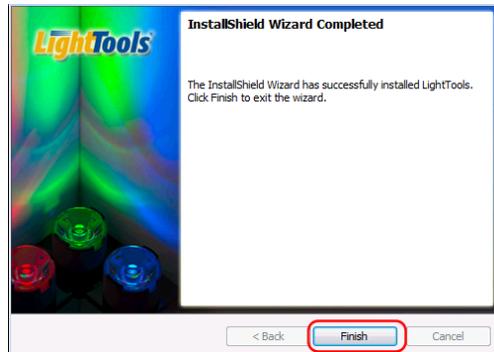


- c. In the Name column of the Control Panel list of Programs and Features, locate and select the LightTools program you want to modify.
- d. Click the Change button.



2. When the InstallShield Wizard is displayed, click Next.
3. On the Program Maintenance screen, make sure the Modify option is selected and click Next.
4. On the Installation Options page, click the option for Change Licensing Options and click Next.
5. On the License Installation Options page, select the type of license that will be used. If you select Floating License, enter the Server Hostname as well.
6. Click Next.
7. On the Ready to Modify the Program page, click Install.

When the licensing option has been updated, the wizard displays the InstallShield Wizard Completed screen.



8. Click Finish to close the wizard.

Administering Floating Licenses

In general, there is nothing that you need to do to administer the floating licenses. As long as the floating license server machine is operational, connected to the network, and is running the Sentinel service, licenses are available to clients.

Monitoring License Use

It is possible for all available licenses to be in use, which would prevent additional clients from running LightTools. In such cases, a system administrator can use the WlmAdmin utility to determine to whom the module licenses have been allocated.



Note: To use the WlmAdmin utility, you must be the person who started the license server, or you must have administrator privileges.

1. To start the utility, click the Windows Start menu and select:

Windows 7: All Programs > OSG Floating License Manager > Administrator Utility

Windows 10: OSG Floating License Manager > Administrator Utility

2. Expand the list of modules below the license server hostname.

The details presented in the dialog box indicate which client machine and username have checked out the licenses. The example below shows that from the license server machine *calico*, a LightTools Illumination Module (LTLUM) license is checked out to a user named *JDoe*, who is using the client machine *sardine*.

The screenshot shows the WlmAdmin utility window. The left pane displays a tree view of 'Defined Servers' with 'calico.synopsys.com' expanded to show various modules like LTLUM ORA. The right pane shows details for the LTLUM ORA license, including statistics (Total users: 2, In use: 1) and detailed information (User name: JDoe, Start time: Mon Nov 16 09:34:13 2015, Hostname: sardine).

You can also use the WlmAdmin utility to obtain other licensing activity information, such as license servers detected, details on active licenses, etc. For more information about how to use the WlmAdmin utility, see the *Sentinel System Administrator's Guide*. After the Sentinel software is installed, this manual is available by selecting the Windows **Start** menu and selecting **Programs > OSG Floating License Manager > System Administrator's Guide**.



Note: Not all functions described in the *Sentinel System Administrator's Guide* are supported by LightTools.

Improving Access to LightTools Licenses with the Sentinel License Manager

By default, LightTools licenses are available to anyone on your server on a first-come, first-served basis. Therefore, you can use LightTools immediately without using the Sentinel License Manager. However, if you want to control access to these licenses based on work priorities, you can use the Sentinel License Manager to reserve copies for or deny access to specific users.

Before using the Sentinel License Manager, consider how you want to organize your groups, keeping in mind the following points:

- Anyone on your server can use a license that has not been explicitly reserved.
- After you create a group, you can specify the status of individual members as *Included* (access allowed) or *Excluded* (access denied).
- You can exclude all members of a group from using licenses (called license *tokens*) by specifying 0 licenses for that group.

For example:

- Organize by department:

If you have departments in your organization, enter each department as a separate group, assign the appropriate number of license tokens to each group, and designate each group member as Included or Excluded. You can change this designation for members as needed, according to work priorities.

- Organize by priority:

Create a group for preferred users and another group for everyone else. In the preferred user group, designate all members as Included and assign to them as many licenses as you can allow. For the second group, you enter everyone else in the company, assign the remaining license tokens, and designate which people are Included and which are Excluded. You can change the Included and Excluded designations as the work load changes.

When you are ready to implement this arrangement, you can use the Sentinel License Manager to create a *reservation* file, as described in the following steps.

1. On the license manager server, start the license manager administration utility by clicking the Windows Start button and selecting:

Windows 7: All Programs > OSG Floating License Manager > Administrator Utility

Windows 10: OSG Floating License Manager > Administrator Utility

The WlmAdmin window is displayed.

2. From the menu at the top of the WlmAdmin window, select **Edit > Reservation File**.

The Wlsgmrg window is displayed.

3. To set up a new members group, select **File > New**.

4. Follow these steps to select a feature.

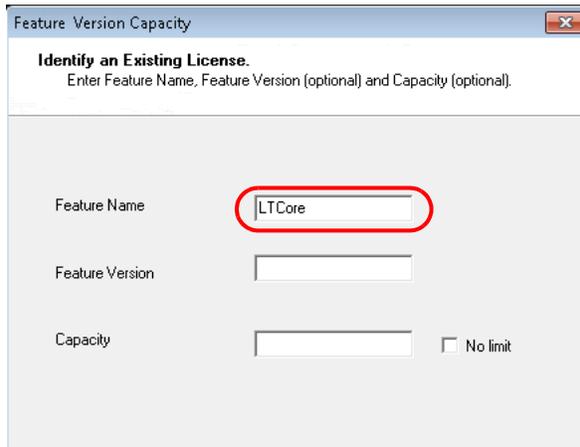
- a. Select **Feature > Add**.

The Add License Reservation Wizard is displayed.

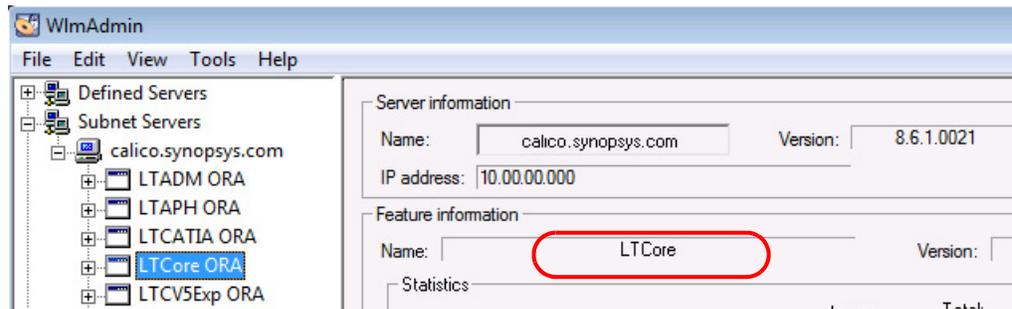
- b. Click **Next** to continue.

The Feature Version Capacity window is displayed.

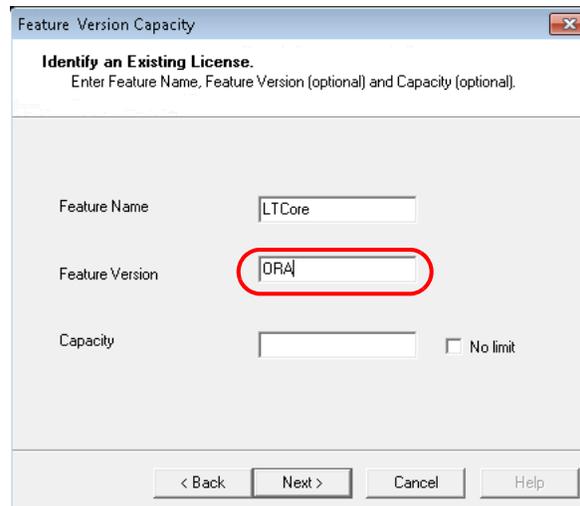
- c. Enter the appropriate Feature Name.



You must enter feature names as they appear in the WlmAdmin dialog box, shown in the following example.



- d. For the Feature Version, enter ORA (upper case).



- e. Click Next.

The Group window is displayed.

5. To establish a user group, follow these steps.

- a. Enter a name that identifies the user group for which you want to allow or deny access.

- b. In the Tokens field, enter the number of licenses to reserve for that group.
- c. Click Next.

The Members window is displayed.

6. To add members to the group, follow these steps.



Note: Add members who will be allowed access, as well as members who will be denied access.

- a. Click the Add button.

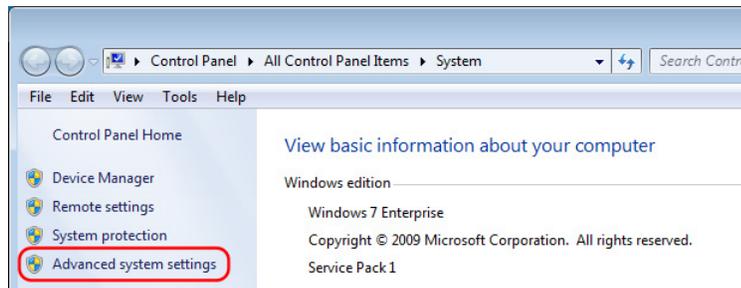
- b. In the Name of the Member field, enter the member's user name. Members can be defined only by user name and not by machine (i.e, client computer name or IP address).

As shown in the highlighted portions, the entries include:

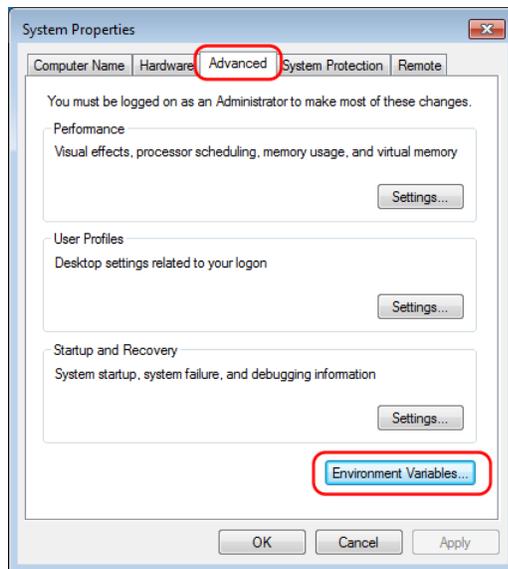
- 1 - day, date, and time stamp
- 2 - the product or module
- 3 - a code that indicates whether the license was issued (0), denied (1), or released (2)
- 4 - the number of floating licenses in use after the current release or request.
- 5 - elapsed time the license was in use (in seconds). This value is 0 until the license is released.
- 6 - the user ID
- 7 - the host name
- 8 - the version number for the floating license manager

By default, the usage.log file is located in the folder C:\Windows\SYSWOW64. You can change the location and name of the file, if desired, as described in the following steps.

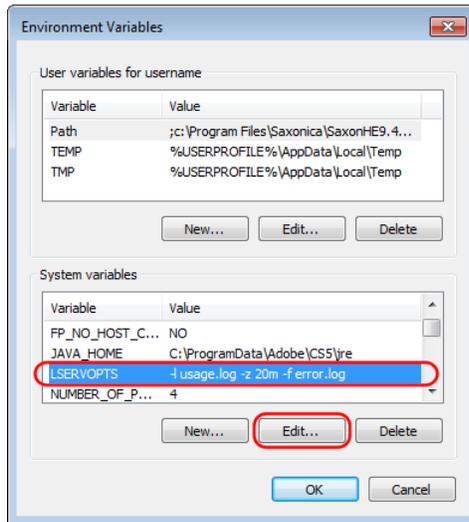
1. Select the Windows Start menu and select Control Panel > System.
2. In the top left corner, select Advanced system settings.



3. In the System Properties dialog box, elect the Advanced tab and click Environment Variables.



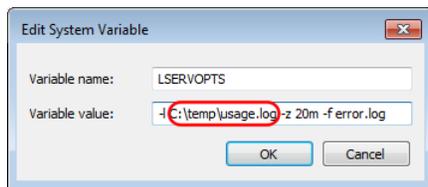
4. In the Environmental Variables dialog box, select LSERVOPTS and click Edit.



By default, the value for LSERVOPTS is

-l usage.log -z 20m -f error.log

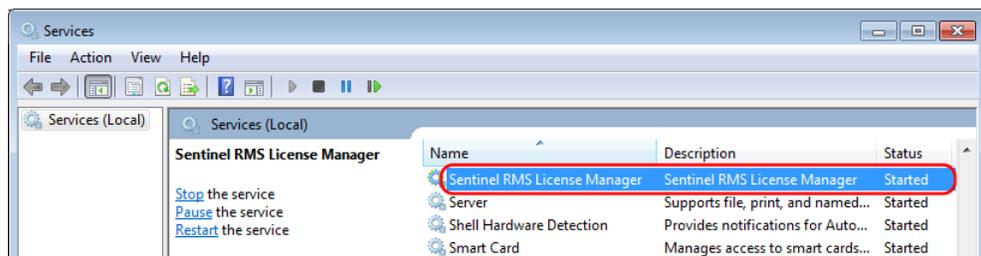
5. In the Edit System Variable dialog box, change the path and/or file name by replacing the string **usage.log** with the desired path and file name. In the following example, the new path for the file is **C:\temp\usage.log**.



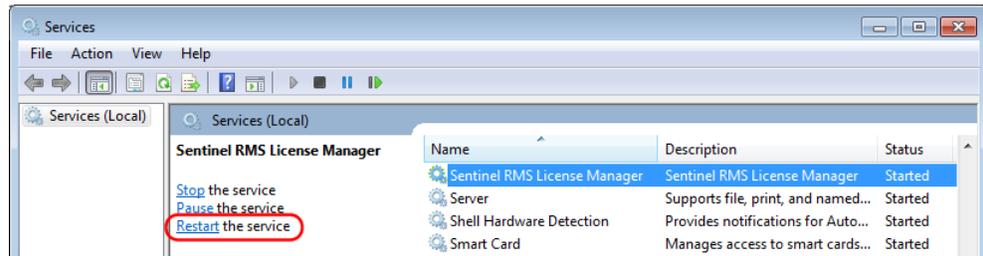
6. Restart the license manager in the services list, as described in the following steps.

The change takes effect after the license manager is restarted.

 - a. Select the Windows Start menu and select **Control Panel > Administrative Tools**.
 - b. Double-click Services.
 - c. In the Services dialog box, locate and select the Sentinel RMS License Manager.



- d. Click Restart the Service option.



For additional information about the usage log, See the *Sentinel System Administrator's Guide*. After the license manager software is installed, this manual is available by selecting the Windows **Start** menu and selecting **Programs > OSG Floating License Manager > System Administrator's Guide**.

Appendix A Using SolvNetPlus to Obtain LightTools Software and Licenses

Software and license keys for LightTools are available for download from the Synopsys SolvNetPlus website. This appendix describes how to use the website to download this software product and the license keys required to use it.



Note: For customers working with distributors, please contact your local LightTools software distributor to obtain your software and license. See the [Synopsys Optical Solutions Group Global Contacts](#) page for contact information.

Special terms used in these instructions are explained in the *Glossary* on page 51.

The process is described in the following procedures.

1. *Signing Up for a SolvNetPlus Account* on page 40
2. *Downloading LightTools Software from SolvNetPlus* on page 41
or
Ordering Media (CDs/DVDs) on page 44
3. *Installing LightTools* on page 46
4. *Retrieving License Keys* on page 46

Signing Up for a SolvNetPlus Account

Before you can download LightTools software and license keys, you must sign up for a Synopsys SolvNetPlus account. If you already have a SolvNetPlus account, you can skip to *Downloading LightTools Software from SolvNetPlus* on page 41.

1. Go to <https://solvnetplus.synopsys.com> and click **REGISTER - CREATE ACCOUNT**.

SYNOPSYS

SYNOPSYS.COM | REGISTRATION HELP | 帮助 | ヘルプ

SolvNetPlus

Sign In

Username

Password

Sign In

Need help signing in?

REGISTER - CREATE ACCOUNT FORGOT PASSWORD

© 2019 Synopsys, Inc. 新思 All Rights Reserved. | 京ICP备09052939 SIGN IN SUPPORT | TERMS OF USE | PRIVACY POLICY

2. Follow the instructions for SolvNetPlus Self Registration.

SolvNetPlus will send a verification code to the email address you specified. You must retrieve the code and enter it on the SolvNetPlus site to complete your registration.

During the registration process, you also need to enter your company's Site ID. If you do not know your company's Site ID, please contact solvnetplusfeedback@synopsys.com to request it. Be sure to include your company name and address in the email request.

Downloading LightTools Software from SolvNetPlus

Follow these steps to download the LightTools product. If you are unable to download software, you can order a CD or DVD instead. See *Ordering Media (CDs/DVDs)* on page 44 for instructions.

1. Go to <https://solvnetplus.synopsys.com> and enter your User Name and Password to sign in.
2. Click **Downloads**.



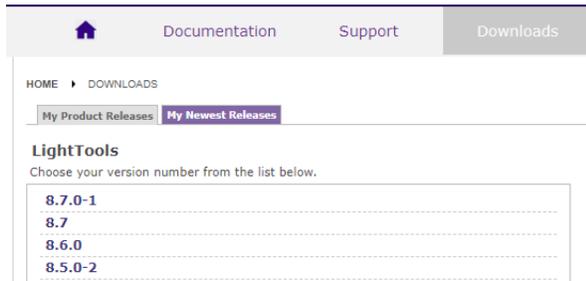
All Synopsys products currently licensed at your company will be listed.

The screenshot shows the SolvNetPlus website interface. At the top, there is a search bar and navigation links for SYNOPSYS.COM, FEEDBACK, SITE MAP, HELP, and SIGN OUT. Below this is a main navigation bar with icons and labels for Home, Documentation, Support, Downloads (which is highlighted), Training, Methodology, and My Profile. The main content area is titled 'HOME > DOWNLOADS' and features two tabs: 'My Product Releases' and 'My Newest Releases'. Under 'My Product Releases', there is a list of products: LightTools, LucidDrive, LucidShape, LucidShape CAA V5 Based, and LucidShape Lite. A note above the list states 'New! indicates new release within past 45 days.' The 'LightTools' product name is circled in red. To the right of the product list, there are sections for 'IP Products' (with a search for IP and links to Analog IP Selector, Memory & Logic IP Selector, and My Site IP) and 'Licensing Quick Start' (with a Quick Start Guide link). Below these are links for 'Synopsys Test Case Packager' (Download Now) and 'CODE V, LightTools, RSoft, LucidShape and Phoenix OptoDesigner Users' (Customer Support).

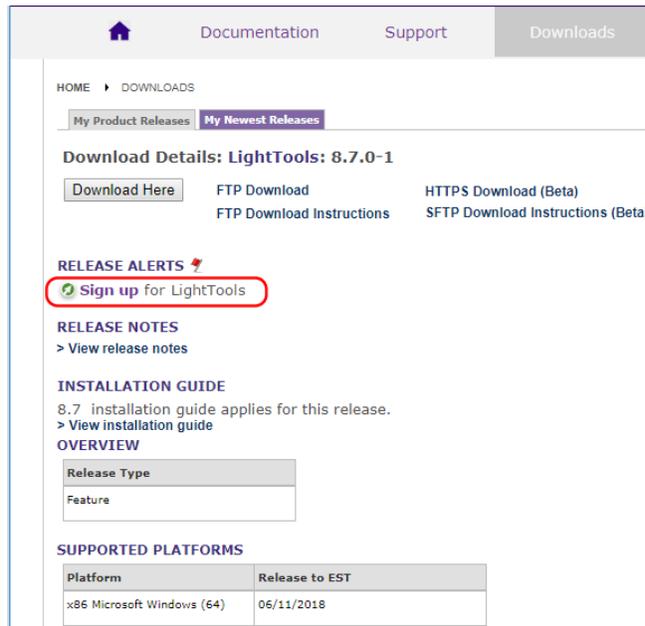
3. Select the product you want to download.

This screenshot is identical to the previous one, showing the SolvNetPlus website with the 'Downloads' page. The 'LightTools' product name in the 'My Product Releases' list is now circled in red, indicating it has been selected.

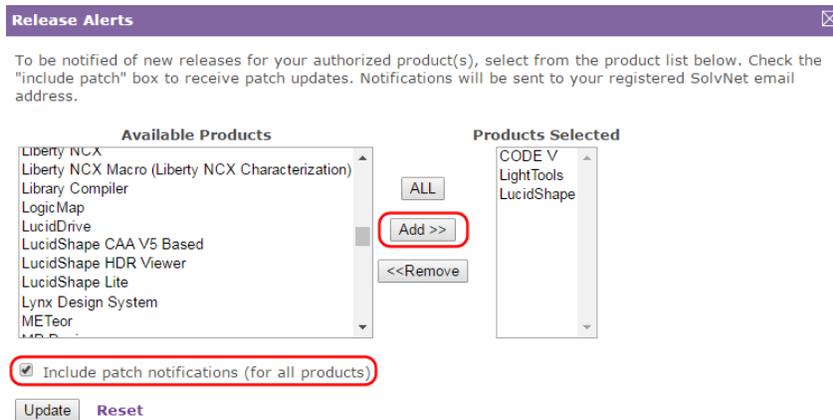
4. Select the version you would like to download.



The **Download Details** page is displayed, shown in the following figure.

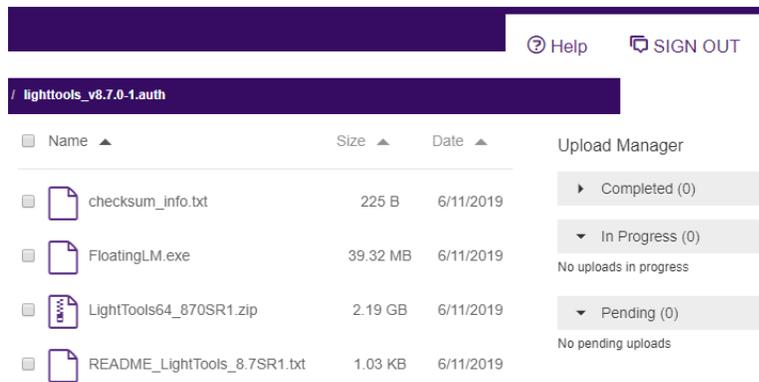


5. Under **Release Alerts**, click the **Sign Up** link to display **Release Alerts** options that allow you to subscribe to Release Notification emails from SolvNet. These emails let you know when a new version of LightTools is available for download.



- a. Click the product name for which you would like to receive notifications or click **ALL** to receive notifications for all products in the list.
 - b. Click the **Add** button.
 - c. Click the **Include patch notifications** check box. This allows you to receive notifications of LightTools service releases.
 - d. Click the **Update** button.
- You are returned to the **Download Details** page.
6. On the **Download Details** page, click **Download Here**.
 7. On the Notice page, click Agree and Sign In to continue.
 8. From the list of available files, click the name of the file and then use your browser to open or save the file.

The following figure shows a list of files for LightTools version 8.7 SR1.



- checksum_info.txt is a file used for internal purposes.
- FloatingLM.exe is for floating license customers. Only the system administrator who will set up a floating license server needs to download this file. See *Installing LightTools with a Floating License* on page 15 for installation instructions.
- README_LightTools_8.7SR1.txt provides a summary of key features in the release.
- LightTools64_870SR1.zip is the installation file for LightTools.

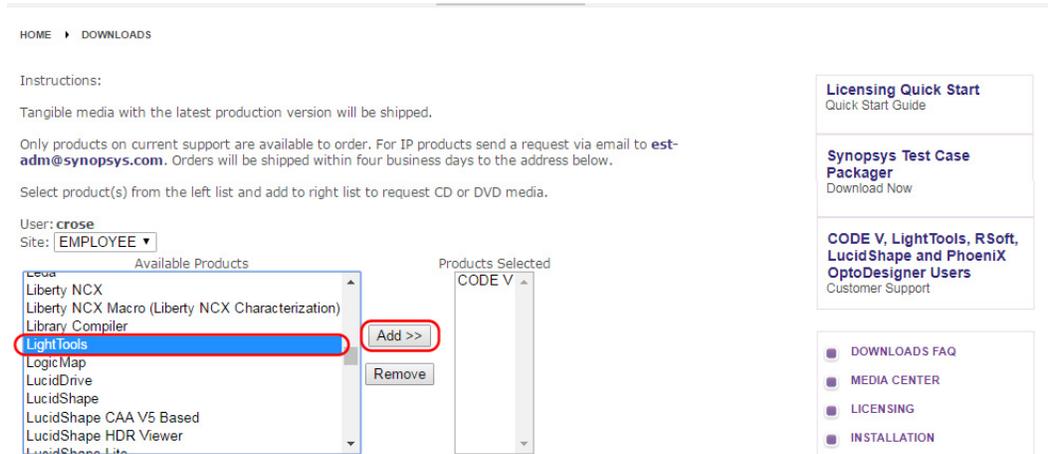
Ordering Media (CDs/DVDs)

If you are unable to download software and would like to order media (CD or DVD) instead, you can do this directly on the Synopsys SolvNet website. Follow these steps to order media.

1. Go to <https://solvnetplus.synopsys.com> and enter your User Name and Password to sign in.
2. Click **Downloads** at the top of the page.
3. Click the **MEDIA CENTER** link.



4. On the **MEDIA CENTER** page, select the product (e.g., CODE V, LightTools, LucidShape, etc.) and click the **Add** button.



5. Complete the Shipping Address information and click **Continue**.
6. Review the shipping request, shown in the following figure, and click **Place Order**.

APPENDIX A Using SolvNetPlus to Obtain LightTools Software and Licenses

HOME ► DOWNLOADS

Please check the following information. If everything is correct, click "Place Order" button to place the order. Otherwise, click "Back" button to make correction.

Name	Cary Rose
User Name	crose
Site ID	100
Products	46217-EST LucidShape 2018.06-1
Additional Information	
Email	CARYROSE@SYNOPSIS.COM
Attention to Name	Cary Rose
Job Title	
Company Name 1	Synopsys Inc.
Company Name 2	
Department 1	
Department 2	
Department 3	
Department 4	
Address 1	199 South Los Robles Ave
Address 2	CA
Address 3	
Address 4	
Address 5	
City	Pasadena
Zip/Postal Code	91101
State/Province	CA - California
District	
Country	US - United States
Phone Number	626-696-9101
Is Primary Contact	No
Request permanent change to site addresses	No

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Installing LightTools

Instructions for installing LightTools software and license keys are provided in the following chapters:

- *Getting Started* on page 1 - lists LightTools system requirements and tells you how to contact LightTools Support.
- *Installing LightTools with a Fixed License* on page 5 - With a fixed license, you install the product, the license dongle, and the license key on the computer where you want to run LightTools.
- *Installing LightTools with a Floating License* on page 15 - With a floating license, you install the license dongle and license key on a network server and the product on one or more client machines where you want run LightTools; you also install the OSG Floating License Manager on the network server to manage the licenses.

After you install the LightTools product, continue with *Retrieving License Keys* on page 46.

Obtaining the Host ID for a License Dongle

A license key is designed to work for only one USB dongle, so the license key is associated with a unique value encoded on the dongle called a *Host ID*. Because of this, you need to know the Host ID for the license dongle before you can retrieve a license key. The Host ID is printed on a label on the USB dongle; if you're unable to read the ID on the label, you can also obtain the Host ID by running a program that reads it from the dongle; the GetHostID utility is provided for this purpose. See the following steps to run the GetHostID utility.

- If you're installing a fixed license: *Obtaining the Host ID for a License Dongle* on page 8
- If you're installing a floating license: *Obtaining the Host ID for a License Dongle* on page 22

After you obtain the Host ID, continue with *Retrieving License Keys* on page 46.

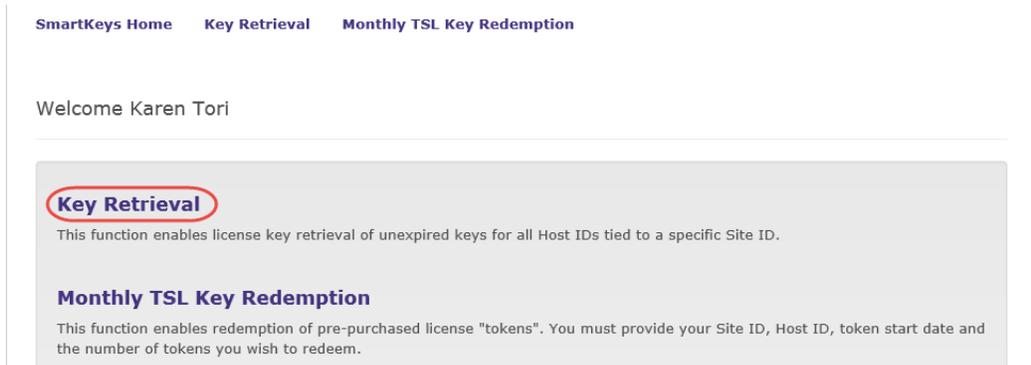
Retrieving License Keys

A license key is a file containing licensing information for your specific USB dongle. You can obtain license keys using the SmartKeys web page on the Synopsys SolvNetPlus website. Follow these steps to obtain your license keys.

1. On the SolvNetPlus home page, click Downloads and then click the SmartKeys tab.



2. On the SmartKeys Home page, click the **Key Retrieval** link.



The SmartKeys Key Retrieval page is displayed.

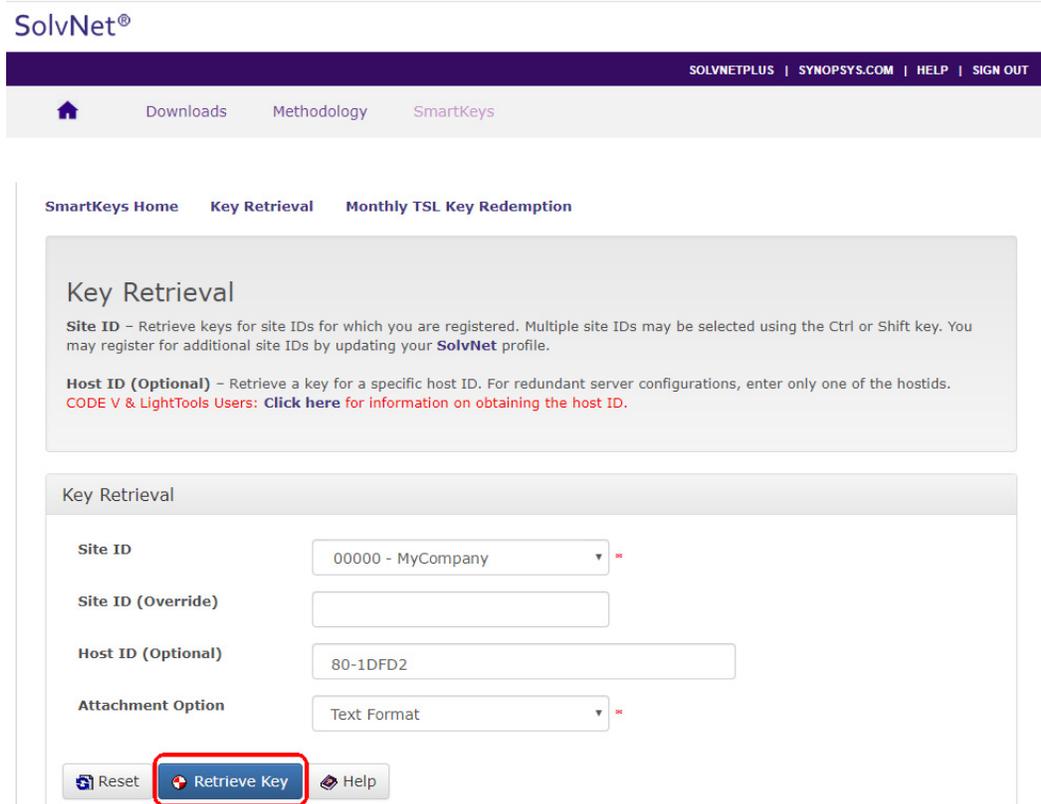
You can retrieve a license key for a single USB dongle, or you can retrieve license keys for all Host IDs at your company.

3. To obtain a license key for a single USB dongle, enter the Host ID of your LightTools USB dongle in the Host ID (Optional) field.

If you do not know the Host ID value for your USB dongle, see *Obtaining the Host ID for a License Dongle* on page 46.

To obtain license keys for all products and all Host IDs at your company, leave the Host ID (Optional) field blank.

4. Click **Retrieve Key**, shown in the following figure.



Your LightTools license key will be delivered as a text file attached to an email from the SmartKeys system. If you did not enter a Host ID in step 3, you will receive a separate email with a single license key attached for each Host ID at your company. The email will include the Host ID for which the license key is valid.

5. Save the license key to a convenient location on your computer. You need to access this file to activate LightTools.
6. See one of the following procedures for instructions on installing the license key to activate your LightTools product.
 - *Installing a License Key for a Fixed License* on page 9
 - *Installing a License Key for a Floating License* on page 23

Appendix B Troubleshooting the LightTools Floating License Installation

If a security problem occurs when you use a LightTools floating license, a License Manager Error dialog box displays an error message. Below are a few common security errors with their causes and resolutions. If you are unable to correct the problem, please contact LightTools Support at this link:

lighttools_support@synopsys.com

Problem Adding License Keys to the License Server

Problem: *Sentinel: Error [19]: Failed to add license code ...*

Cause: This general error message indicates that the license keys were not applied successfully in the license manager. This can occur if the file where the codes were being read is corrupted. However, this error can also occur if license keys that have already been successfully entered are entered a second time.

Solution: Verify that the license file contains license keys for the current version of LightTools being installed, and not for an earlier version (the version number is listed in the comments of the license file received from Synopsys). Also verify that the license file has not become corrupted. This might occur if the license file has been edited (i.e., lines containing license keys are changed or become line wrapped incorrectly). When you install a license key, follow the procedure *Installing a License Key for a Floating License* on page 23.

Problems Starting LightTools

Problem: *Error #18b - No valid license code for version x.x.x found.*

Cause: There has not been a valid license key entered for this version of LightTools.

Solution: See *Installing a License Key for a Fixed License* on page 9 for instructions on installing license keys.

Problem: *Error #0xC800100D - License code for version x.x.x has expired.*

Cause: The license key for LightTools has expired, or the PC date is before the start date of the license.

Solution: Verify that the date on the computer is correct. Install the license key for this version of LightTools on the license manager machine according to the instructions in *Installing a License Key for a Floating License* on page 23. If a new license key is needed, contact LightTools Support.

Problem: *Error #8001008 - License manager is not responding. Verify license manager host is available and license manager process is running.*

Cause: The Sentinel Floating License Manager program has been disabled.

Solution: Restart the license manager program. To do this, open the Control Panel (select **Start > Settings > Control Panel**), select Administrative Tools and then Services. Locate and right-click Sentinel RMS License Manager in the dialog box, and select the Start option on the pop-up menu.

Cause: The license manager machine is unavailable.

Solution: Verify that the license manager machine is available on the network.

Cause: The ORA_LSHOST environment variable is not set or is incorrectly set.

Solution: Change the Hostname with the Program > Change option, as follows: Windows **Start** button > **Control Panel > Programs > Uninstall a Program**. Select LightTools and click **Change** on the menu bar. Select **Next > Modify > Change Licensing Options > Next > Floating License**. Enter a name for the **Server Hostname**. Click **Next > Install > Finish**.

Problem: *An unexpected licensing error has occurred.*

Cause: An error has occurred with the license manager. The License Manager Error dialog box will contain more specific information about the problem, which is provided by the Sentinel Floating License Manager program. If you are still having difficulties identifying the problem, contact LightTools Support for guidance.

Glossary

Host ID	A hexadecimal value encoded on the USB dongle. The Synopsys SmartKeys site and delivery email reference the Host ID value when license keys are requested and delivered.
License Key	A file containing the encoded license information needed to run LightTools for a specific USB dongle.
Site ID	A unique number used to identify a specific company. Every company that uses LightTools and other Synopsys software has a unique site ID.
SmartKeys	The SolvNet page where you submit license key requests.
SolvNet	The Synopsys customer portal (https://solvnet.synopsys.com). This is where you go to download LightTools software as well as license keys.

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