LightTools Installation Guide

for LightTools Legacy and Synopsys Common Licensing

Version 2025.03

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SYNOPSYS®

Contents

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Chapter 1   Getting Started

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

System Requirements

To install LightTools, you must have:

*   A personal computer with an x64 Intel or AMD processor running the Windows 10 or Windows 11 operating system.

    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.

*   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	3331 MB, plus virtual memory equal to 3 times the RAM
Online documentation	149 MB
Tutorial Files	131 MB
Data Exchange Modules, *excluding* CATIA V5	488 MB
CATIA V5 Modules	1858 MB
SOLIDWORKS Link Module	73 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.

*   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.

*   To access and navigate between documents in the LightTools Document Library, which are provided as Portable Document Format (PDF) files, it is recommended that you have Acrobat Reader version 8.x or higher installed on your computer and set as your default PDF viewer. For

many systems, the default PDF viewer is a browser (e.g., Edge, Chrome), which does not support PDF features such as links that you can click to jump to another document.

- A DVD drive, if installing from a DVD

Licensing Requirements

LightTools provides the following methods for licensing. Before you install LightTools, you need to know which method is appropriate for you to use.

- LightTools Legacy Licensing - Used in releases up to and including LightTools 2025.03. Customers who are updating from a previous version of LightTools can continue to use Legacy Licensing but will be required to migrate to new licensing during their upcoming renewals. Please contact your Synopsys Optical Solutions representative for trial of the new licensing method.

- Synopsys Common Licensing - Available for customers beginning with LightTools 2023.03.

Your LightTools or IT administrator should be able to provide you with information about the licensing method you need to choose. If you need additional information to help you choose, see:

https://www.synopsys.com/optical-solutions/support/choosing-license-option.html

For requirements specific to each licensing method, see *About LightTools Legacy Licensing* on page 7 and *About Synopsys Common Licensing* on page 7.

To install LightTools with either of these licensing methods, you must have license keys provided by Synopsys Optical Solutions via SolvNetPlus SmartKeys or your local LightTools software distributor.

Note: Host IDs are unique to each method of licensing and are not interchangeable.

The following modules and add-ons require a separate license:

- LightTools Core Module

- LightTools Illumination Module

- LightTools Distributed Simulation Module

    For this module, you must have a license for each worker session, and you must have a floating license. You must also install the Intel Message Passing Interface (MPI) on each host running worker sessions that participate in simulations. MPI requires 68 MB of disk space, and the MPI executable is provided on the SolvNetPlus website Downloads page with the product software.

    For details about installing this module, see the *Distributed Simulation Module User's Guide* in the LightTools Document Library, which is included in the LightTools installation (select **Help > Document Library** or Windows Start > LightTools(64) 2025.03 > Document Library).

- LightTools Optimization Module

- LightTools SmartStart Library Module

    For details about installing this module, see the Appendix C,"Using the LightTools SmartStart Library" in the *LightTools Core Module User's Guide*, which is included in the LightTools installation (select **Help > Document Library** or Windows Start > LightTools(64) 2025.03 > Document Library).

- LightTools Advanced Physics Module

- LightTools Advanced Design Module

- LightTools Imaging Path Module

- LightTools SOLIDWORKS Link Module

- LightTools MetaOptic Design Add-on (available only with Synopsys Common Licensing)

- Image Analysis Module (available only with Synopsys Common Licensing)

For the LightTools SOLIDWORKS Link Module, you need a licensed version of SOLIDWORKS 2021 or later (with the latest service pack, if possible) installed on the same computer as LightTools.

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

About LightTools Legacy Licensing

With Legacy Licensing, 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 (Legacy Licensing)* on page 11). A floating license, which is installed on a network server, allows you to run LightTools on any computer on the same network (see *Installing and Managing the OSG Floating License (Legacy Licensing)* on page 17). The number of users that can use LightTools concurrently is limited by the licensing software.

To install LightTools with Legacy Licensing, you must have:

- A dongle provided by Synopsys and a USB2.0 (or higher) port (for Type A)

- 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 SolvNetPlus. See *Using SolvNetPlus to Obtain LightTools Software and Licenses* on page 49 for details.

About Synopsys Common Licensing

With Synopsys Common Licensing, you can run LightTools using either a *nodelocked* or *network* license. A nodelocked license allows you to run LightTools only on the computer on which it is installed (see *Installing LightTools with an SCL Nodelocked License* on page 35). A network license, which is installed on a network server, allows you to run LightTools on any computer on the same network (see *Installing and Managing an SCL Network License* on page 41).

To install LightTools with Synopsys Common Licensing, you must have:

- Synopsys Common Licensing (SCL) software, which is included in the LightTools installer. This guide provides instructions for installing SCL.

- If you will be running LightTools with a network license, you must also have:

    – TCP/IP network protocol

System requirements for a Synopsys Common Licensing *server* are available here: https://www.synopsys.com/support/licensing-installation-computeplatforms/licensing/scl-supported-os.html.

A dongle is not required with SCL, but if one is required at your site, you must have:

- A dongle provided by Synopsys and a USB2.0 (or higher) port (for Type A)

Contacting LightTools Support

Need expert help using our software?

- Open a support ticket in SolvNetPlus. Learn more about how to access and use SolvNetPlus.

- Send an email to lighttools_support@synopsys.com.

- Explore the SolvNetPlus Knowledge Base, which features searchable technical articles, example files, macros, release notes, FAQs, and more, available at any time. To access these resources, log in to SolvNetPlus, and then click this link: LightTools Support. Or, from the SolvNetPlus home page, you can click the Documentation tile, select LightTools in the list of products, and then select the LightTools Support tab.

- Visit our main Support page for an overview of how to access product learning, self-help, and other resources.

- Visit our Licensing and Installation Help page.

- View our list of global support contacts.

Know Installation Issues with the Advanced Analysis Utility

In LightTools 2025.03, the Advanced Analysis utility requires the Microsoft.NET Core 6.x framework to be installed on your computer. There are two known installation issues you might encounter because of this.

- Unable to Locate **libmmd.dll** on Windows 10

  On some Windows 10 systems, when you try to launch the Advanced Analysis utility, the Advanced Analysis window fails to open, and the following error message is displayed in the LightTools Console window. This is caused by Windows 10 not finding a .dll file that it needs.

  ```
  InstanceMainWindow: Set property
  'System.Windows.ResourceDictionary.DeferrableContent' threw an exception.
  ```

  Workaround: In the LightTools installation folder (e.g., C:\Program Files\Optical Research Associates\LightTools 2025.03), copy **libmmd.dll** from this folder:

  ```
  \Utitlities.NET
  ```

  to this folder:

  ```
  \Utitlities.NET\AdvAnalysisMF
  ```

  and then launch the Advanced Analysis utility again.

- Newer Version Prevents Installation of Required Version

When you try to launch the Advanced Analysis utility, the Advanced Analysis window fails to open, and the following pop-up windows are displayed.
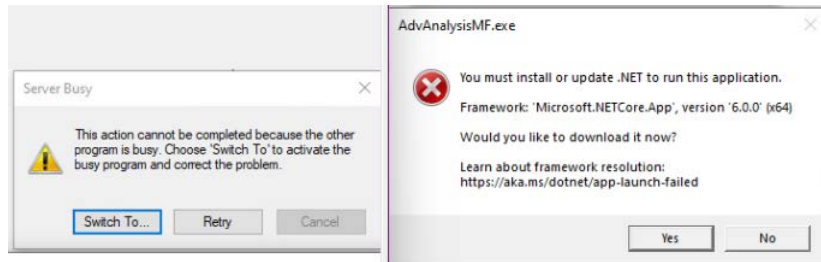
This problem occurs if you already have .NET Core 8.x installed on your machine, but not .NET Core 6.x. The LightTools installer skips the installation of .NET 6.x Core, and then Advanced Analysis will not be able to run.

Workaround: Manually install the .NET Core 6.x framework. To do this, navigate to the folder where the LightTools installation files were extracted (e.g., C:\Temp\LightTools64) and open the folder `\ISSetupPrerequisites\{DC309383-111D-478F-B7A6-3692A3F05C18}`.
Double-click the file **windowsdesktop-runtime-6.0.33-win-x64.exe** to begin the installation.
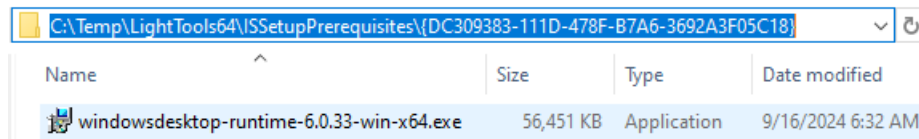
Chapter 2   Installing LightTools with a Fixed License (Legacy Licensing)

With LightTools Legacy Licensing, you can run 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. With this license, you can open up to eight concurrent LightTools sessions.

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 assumes that you have obtained license keys. If you have not done so, see *Using SolvNetPlus to Obtain LightTools Software and Licenses* on page 49.

Installing LightTools

1. Log on to your computer as Administrator.

2. Navigate to the folder where the LightTools installation file *LightTools64_202503FCS.zip* is located.

3. Right-click the file and select one of the extract options on the pop-up menu, shown in the following figure. 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.

4. When the extraction is complete, navigate to the folder to which the files were extracted.

5. Double-click the file setup.exe.

    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, click the Install button.

Note: Under some circumstances, the installation program is interrupted after the redistributable software is installed, and you must run the LightTools setup.exe file again to complete the process.

   The InstallShield Wizard is displayed.

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. By default, the first option (I have a license file for a Fixed/Nodelocked license) is selected.

10. Select one of the following options.

    – If you *have* a license key file, keep the first option selected, click Next, specify the license key file on the screen displayed, and click Next.

    – If you *do not* have a license key file, select the fourth option (Install LightTools without setting up licensing) and click Next.

    The LightTools Setup Type screen is displayed, shown in the following figure.

Note: The default option is Complete. 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.

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

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

    If you did not set up licensing in this procedure, see *Obtaining the Host ID for a Fixed License* on page 12 and *Installing a License Key for a Fixed License* on page 13 to continue.

Obtaining the Host ID for a Fixed License

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.

1. Insert the USB dongle in an active USB port.

2. Click the Windows Start button and select **LightTools > GetHostID**.
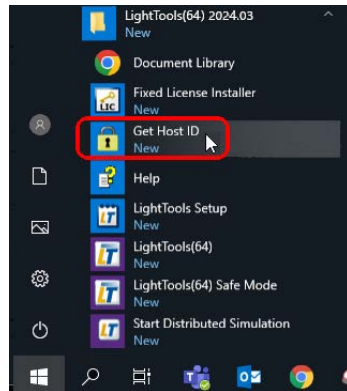
The GetHostID utility is displayed, as shown in the following figure. The Host ID is displayed below the Read Dongle Host ID button (in this example, **400*-*16TL6BDC7J3FHJN**).
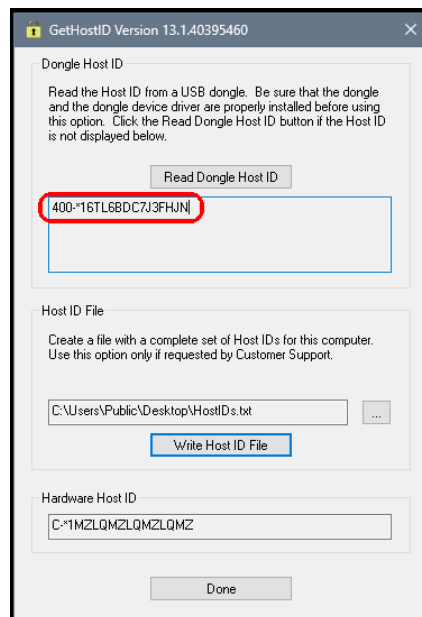
3. Copy the Host ID to use when you retrieve your license key on the Synopsys SolvNetPlus website. See *Retrieving License Keys* on page 56 for instructions.

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 13.

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 11)

• A license dongle

- A valid license key file (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 56 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 **LightTools > Fixed License Installer**
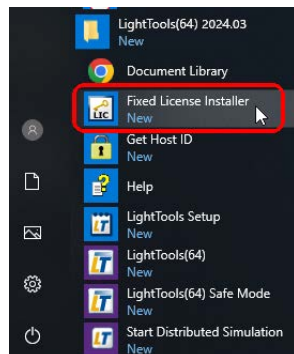
The Fixed License Installer is displayed, shown in the following figure.
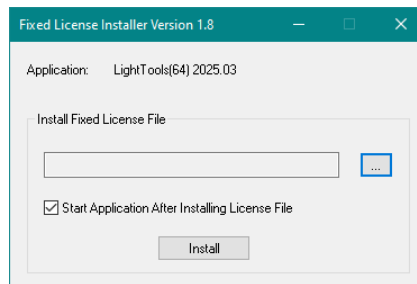
3. Click the Browse button [...].

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.
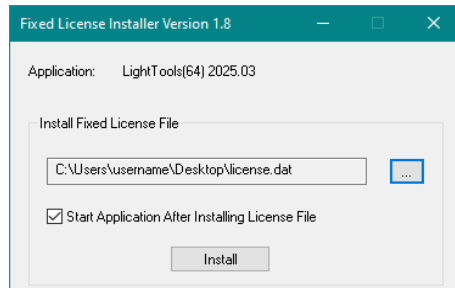
5. Click the Install button.

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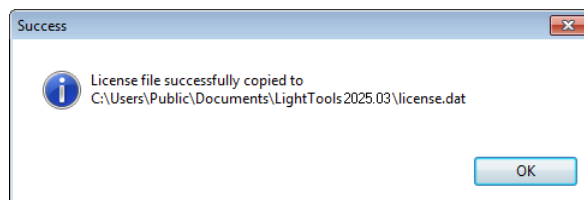
6. Click OK.

LightTools starts automatically.

Modifying License Options for LightTools Legacy Licensing

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:

      a. Click the Windows Start icon, enter *con*, and press Enter to open the Control Panel.

      b. Open the list of programs on your computer:

         On Windows 10, under Programs, click Uninstall a program.

         On Windows 11, click Programs and Features.

      c. In the Programs and Features dialog box, right-click the LightTools version you would like to modify and select Change on the popup menu.

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 screen, click the option for Change Licensing Options and click Next.

5. On the License Installation Options screen, select the desired option and click Next.

   – I have a license file for a Fixed/Nodelocked license: Allows you to provide the location and name of the license file and lets the software verify the licensing method (i.e., LightTools Legacy).

- I want to connect to a license server to use a Floating/Network Client license: Allows you to provide the license server name and lets the software verify the licensing method (i.e., LightTools Legacy).

- Let me specify the licensing method manually: Allows you to indicate the licensing method you have and then provide license file or server information.

6. Provide the location of the license file or the name of the server, depending on the option you chose.

7. Click Next.

8. 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.

9. Click Finish to close the wizard.

Chapter 3   Installing and Managing the OSG Floating License (Legacy Licensing)

With LightTools Legacy Licensing, you can run 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 for LightTools Legacy Licensing 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 use the same license management software, and their license keys will be written to the same license key file. The applications cannot share license keys; 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 17
2. *Downloading and Installing the OSG Floating License Manager* on page 18
3. *Obtaining the Host ID for a Floating License* on page 20
4. *Installing a License Key for a Floating License* on page 21
5. *Installing LightTools on Client Machines* on page 22
6. *Optional: Managing Floating Licenses* on page 25
7. *Optional: Logging Floating License Usage* on page 30

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 using the user datagram protocol (UDP). 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.

You can run the OSG Floating License Manager on the following operating systems: Windows 10, Windows 11, Windows Server 2016, and Windows Server 2019.

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 49 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 sub-steps. 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.
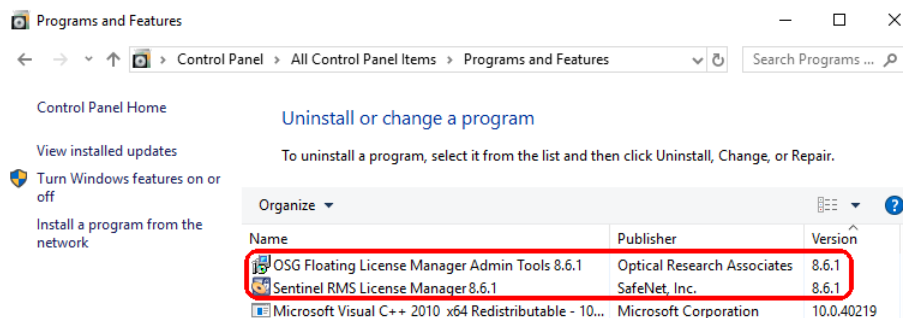
   c. Select the program to uninstall and then click **Uninstall/Change**.

   d. Follow the instructions on screen.

3. Navigate to the folder where you downloaded the OSG Floating License Manager, FloatingLM9.3_lservnt2.exe.

4. Double-click the file FloatingLM9.3_lservnt2.exe.

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

5. Click Next.

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

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

   The Ready to Install screen is displayed.

7. Click Install.

   The progress screen is displayed while the software is installed, and then the Welcome screen for the *Sentinel RMS License Manager* is displayed.

8. Click Next.

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

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

    The Customer Information dialog box is displayed.

10. Enter the information as needed for your site or accept the defaults and click Next to continue.

    The Destination Folder screen is displayed.

11. Specify a different location if needed or click Next to accept the default and continue.

    The Setup Type screen is displayed.

12. Click Next to accept Complete (recommended) and continue.

    The System Firewall Settings screen is displayed.

13. 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.

14. 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.

15. Click Finish.

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

16. Click Finish.

    The installation is complete.

17. 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 21. If you do not yet have a license key, continue with *Obtaining the Host ID for a Floating License* on page 20.

Obtaining the Host ID for a Floating License

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 **OSG Floating License Manager > GetHostID**.
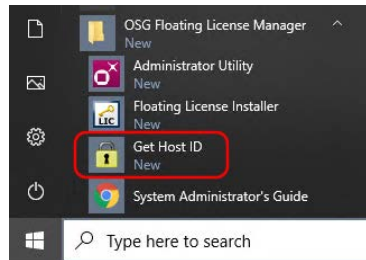
The GetHostID utility is displayed, as shown in the following figure. The Host ID is displayed below the Read Dongle Host ID button (in this example, **400*-*16TL6BDC7J3FHJN**).
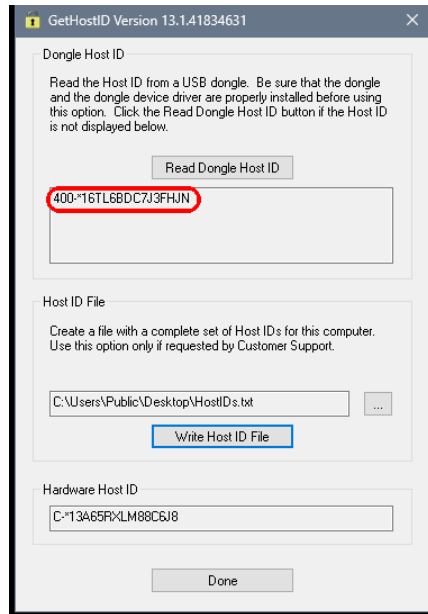
3. Copy the Host ID to retrieve your license key on the Synopsys SolvNetPlus website. See *Retrieving License Keys* on page 56 for instructions.

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 21.

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 56 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 **OSG Floating License Manager** > **Floating License Installer**.
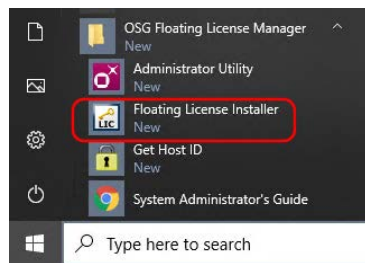
The Floating License Installer is displayed, as shown in the following figure.
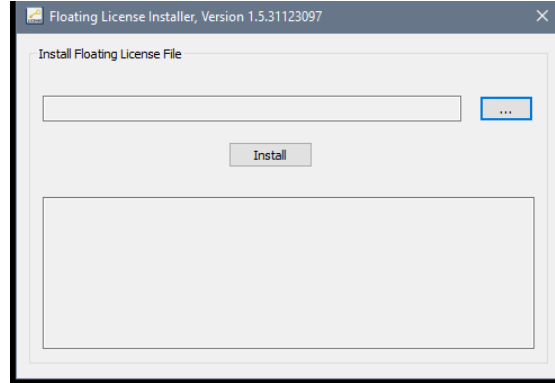
3. Click the Browse button .

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.
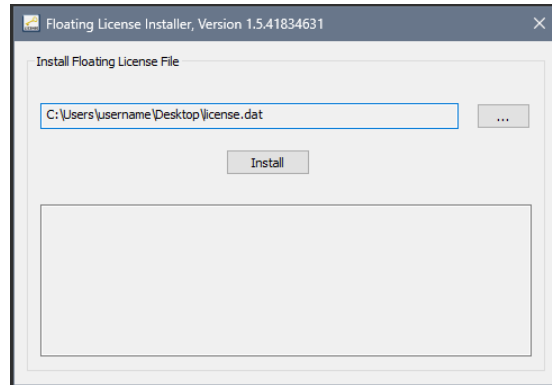
5. Click the Install button.

The license key file is installed, and the Success dialog box is displayed.
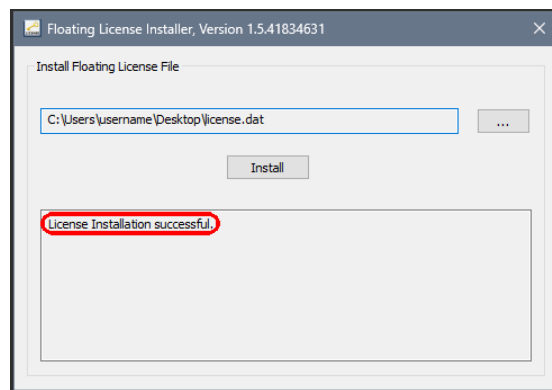
6. To close the Floating License Installer, click the X in the top right corner.

Continue with

Installing LightTools on Client Machines

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 49.

1. Log on to your computer as Administrator.

2. Navigate to the folder where the LightTools installation file *LightTools64_860FCS.zip* is located.

3. Right-click the file and select one of the extract options on the pop-up menu, shown in the following figure. 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.

4. When the extraction is complete, navigate to the folder to which the files were extracted.

5. Double-click the file setup.exe.

   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, click the Install button.

Note: Under some circumstances, the installation program is interrupted after the redistributable software is installed, and you must run the LightTools setup.exe file again to complete the process.

   The InstallShield Wizard is displayed.

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. By default, the first option (I have a license file for a Fixed/Nodelocked license) is selected.

10. Select I want to connect to a license server to use a Floating/Network Client license and click Next.

11. Enter the name of the computer on which the license manager was installed and click Next to continue.

   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. LightTools checks for a license on servers in the order in which they are listed.

   This LightTools version includes support for two licensing methods. Enter the name of your license server, as provided by your system administrator:

   ServerHostname1:ServerHostname2

   LightTools displays a message to report the licensing method indicated by the format of the server name you entered. If it is recognized as LightTools Legacy licensing, click Yes to continue; otherwise, click No and review the instructions below the input field about the correct format.

12. Click Next.

   The LightTools Setup Type screen is displayed, shown in the following figure.
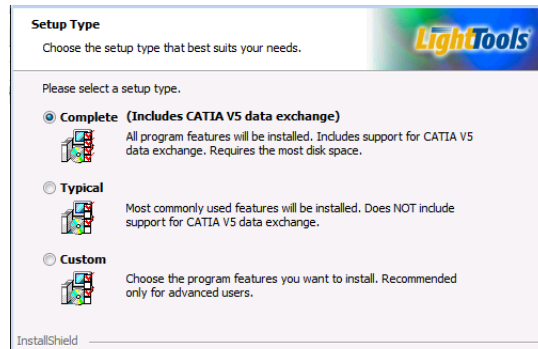
Note: The default option is Complete. During a Complete installation, all LightTools features are automatically installed, including the large CATIA V5 data exchange module. If you do not intend to license and use the CATIA V5 module, you can choose the Typical setup option to install all features *except* 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.

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 for LightTools Legacy Licensing

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:

        a. Click the Windows Start icon, enter *con*, and press Enter to open the Control Panel.

        b. Open the list of programs on your computer:

            On Windows 10, under Programs, click Uninstall a program.

            On Windows 11, click Programs and Features.

        c. In the Programs and Features dialog box, right-click the LightTools version you would like to modify and select Change on the popup menu.

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 screen, click the option for Change Licensing Options and click Next.

5. On the License Installation Options screen, select the desired option and click Next.

    – I have a license file for a Fixed/Nodelocked license: Allows you to provide the location and name of the license file and lets the software verify the licensing method (i.e., LightTools Legacy).

– I want to connect to a license server to use a Floating/Network Client license: Allows you to provide the license server name and lets the software verify the licensing method (i.e., LightTools Legacy).

– Let me specify the licensing method manually: Allows you to indicate the licensing method you have and then provide license file or server information.

6. Provide the location of the license file or the name of the server, depending on the option you chose.

7. Click Next.

8. 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.

9. Click Finish to close the wizard.

Managing Floating Licenses

In general, there is nothing that you need to do to manage 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 **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*.
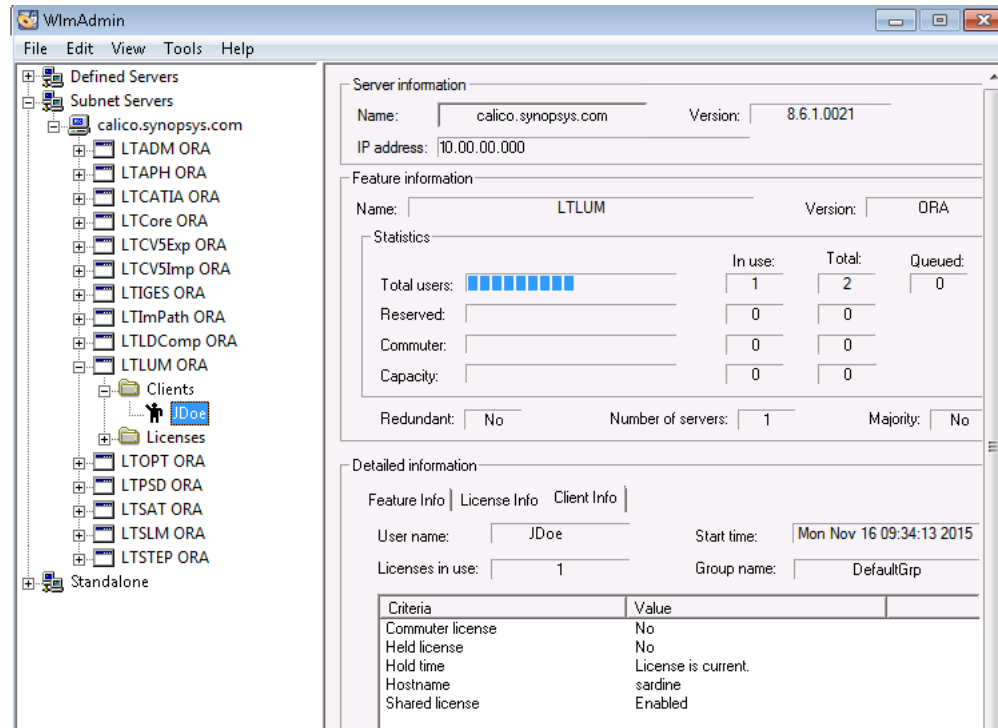
You can also use the WlmAdmin utility to obtain other licensing activity information, such as license servers detected, details on active licenses, etc. For more information about how to use the WlmAdmin utility, see the *Sentinel System Administrator's Guide*. After the Sentinel software is installed, 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 **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 Wlsgrmgr window is displayed.

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

4. Follow these steps to select a feature.
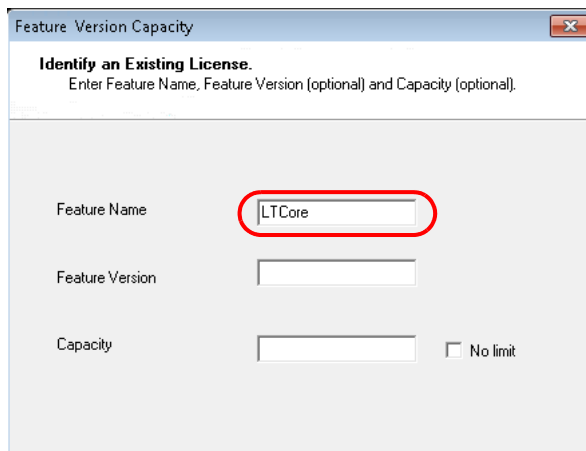
   a. Select **Feature > Add**.

      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.
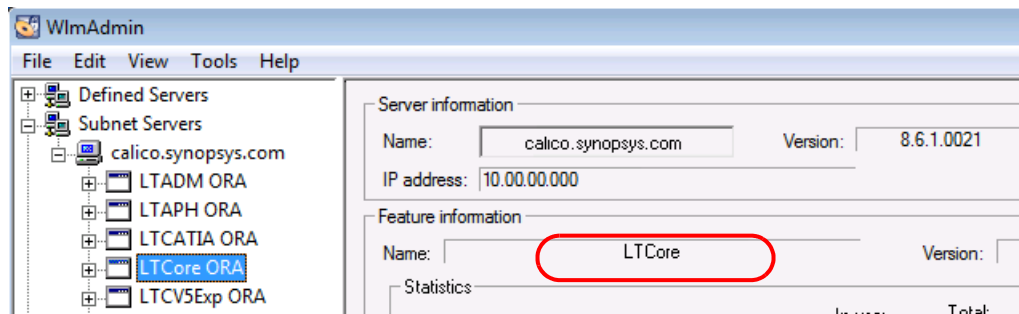
d. For the Feature Version, enter ORA (upper case).
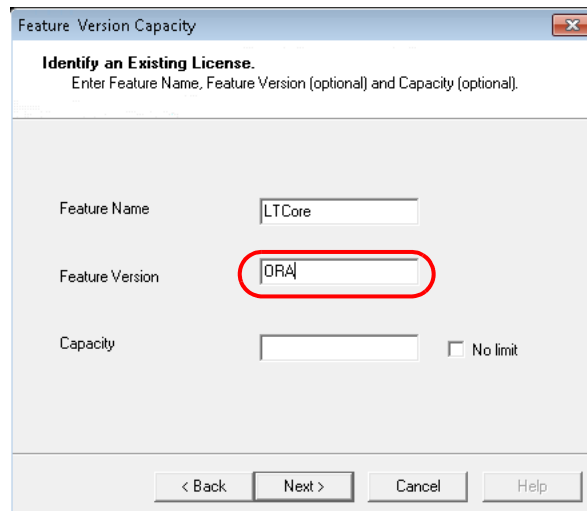
e. Click Next.

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).
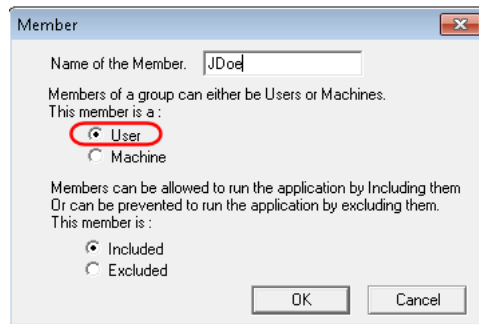
c. Select User.

d. Click Included for members who are allowed access or Excluded for members who are denied access.

e. Click OK on the Member window and repeat the process to add each user in the group.

f. Click Finish on the Members window to apply the changes and close the window.

7. Repeat the process of selecting a feature, establishing a group, and adding members for each group (steps 4, 5, and 6, above).

8. Select **File > Save As** and find the directory where the license manager is installed.

    By default, the license manager is installed in **C:\Program Files (x86)\Common Files\SafeNet Sentinel\Sentinel RMS License Manager\WinNT**. A file called **lsreserv** is created and saved at this location. The License Manager references this file to determine which users have access to each feature.

9. Restart the Sentinel RMS License Manager, as described in the following steps.

    a. From the Windows Start button, select **Start.**

    b. Right-click **Control Panel** and select Open on the pop-up menu.

    c. Click System and Security.

    d. Select Administrative Tools and then Services.

    e. Locate and right-click the Sentinel RMS License Manager service in the Services dialog box, and select the Restart option on the pop-up menu.

Logging Floating License Usage

Floating license usage is automatically recorded in the file *usage.log*. The following example shows how information is formated in this file.

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.
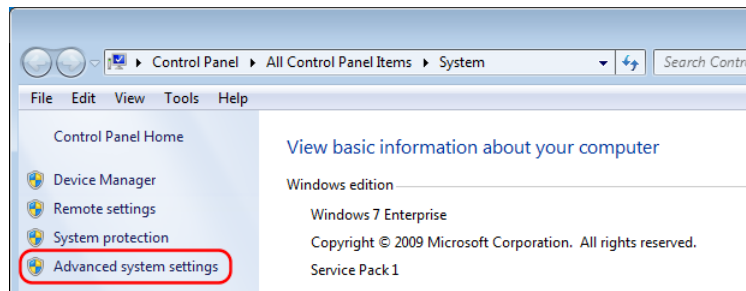
3. In the System Properties dialog box, elect the Advanced tab and click Environment Variables.
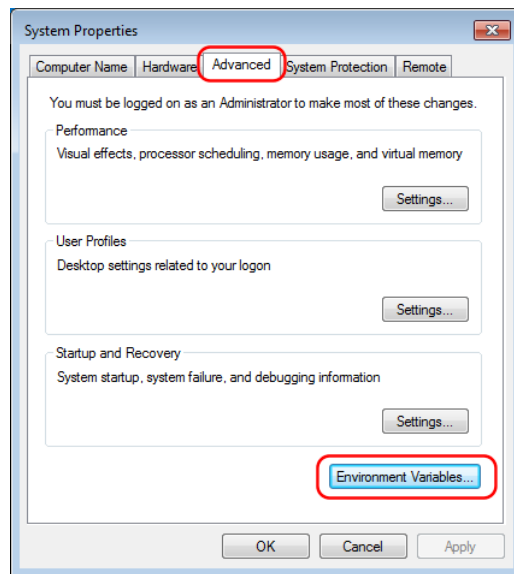
4. In the Environmental Variables dialog box, select LSERVOPTS and click Edit.
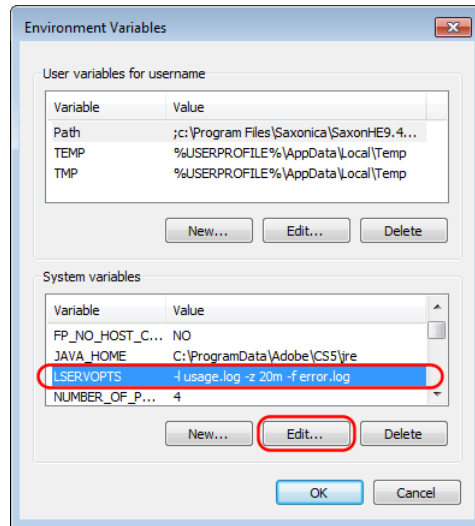
By default, the value for LSERVOPTS is

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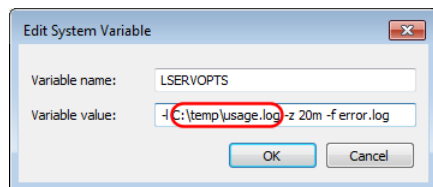
6. Restart the license manager in the services list, as described in the following steps.

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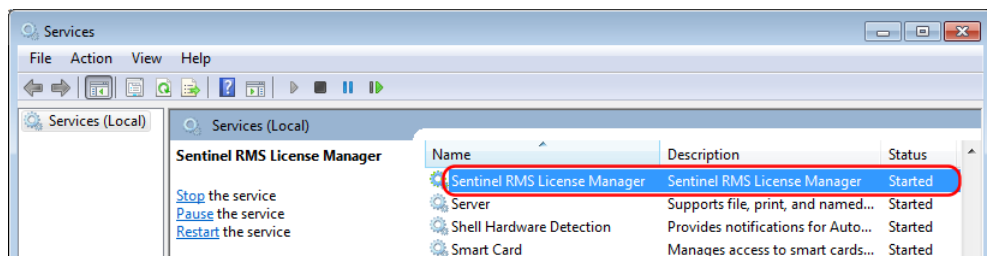
    d. Click Restart the Service option.
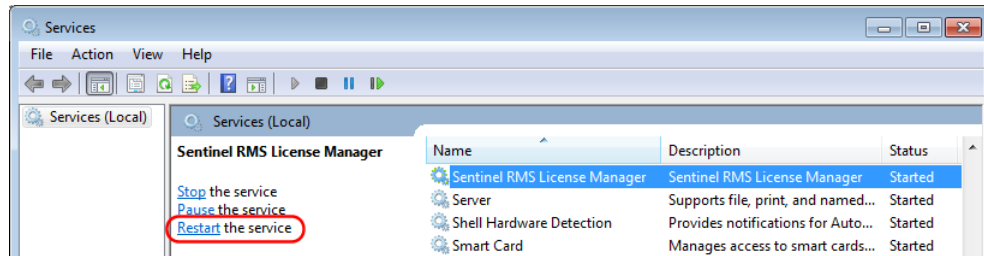
For additional information about the usage log, See the *Sentinel System Administrator's Guide*. After the license manager software is installed, this manual is available by selecting the Windows **Start** menu and selecting **Programs** > **OSG Floating License Manager** > **System Administrator's Guide**.

Chapter 4 Installing LightTools with an SCL Nodelocked License

With Synopsys Common Licensing, you can run LightTools using either a *nodelocked* license or a *network* license. This chapter describes how to install the product to run using a nodelocked license, which allows you to run LightTools only on the computer on which it is installed. With this license, you can open up to eight concurrent LightTools sessions.

Installing LightTools with a Nodelocked License

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 assumes that you have obtained license keys. If you have not done so, see *Using SolvNetPlus to Obtain LightTools Software and Licenses* on page 49.

1. Log on to your computer as Administrator.

2. Navigate to the folder where the LightTools installation file *LightTools64_202503FCS.zip* is located.

3. Right-click the file and select one of the extract options on the pop-up menu, shown in the following figure. 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.

4. When the extraction is complete, navigate to the folder to which the files were extracted.

5. Double-click the file setup.exe.

   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, click the Install button.

Note: Under some circumstances, the installation program is interrupted after the redistributable software is installed, and you must run the LightTools setup.exe file again to complete the process.

   The InstallShield Wizard is displayed.

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. By default, the first option (I have a license file for a Fixed/Nodelocked license) is selected.

10. Keep the first option selected, click Next, specify the license key file on the screen displayed, and click Next.

    The Setup - Optical/Photonic Solutions Licensing wizard is displayed and begins to install the licensing software. When the progress screen closes in the wizard, the Synopsys Common Licensing software installation is complete.

    The LightTools Setup Type screen is displayed, shown in the following figure.

Note: The default option is Complete. 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.

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

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

If you did not set up licensing in this procedure, see *Obtaining the Host ID for an SCL License* on page 36 and *Installing a License Key File for an SCL Nodelocked License* on page 38 to continue.

Obtaining the Host ID for an SCL License

A license key is associated with a unique value on your device called a *Host ID*, and it works for only one computer or USB dongle. Because of this, you need to know the Host ID for your computer or dongle before you can retrieve a license key file.

If you already have Synopsys SCL installed on your computer (from a previous version or another Synopsys product), you already have the tools for obtaining your Host ID. Go on to or *Obtaining the Host ID for a Computer* on page 37 or *Obtaining the Host ID for a Dongle* on page 37. If you do not have Synopsys SCL installed on your computer, follow these steps to install it.

1. Navigate to the folder to which the LightTools installation files were extracted.

2. Double-click the file ps_scl_install.exe.

3. The Optical/Photonic Solutions Licensing setup wizard is displayed.

4. On the License Type Setup screen, select the appropriate option (Nodelocked or Network (Server)) and click Next to continue.

5. On the next screen, leave the Location of the License Key File input field blank and click Next.

   A dialog box is displayed to inform you that you can continue without a license file, but you need to install it before using the software.

6. Click OK.

   The SCL Installer Setup screen is displayed. .

7. Leave the Location of the SCL Installer blank and click Next.

   Synopsys SCL licensing is installed.

8. Continue with *Obtaining the Host ID for a Computer* on page 37 or *Obtaining the Host ID for a Dongle* on page 37.

Obtaining the Host ID for a Computer

If you are not using a dongle, you can use the lmhostid utility installed with Synopsys Common Licensing to obtain the Host ID for your computer. Follow these steps to run the lmhostid utility.

1. Click the Windows Start button and select **Synopsys SCL > lmhostid 2022.12**.

   The Host ID is displayed in a command window, as shown in the following example.

2. Copy the Host ID to retrieve your license key on the Synopsys SolvNetPlus website. See *Retrieving License Keys* on page 56 for instructions.

   After you retrieve your license key file, go to *Installing a License Key File for an SCL Nodelocked License* on page 38.

Obtaining the Host ID for a Dongle

If you are using a dongle for Synopsys Common Licensing, follow these steps to obtain the Host ID for the dongle.

1. Insert the USB dongle in an active USB port. A light glows at the end of the dongle when it's inserted correctly in an active USB port.

2. From a command prompt, navigate to C:\Synopsys\SCL\SCL Version\win32\bin.

3. Enter the command `lmhostid -flexid`

   The following example shows a single Host ID, but the command may return multiple values (depending on your machine). You can use any single value.

   ```
   C:\Synopsys\SCL\2022.12\win32\bin>lmhostid -flexid
   lmhostid - Copyright (c) 1989-2022 Flexera. All Rights Reserved.
   The FlexNet host ID of this machine is "FLEXID=10-0abc1d34"
   ```

4. Copy the Host ID to retrieve your license key on the Synopsys SolvNetPlus website. See *Retrieving License Keys* on page 56 for instructions.

After you retrieve your license key, go to *Installing a License Key File for an SCL Nodelocked License* on page 38.

Installing a License Key File for an SCL Nodelocked License

If you didn't have or specify the location for your license key file when you installed LightTools, you can follow these steps to install it.

This procedure assumes that you have already obtained a valid license key file from the SolvNetPlus SmartKeys web page. If you have not done so, see *Retrieving License Keys* on page 56 for instructions.

Follow these steps to install your license key file.

1. If you are using a dongle for Synopsys Common Licensing, insert the USB dongle in an active USB port. A light glows at the end of the dongle when it's inserted correctly in an active USB port.

2. Start the wizard to configure licensing in either of the following ways:

   – Click the Windows Start button and select **LightTools(64)** *[version]* **> Configure Licensing (LT***[version]***)**. For example: LightTools(62) 2025.03 > Configure Licensing (LT2025.03)

   – Start LightTools. When the License Error dialog box is displayed, click the Configure Licensing button.

   The License Type Setup screen is displayed, showing the type of license specified for your computer.

3. Click Next.

   The License Key File Setup screen is displayed.

4. Enter the full path and file name or click the Browse button, navigate to the file, and select it the Windows Open dialog box.

5. Click Next on the License Key File Setup screen.

   The SCL Installer Setup screen is displayed.

6. Leave the input field blank and click Next to accept the current version.

   When the progress screen closes in the Setup - Optical/Photonic Solutions Licensing wizard, the license key file is installed and ready to use.

Modifying License Options for Synopsys Common Licensing

Nodelocked and network server license types require unique license key files, so they are not interchangeable. If you have both a nodelocked license and a network license, you can change the type of license used to run LightTools after installation.

For a network client, you can also use this tool to change the information needed to connect with the network server. Follow these steps to change the license information.

1. Click the Windows Start button and select **LightTools(64)** *[version]* **> Configure Licensing (LT***[version]***)**. For example: LightTools(62) 2025.03 > Configure Licensing (LT2025.03)

   The License Type Setup screen is displayed.

2. Select the option you want and click Next.

3. Based on your selection, do one of the following:

   – For Nodelocked or Network (Server Installation), enter or browse to the license key file and click Next. On the SCL Installer Setup screen, leave the input field blank an click Next to accept the current version.

   – For Network (Client Installation), enter the name of the server on the Network Client Setup screen and click Next.

The licensing option is updated, and the setup wizard is closed.

Chapter 5   Installing and Managing an SCL Network License

With LightTools Synopsys Common Licensing, you can run LightTools using either a *nodelocked* license or a *network* license. This chapter describes how to install the product to run using a network 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.

Each license server makes available a number of LightTools product module licenses, and each license permits you to run eight concurrent sessions of LightTools. The total number of licenses are determined by your company's license agreement. The total number of sessions may be shared across client computers.

For example, if a license server has two licenses available, and each license allows up to eight concurrent LightTools sessions, then one client computer could use eight sessions from the first license and eight sessions from the second license. If the client computer used only three sessions from the second license, then the remaining five sessions would still be available and could be used by another client computer.

Synopsys Common Licensing controls the network license capability. If you install other Synopsys Optical Solutions software products, they will use the same license management software, and their license keys will be written to the same license key file. If you are already using Synopsys Common Licensing at your site, contact LightTools Support before continuing.

> **Note:** Installing a network 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 Synopsys Common Licensing license are:

1. *Selecting a License Server* on page 41
2. *Installing LightTools with SCL Network Licensing* on page 42
3. *Obtaining the Host ID for a Dongle* on page 45
4. *Installing a License Key for an SCL Network License* on page 45
5. *Installing LightTools on Client Machines* on page 46
6. *Optional: Modifying License Options for Synopsys Common Licensing* on page 47
7. *Optional: Managing Network Licenses on page 48*

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 client machines can communicate with.

> **Note:** By default, Synopsys Common Licensing communicates via port 27020, the *server port*, as well as 27021, the *vendor daemon port*. If you will be running LightTools across different subnets, you will have to configure your routers or firewalls to allow two-way communication across your designated port. When specifying the server name for a network client, specify the server port and the server name or IP address (e.g., 27020@MyServer or 27020@123.456.78.90).

You can run the Synopsys Common Licensing server on the following operating systems: Windows 10, Windows 11, Windows Server 2016, and Windows Server 2019.

System requirements for a Synopsys Common Licensing server are available here: https://www.synopsys.com/support/licensing-installation-computeplatforms/licensing/scl-supported-os.html.

Installing LightTools with SCL Network Licensing

The Synopsys Common Licensing software is included in the LightTools installer. Follow these steps to install Synopsys Common Licensing on the computer you have designated as the license server.

1. Log on to your computer as Administrator.

2. Navigate to the folder where the LightTools installation file *LightTools64_860FCS.zip* is located.

3. Right-click the file and select one of the extract options on the pop-up menu, shown in the following figure. 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.

4. When the extraction is complete, navigate to the folder to which the files were extracted.

5. Double-click the file setup.exe.

   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, click the Install button.

> **Note:** Under some circumstances, the installation program is interrupted after the redistributable software is installed, and you must run the LightTools setup.exe file again to complete the process.

The InstallShield Wizard is displayed.

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. By default, the first option (I have a license file for a Fixed/Nodelocked license) is selected.

10. Click the box next to My license is for Synopsys Common Licensing and click Next.

11. Select Network (Server Installation)) and click Next.

The License Key File Setup screen is displayed.

If you do not yet have a license key, you can install it later. Go to step 13. When you're ready to get your license key, see *Obtaining the Host ID for an SCL License* on page 44 and *Installing a License Key for an SCL Network License* on page 45.

If you already have a license key for this product, go to step 12.

12. Enter the full path and file name or click the Browse button, navigate to the file and select it the Windows Open dialog box.

13. Click Next.

The SCL Installer Setup screen is displayed.

14. Leave the input field blank and click Next to accept the current version.

When the progress screen closes in the Setup - Optical/Photonic Solutions Licensing wizard, the installation of the Synopsys Common Licensing software is complete. The LightTools Setup Type screen is displayed, shown in the following figure.
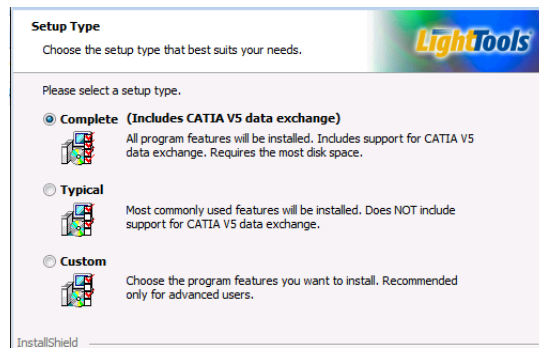
Note: The default option is Complete. During a Complete installation, all LightTools features are automatically installed, including the large CATIA V5 data exchange module. If you do not intend to license and use the CATIA V5 module, you can choose the Typical setup option to install all features *except* the CATIA V5 module, or select the Custom setup option, which allows you to manually control which features are installed.

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

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

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

Working with Synopsys Common Licensing

Although Synopsys Common Licensing is a stand-alone application with many features and utilities, the LightTools installer includes the version of Synopsys Common Licensing recommended by Synopsys Optical Solutions for working with LightTools. The LightTools installer automates the installation and configuration of Synopsys Common Licensing for you.

The complete documentation for Synopsys Common Licensing is installed with the Synopsys Common Licensing components installed with LightTools in C:\Synopsys\SCL\[*SCLversion*]\doc, and it is also available on SolvNetPlus.

Obtaining the Host ID for an SCL License

A license key is associated with a unique value on your device called a *Host ID*, and it works for only one computer or USB dongle. Because of this, you need to know the Host ID for your computer or dongle before you can retrieve a license key file.

If you already have Synopsys SCL installed on your computer (from a previous version or another Synopsys product), you already have the tools for obtaining your Host ID. Go on to or *Obtaining the Host ID for a Computer* on page 37 or *Obtaining the Host ID for a Dongle* on page 37. If you do not have Synopsys SCL installed on your computer, follow these steps to install it.

1. Navigate to the folder to which the LightTools installation files were extracted.

2. Double-click the file ps_scl_install.exe.

3. The Optical/Photonic Solutions Licensing setup wizard is displayed.

4. On the License Type Setup screen, select the appropriate option (Nodelocked or Network (Server)) and click Next to continue.

5. On the next screen, leave the Location of the License Key File input field blank and click Next.

   A dialog box is displayed to inform you that you can continue without a license file, but you need to install it before using the software.

6. Click OK.

   The SCL Installer Setup screen is displayed. .

7. Leave the Location of the SCL Installer blank and click Next.

   Synopsys SCL licensing is installed.

8. Continue with *Obtaining the Host ID for a Computer* on page 37 or *Obtaining the Host ID for a Dongle* on page 37.

Obtaining the Host ID for a Computer

If you are not using a dongle, you can use the lmhostid utility installed with Synopsys Common Licensing to obtain the Host ID for your computer. Follow these steps to run the lmhostid utility.

1. Click the Windows Start button and select **Synopsys SCL > lmhostid 2022.12**.

The Host ID is displayed in a command window, as shown in the following example.

2. Copy the Host ID to retrieve your license key on the Synopsys SolvNetPlus website. See *Retrieving License Keys* on page 56 for instructions.

After you retrieve your license key, go to *Installing a License Key for an SCL Network License* on page 45.

Obtaining the Host ID for a Dongle

If you are using a dongle for Synopsys Common Licensing, follow these steps to obtain the Host ID for the dongle.

1. Insert the USB dongle in an active USB port. A light glows at the end of the dongle when it's inserted correctly in an active USB port.

2. From a command prompt, navigate to C:\Synopsys\SCL\SCL Version\win32\bin.

3. Enter the command `lmhostid -flexid`

   The following example shows a single Host ID, but the command may return multiple values (depending on your machine). You can use any single value.

   ```
   C:\Synopsys\SCL\2022.12\win32\bin>lmhostid -flexid
   lmhostid - Copyright (c) 1989-2022 Flexera. All Rights Reserved.
   The FlexNet host ID of this machine is "FLEXID=10-0abc1d34"
   ```

4. Copy the Host ID to retrieve your license key on the Synopsys SolvNetPlus website. See *Retrieving License Keys* on page 56 for instructions.

After you retrieve your license key, go to *Installing a License Key for an SCL Network License* on page 45.

Installing a License Key for an SCL Network License

If you didn't have or specify the location for your license key file when you installed Synopsys Common Licensing, you can follow these steps to install it.

This procedure assumes that you have already obtained a valid license key file from the SolvNetPlus SmartKeys web page. If you have not done so, see *Retrieving License Keys* on page 56 for instructions.

Follow these steps to install your license key file.

1. If you are using a dongle for Synopsys Common Licensing, insert the USB dongle in an active USB port. A light glows at the end of the dongle when it's inserted correctly in an active USB port.

2. Click the Windows Start button and select **LightTools(64)** *[version]* **> Configure Licensing (LT***[version]***)**. For example: LightTools(62) 2025.03 > Configure Licensing (LT2025.03)

   The License Type Setup screen is displayed, showing the type of license specified for your computer.

3. Click Next.

   The License Key File Setup screen is displayed.

4. Enter the full path and file name or click the Browse button, navigate to the file, and select it the Windows Open dialog box.

5. Click Next on the License Key File Setup screen.

   The SCL Installer Setup screen is displayed.

6. Leave the input field blank and click Next to accept the current version.

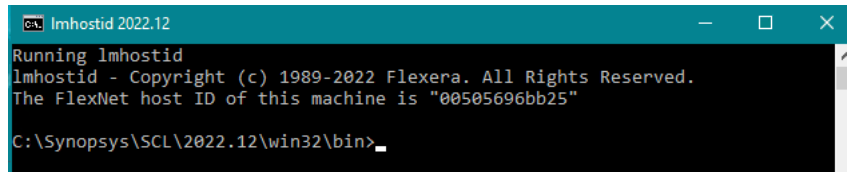   When the progress screen closes in the Setup - Optical/Photonic Solutions Licensing wizard, the license key file is installed and ready to use.

Installing LightTools on Client Machines

LightTools must be installed on each client machine where it will be used. During the installation, you select Network (Client) 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 49.

1. Log on to your computer as Administrator.

2. Navigate to the folder where the LightTools installation file *LightTools64_860FCS.zip* is located.

3. Right-click the file and select one of the extract options on the pop-up menu, shown in the following figure. 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.

4. When the extraction is complete, navigate to the folder to which the files were extracted.

5. Double-click the file setup.exe.

   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, click the Install button.

   Note: Under some circumstances, the installation program is interrupted after the redistributable software is installed, and you must run the LightTools setup.exe file again to complete the process.

   The InstallShield Wizard is displayed.

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. By default, the first option (I have a license file for a Fixed/Nodelocked license) is selected.

10. Click the box next to My license is for Synopsys Common Licensing and click Next.

11. Select the Network (Client Installation) option.

12. On the Network Client Setup screen, enter the name of the port and the computer on which the Synopsys Common Licensing Network (Server Installation) software is installed as shown in the following example.
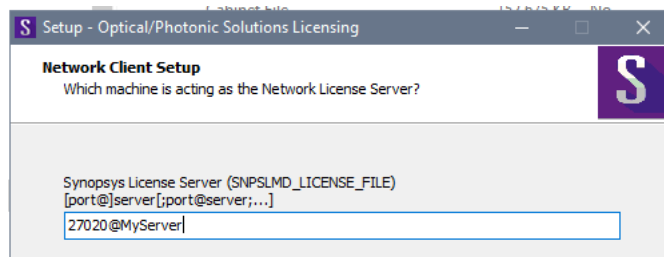
If you want to enter more than one server name, separate the names with a semicolon, as shown in the following example. The names *MyServer1* and *MyServer2* are examples; be sure to enter the names of your license servers in this field. LightTools checks for a license on servers in the order in which they are listed.
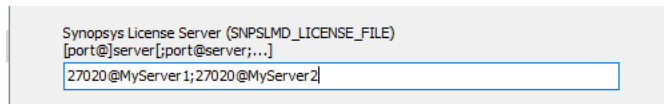
When the progress screen closes in the Setup - Optical/Photonic Solutions Licensing wizard, the Synopsys Common Licensing software installation is complete.

Modifying License Options for Synopsys Common Licensing

Nodelocked and network server license types require unique license key files, so they are not interchangeable. If you have both a nodelocked license and a network license, you can change the type of license used to run LightTools after installation.

For a network client, you can also use this tool to change the information needed to connect with the network server. Follow these steps to change the license information.

1. Click the Windows Start button and select **LightTools(64)** *[version]* **> Configure Licensing (LT*[version]*)**. For example: LightTools(62) 2025.03 > Configure Licensing (LT2025.03)

   The License Type Setup screen is displayed.

2. Select the option you want and click Next.

3. Based on your selection, do one of the following:

– For Nodelocked or Network (Server Installation), enter or browse to the license key file and click Next. On the SCL Installer Setup screen, leave the input field blank an click Next to accept the current version.

– For Network (Client Installation), enter the name of the server on the Network Client Setup screen and click Next.

The licensing option is updated, and the setup wizard is closed.

Managing Network Licenses

In general, there is nothing that you need to do to manage the network licenses. As long as the network license server machine is operational, connected to the network, and is running the Synopsys Common Licensing (SCL) service, licenses are available to clients.

Synopsys Common Licensing provides tools that enable you to fine tune how your licenses and sessions are distributed using Options files. For information about using Options Files, see "Managing the Options File" in the *FlexNet Publisher License Administration Guide*, which is installed in C:\Synopsys\SCL*[SCLversion]*\doc and available on SolvNetPlus.

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 65.

The process is described in the following procedures.

1. *Signing Up for a SolvNetPlus Account* on page 50
2. *Downloading LightTools Software from SolvNetPlus* on page 51

   or

   Ordering Media (CDs/DVDs) on page 54
3. *Installing LightTools* on page 56
4. *Retrieving License Keys* on page 56

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 51.

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

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 54 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.
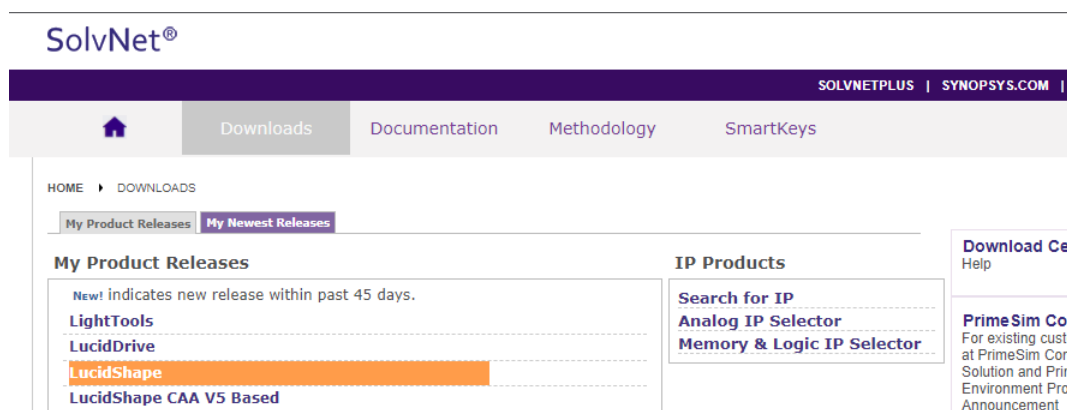
3. Select the product you want to download.
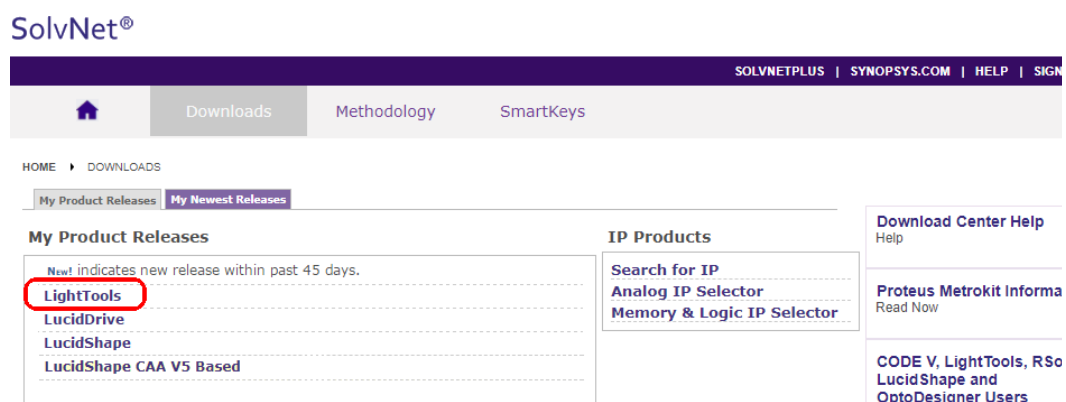
4. Select the version you would like to download.
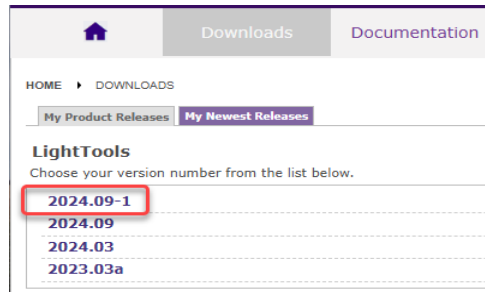
The **Download Details** page is displayed, shown in the following figure.
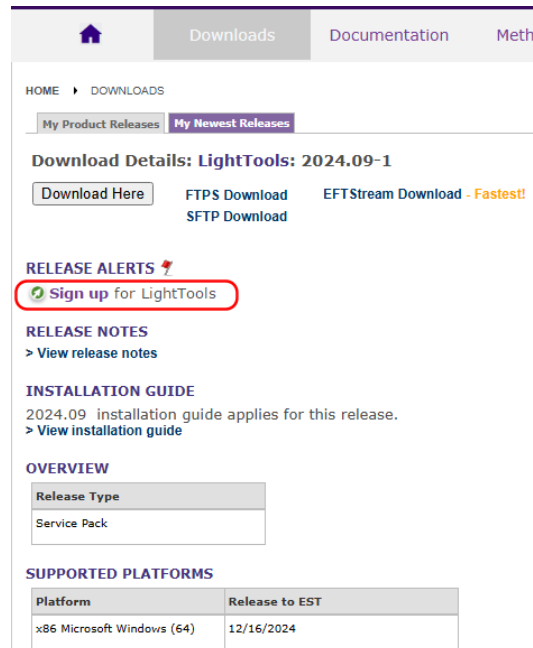
5. Under **Release Alerts**, click the **Sign Up** link to display **Release Alerts** options that allow you to subscribe to Release Notification emails from SolvNet. These emails let you know when a new version of LightTools is available for download.
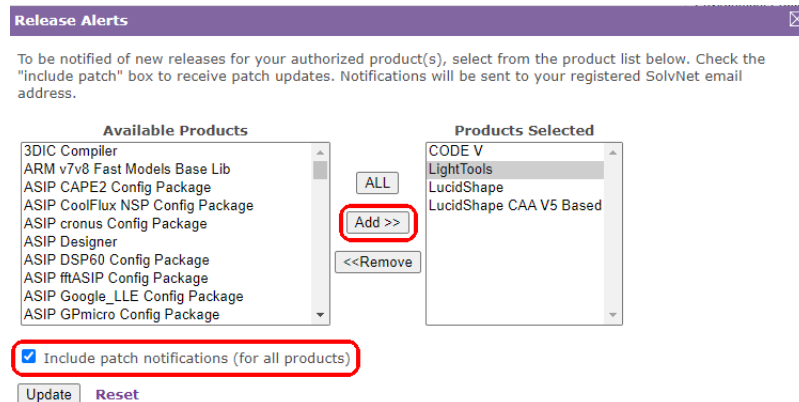
a. Click the product name for which you would like to receive notifications or click **ALL** to receive notifications for all products in the list.

b. Click the **Add** button.

c. Click the **Include patch notifications** check box. This allows you to receive notifications of service releases for the selected products.

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 2024.09-1.

– checksum_info.txt is a file used for internal purposes.

– FloatingLM9.3_lservnt2.exe is for customers using LightTools Legacy licensing with a floating license. Only the system administrator who will set up a floating license server needs to download this file. See *Installing and Managing the OSG Floating License (Legacy Licensing)* on page 17 for installation instructions.

– LightTools64_202409SR1.zip is the installation package for LightTools.

– MSMpiSetup.exe is the Intel Message Passing Interface (MPI) executable required for the LightTools Distributed Simulation Module.

Next steps:

• If you need to obtain a license key, see *Retrieving License Keys* on page 56.

• If you already have a license key, see one of the following procedures, based on the licensing you're using:

– *Installing LightTools with a Fixed License (Legacy Licensing)* on page 11

– *Installing and Managing the OSG Floating License (Legacy Licensing)* on page 17.

– *Installing LightTools with an SCL Nodelocked License* on page 35

– *Installing and Managing an SCL Network License* on page 41

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.
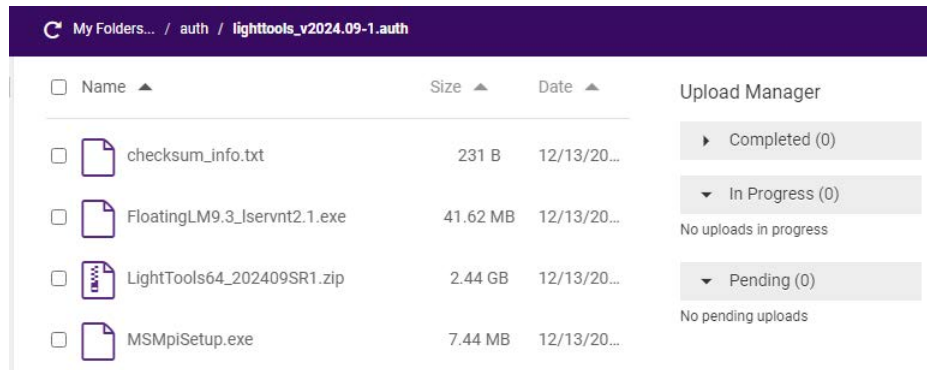
2. Click **Downloads** at the top of the page.

3. Click the **MEDIA CENTER** link.
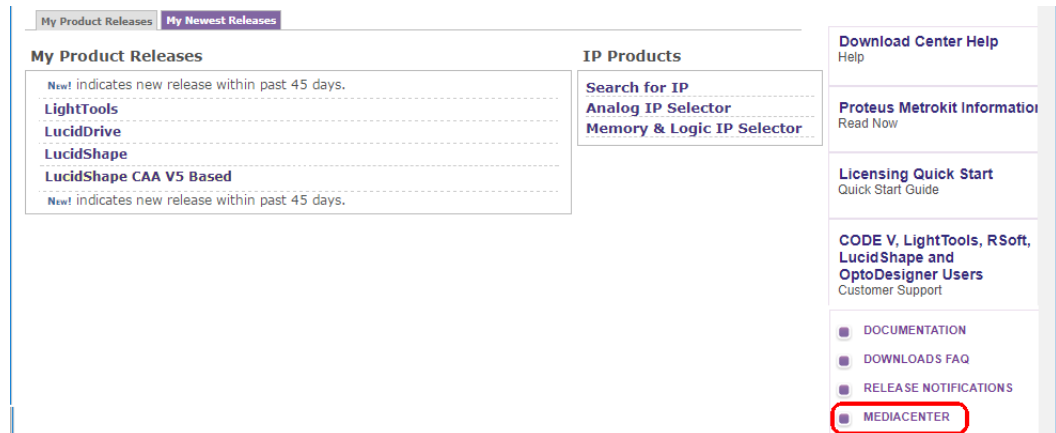
4. On the **MEDIA CENTER** page, select the product (e.g., CODE V, LightTools, LucidShape, etc.) and click the **Add** button.
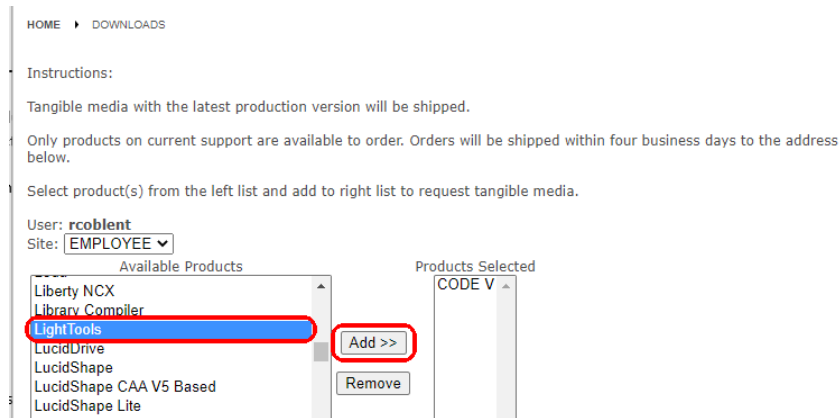
5. Complete the Shipping Address information and click **Continue**.

6. Review the shipping request, shown in the following figure, and click **Place Order**.

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	000
Products	42092-EST LightTools 9.1
Additional Information	
Email	CARYROSE@SYNOPSYS.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	
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

<< Back   Place Order

Installing LightTools

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

- *Getting Started* on page 5 - Lists LightTools system and licensing requirements and tells you how to contact LightTools Support.

- *Installing LightTools with a Fixed License (Legacy Licensing)* on page 11 - With a fixed license, you install the LightTools product, dongle, and license key file on the computer where you want to run LightTools.

- *Installing and Managing the OSG Floating License (Legacy Licensing)* on page 17 - With a floating license, you install the dongle and license key file 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.

- *Installing LightTools with an SCL Nodelocked License* on page 35 - With a nodelocked license, you install the dongle (if you're using one), Synopsys Common Licensing software, LightTools product, and license key file on the computer where you want to run LightTools.

- *Installing and Managing an SCL Network License* on page 41 - With a network license, you install the dongle (if you're using one), Synopsys Common Licensing software, and license key file on a network server and then install the product on one or more client machines where you want run LightTools.

After you install the LightTools product, continue with *Obtaining the Host ID* on page 56.

Obtaining the Host ID

A license key is associated with a unique value on your device called a *Host ID*, and it works for only one computer or USB dongle. Because of this, you need to know the Host ID for your computer or dongle before you can retrieve a license key file. Based on the licensing you're using, see one the following procedures.

for LightTools Legacy Licensing:

- Fixed license - *Obtaining the Host ID for a Fixed License* on page 12

- Floating license - *Obtaining the Host ID for a Floating License* on page 20

for Synopsys Common Licensing:

- Nodelocked license - *Obtaining the Host ID for an SCL License* on page 36

- Network (Server) license - *Obtaining the Host ID for an SCL License* on page 44

After you obtain the Host ID, continue with *Retrieving License Keys* on page 56.

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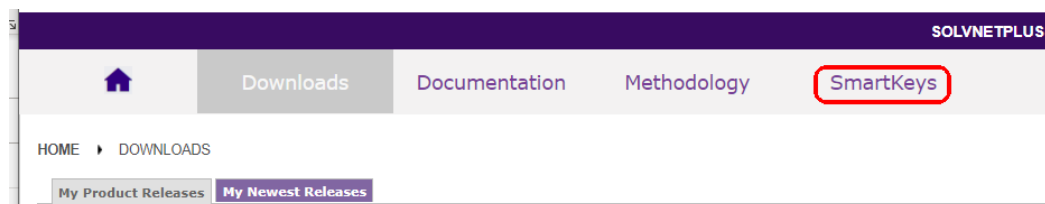
2. On the SmartKeys Home page, click the **Key Retrieval** link.
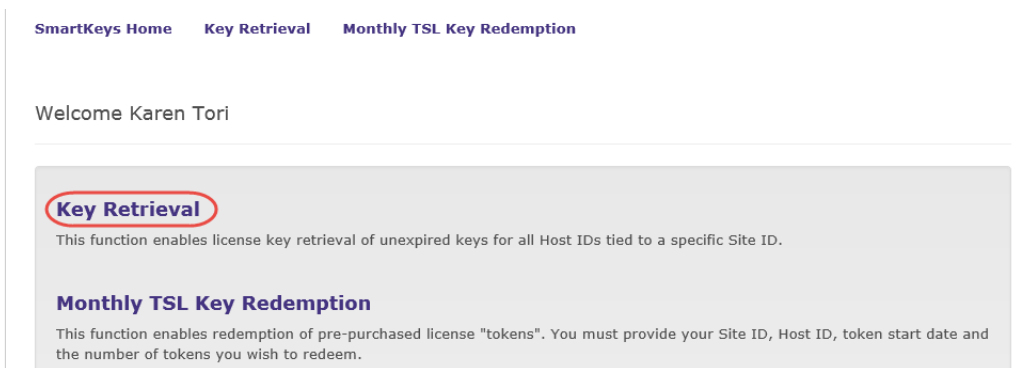
The SmartKeys Key Retrieval page is displayed.

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* on page 56.

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.

   for LightTools Legacy Licensing:

   – *Installing a License Key for a Fixed License* on page 13

   – *Installing a License Key for a Floating License* on page 21

   for Synopsys Common Licensing:

   – *Installing a License Key File for an SCL Nodelocked License* on page 38

   – *Installing a License Key for an SCL Network License* on page 45

Appendix B Troubleshooting the LightTools Legacy 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, contact LightTools Support at 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 an 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 21.

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 13 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 21. 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.

Appendix C Troubleshooting Synopsys Common Licensing

This appendix lists licensing errors that you might encounter with Synopsys Common Licensing and describes probable causes and resolutions. If you are unable to correct the problem, contact LightTools Support at lighttools_support@synopsys.com.

The LightTools installer includes the following components for Synopsys Common Licensing:

- Optical/Photonic Solutions Licensing components version 2024.09-SP1

- Synopsys Common Licensing version 2022.12

For Nodelocked and Network (Server Installation) installations, the LightTools installer configures the Synopsys Common Licensing server as the Flexlm Service 1 service.

Error messages may refer to the *flex log*, which is the log file for Synopsys Common Licensing. This is the file `flexlog.txt` in the folder `C:\Synopsys\PhotonicSolutions\2024.09-SP1\RSoft\licenses`

Synopsys Common Licensing always includes a Synopsys Common Licensing server. Even when you have a nodelocked installation, there is an instance of the Synopsys Common Licensing server running on your system. Therefore, even when you are not using a networked license, you may have issues communicating with the Synopsys Common Licensing server.
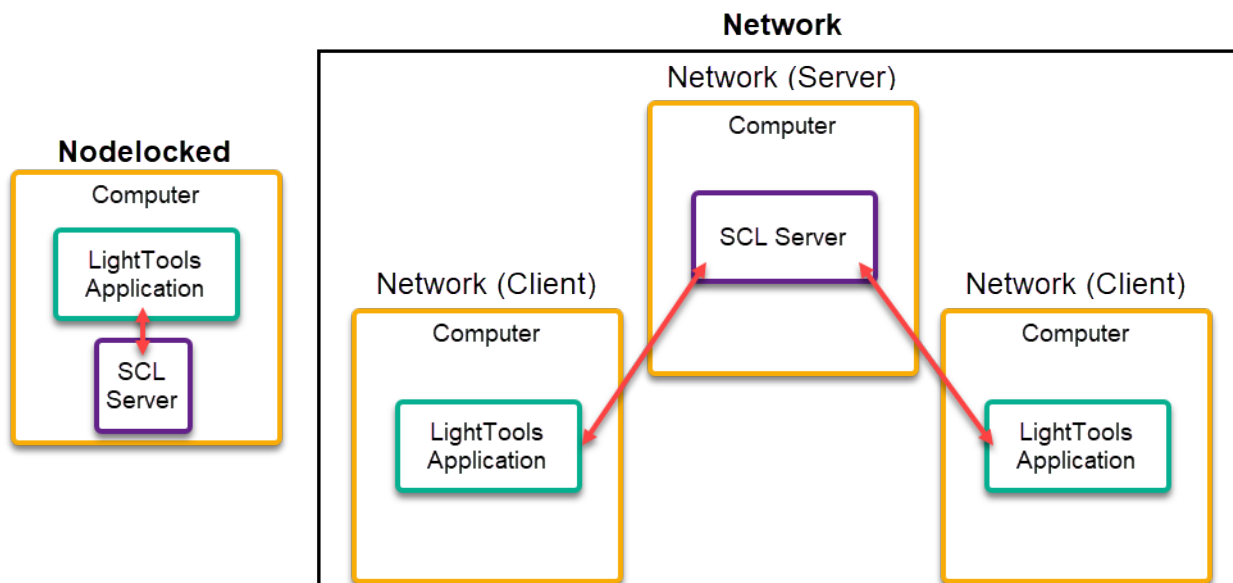
There are no remaining licenses for the requested feature

Licensed number of users already reached.

A limited number of users can use this feature at the same time, and the limit has been reached.

If you are running multiple sessions concurrently, you may have reached the maximum concurrent session limit.

For network licenses, wait for other users to end their feature usage, then try again.

To further check license usage at your site, contact your SCL license administrator.

The license does not include the requested feature

No Such Feature Exists

The license file found does not contain a valid feature for this version of the software.

Check with your LightTools administrator for the valid features.

Cannot connect to the license server system

The license is not available. LightTools cannot run due to a licensing issue.

The license server manager (lmgrd) has not been started yet, the wrong port@host or license file is being used, or the port or hostname in the license file has been changed.

This error can occur for the following reasons:

- (lmgrd) daemon is not running

  The LightTools installer configures this as the *Flexlm Service 1* service. Confirm that the Flexlm Service 1 is running on your Nodelocked or the Network (Server) system. If you cannot find the Flexlm Service 1 service, try the following:

  – Reboot the system.

  – Configure your licensing again.

    See *Modifying License Options for Synopsys Common Licensing* on page 47 to reconfigure the selected license type.

  – Contact LightTools Support.

- Wrong port/host or license is being used

  See *Modifying License Options for Synopsys Common Licensing* on page 47 to update the host name and port number for the license server.

- License file has expired.

  If your license agreement is current, you can request an updated license from SolvNetPlus or from LightTools Support.

  If you need to renew your license agreement, contact optics@synopsys.com or your local distributor.

- License file contains an invalid Host ID

  – Contact LightTools Support.

- License file is not installed

See *Modifying License Options for Synopsys Common Licensing* on page 47 to install the license file.

For nodelocked licenses, the licensing processes can be stopped in some situations and do not automatically restart; when you try to start the software, you will see an error stating that `LightTools Cannot connect to the license server system`. If this happens, you need to restart your computer to restart the licensing processes.

A connection to the Synopsys Common Licensing license manager was lost

The complete error message is:

`A connection to the Synopsys Common Licensing license manager was lost, and the application has exhausted all of its retry attempts.`

Cannot connect to license server system.

For network licenses, check your network connection to your network license server.

For nodelocked licenses, reboot your computer, then try again.

If the error persists, contact lighttools_support@synopsys.com or your local distributor.

Include the following:

• A screenshot of the License Manager Error window

• The following files from the licenses folder. (The default location is C:\Synopsys \PhotonicSolutions\2024.09-SP1\RSoft\licenses.)

  – rsoft.lic

  – flexlog.txt

The license request was denied by the network license server

This error message can be received from multiple scenarios.

• The User/Host on EXCLUDE list for feature (FlexNet Licensing error: -38, -101)

• User/host not on INCLUDE list for feature (FlexNet Licensing error: -39)

• Checkout exceeds MAX specified in options file (FlexNet Licensing error: -87)

Contact your SCL license administrator.

This error can occur for one of the following reasons:

• Max limit of users has been reached.

• You have been excluded from using this feature.

• The feature is reserved for others.

Time Tamper Error

A problem with the system clock has been detected.

The system clock is currently set incorrectly, or has been set incorrectly in the past. Contact lighttools_support@synopsys.com or your local distributor and provide a copy of the error message, including the Host ID mentioned in the error message.

LightTools cannot find the Synopsys licensing service/daemon (snpslmd)

The Synopsys licensing service/daemon (snpslmd) is either down or inaccessible. The Synopsys licensing service/daemon can terminate because of the following reasons:

- All the features have expired for this version of the software.

- The license file is corrupted.

- The license file contains an invalid server Host ID.

If you are using a network license, your connection with the computer hosting the license service/daemon may have been interrupted. Check your network connection.

Firewalls must be configured to allow the Synopsys Common Licensing server (lmgrd.exe and snpslmd.exe) to communicate on ports 27020 and 27021. If you get an error such as a -96 FlexNet Licensing error, make sure that both ports are open in any firewalls.

If you are using a nodelocked license, ensure that the Flexlm License 1 service is running.

Uninstall Synopsys Common Licensing

If instructed by LightTools Support, you can remove Synopsys Common Licensing components from a system. Note that the Remove option in the LightTools installation wizard does not remove the Synopsys Common Licensing components.

Caution: Do not remove the Synopsys Common Licensing server unless you have confirmed that no other Synopsys products are using the Synopsys Common Licensing server instance.

Follow these steps to remove the Synopsys Common Licensing components.

1. Log in to your system as an administrator.

2. Open Add and Remove Programs.

3. Uninstall Optical/Photonic Solutions Licensing.

4. Uninstall SCL *[version]*.

5. Restart the system.

6. (Optional) Delete the folder C:\Synopsys **only if you have no other Synopsys applications using that folder**.

Glossary

Fixed License	Used with LightTools Legacy Licensing. A license associated with a specific USB dongle.
Floating License	Used with LightTools Legacy Licensing. A license managed by the OSG Floating License Manager.
Host ID	A string used to identify a computer or a USB dongle. The Synopsys SmartKeys site and delivery email reference the Host ID value when license key files are requested and delivered.
LightTools Legacy Licensing	The method of licensing used in releases up to and including LightTools 2025.03. It is based on the Sentinel License Manager. Customers who are updating from previous version of LightTools can continue to use Legacy Licensing but will be required to migrate to new licensing during their upcoming renewals. Please contact your Synopsys Optical Solutions representative for trial of the new licensing method.
License Key File	A file containing the encoded license information needed to run LightTools for a specific computer or USB dongle. Note that license key files are unique for each method of licensing and are not interchangeable.
Network License	Used with Synopsys Common Licensing. A license managed by the Synopsys Common Licensing server.
Nodelocked License	Used with Synopsys Common Licensing. A license associated with a specific computer or USB dongle.
Site ID	A number used to identify a specific company. Every company that uses LightTools and other Synopsys software has a unique site ID.
SmartKeys	A page on the Synopsys SolvNetPlus website where you submit license key requests.
SolvNetPlus	The Synopsys customer portal (https://solvnet.synopsys.com). Customers who register for an account on this site can download LightTools software and licensing software, and request license keys. SolvNetPlus also provides access to technical articles, example files, macros, release notes, and FAQs, as well as product documentation, product learning, self-help, and other resources.

Synopsys Common Licensing   The license management tool used by Synopsys. This method of licensing has been available since LightTools version 2023.03. It is based on FlexNet Licensing.